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**Sustainability and Green Strategies in the Cosmetic
Industry:**

Analysis of Natural and Organic Cosmetic Products from the
value chain to final certification

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ABSTRACT

Il concetto di sviluppo sostenibile, nato in tempi abbastanza recenti, è ormai entrato a far parte del linguaggio comune delle persone, diventando una delle nozioni fondamentali del ventunesimo secolo. La prima definizione di sviluppo sostenibile venne fornita nel 1987, ed è il risultato della messa in discussione del modello neoclassico di sviluppo basato esclusivamente sulla crescita economica. La crescita continua e illimitata della produzione industriale e della ricchezza dei cittadini, perpetuata ininterrottamente nel corso degli anni, ha provocato la rottura dell'equilibrio esistente tra capitale economico, sociale e naturale, e ha fatto emergere la necessità di tutelare e gestire in maniera diversa le risorse disponibili, che altrimenti sarebbero destinate ad un veloce esaurimento. In questo conteso quindi nasce il concetto di sviluppo sostenibile, fornito per la prima volta dalla Commissione Indipendente sull'Ambiente e lo Sviluppo nel 'Rapporto Brundtland', nel quale si afferma che lo sviluppo sostenibile è quello sviluppo che soddisfa i bisogni del presente senza compromettere la capacità delle generazioni future di soddisfare i propri bisogni. In questo modo quindi la protezione e la tutela dell'ambiente diventano una condizione necessaria affinché lo sviluppo sia duraturo, e vengono riconosciuti come parte integrante dello sviluppo economico e sociale.

La sostenibilità e l'attenzione verso la tutela dell'ambiente sono diventate nel corso degli anni parte integrante della strategia di sviluppo di qualsiasi bene e servizio. Particolarmente attuale è l'applicazione di queste strategie al mondo dell'industria cosmetica che rappresenta uno dei mercati più estesi e in continua crescita. Nonostante gli effetti negativi della crisi mondiale che hanno modificato in maniera decisiva le abitudini e il comportamento dei consumatori verso l'acquisto di beni di qualsiasi tipo, l'industria cosmetica ha saputo adattarsi ai cambiamenti del mercato e, contro ogni previsione, ad acquisire nuove nicchie di mercato e ampio spazio soprattutto nei paesi in via di sviluppo che possiedono un grande potenziale.

Secondo le stime del Fondo Monetario Internazionale le vendite annuali dell'industria cosmetica superano i 300 miliardi di dollari, ed è quindi possibile affermare che il mercato cosmetico rappresenta la trentesima economia più grande al mondo. La rapida crescita che ha interessato il mondo della cosmesi negli ultimi anni è stata alimentata in maniera consistente dalle economie emergenti, che hanno contribuito a un aumento medio dei ricavi del 3,2% annuo.

Le dimensioni e la vastità di questo mercato sono evidenti, e nonostante numerosi marchi di nicchia e ancora poco affermati a livello internazionale stiano guadagnando forti consensi nel mercato, gli attori principali continuano ad essere le grandi corporazioni e multinazionali, che si impongono in maniera sempre più vasta nei mercati emergenti. Fusioni ed acquisizioni nel corso degli ultimi decenni hanno decretato il successo di grandi corporazioni quali ad esempio L'Oréal, Unilever, e Procter & Gamble, che hanno saputo investire su brand vincenti e con molto potenziale. In questo scenario, aumenta sempre di più l'importanza del ruolo svolto da nuovi operatori provenienti dai mercati emergenti come Cina, India, Corea, Brasile e Indonesia. Questi paesi rappresentano non solo dei mercati in continua crescita, ma anche degli attori fondamentali per la creazione di collaborazioni e cooperazioni economiche internazionali dove la sostenibilità è una delle basi fondanti. Il mercato cosmetico, infatti, è interessato da un evidente cambiamento che negli ultimi anni ha fatto sì che la sostenibilità diventasse parte integrante delle strategie di sviluppo della maggior parte delle compagnie cosmetiche.

Negli ultimi decenni molte case cosmetiche stanno investendo in maniera rilevante nell'ambito della sostenibilità, non solo attraverso la formulazione e la produzione di prodotti naturali e 'verdi', ma anche, e soprattutto, puntando all'utilizzo di energie rinnovabili nell'intero processo produttivo, e garantendo un minore impatto ambientale in termini di emissioni e utilizzo di materie prime. L'intera filiera dei prodotti cosmetici è quindi sottoposta a cambiamenti sostanziali in ogni sua fase, a partire dal reperimento delle materie prime necessarie, fino alla rivendita diretta al consumatore e allo smaltimento finale del prodotto. Questo processo rientra in un progetto molto vasto che coinvolge anche la dimensione etica e sociale del mondo della cosmetica. L'importanza della tutela dei diritti dell'uomo e la salvaguardia degli animali sono per esempio elementi integranti che vanno sempre considerati nello sviluppo di qualsiasi bene e servizio.

Nel corso della mia analisi quindi affronterò ogni singola fase della filiera cosmetica e spiegherò in che misura la sostenibilità ne è diventata parte integrante. Vedremo come lo sviluppo sostenibile sia contraddistinto da varie dimensioni, che coinvolgono la sfera economica, sociale, ambientale e istituzionale e come queste dimensioni interagiscono tra loro all'interno del settore cosmetico. Lo scopo principale è dimostrare in che modo tutte le fasi costituenti della filiera produttiva cosmetica siano interessate dalla

sostenibilità, e come riescano quindi a soddisfare le esigenze e le aspettative dei consumatori, sempre più consapevoli dell'importanza della tutela dell'ambiente in cui vivono.

Dopo una breve introduzione sulla storia, le innovazioni, le scoperte e gli sviluppi dell'industria cosmetica nel corso degli anni, fornirò delle nozioni di base sui concetti di 'naturale' e 'organico' applicati al mondo dell'industria cosmetica. Vedremo come in molti dei prodotti che ogni persona utilizza per la propria cura quotidiana, siano contenute in varie misure sostanze chimiche e sintetiche dannose per la nostra salute delle quali spesso siamo inconsapevoli o che non conosciamo. Di queste sostanze, che rientrano in 4 categorie fondamentali, è importante saper riconoscerne le più dannose per poterle evitare controllando attentamente le etichette dei prodotti cosmetici che si comprano comunemente al supermercato. Non sempre, infatti, la sicurezza dei prodotti disponibili all'acquisto è assicurata al consumatore, soprattutto se si tratta di sostanze chimiche presenti in percentuali molto basse.

In risposta al crescente utilizzo di sostanze chimiche utilizzate nella formulazione dei prodotti cosmetici, negli ultimi decenni si è sviluppata e affermata una tendenza crescente allo sviluppo e all'utilizzo di prodotti formulati con ingredienti naturali e organici. Vedremo come l'industria cosmetica ha risposto alle crescenti aspettative dei consumatori sempre più esigenti e consapevoli dell'importanza della sicurezza dei prodotti utilizzati, e come ha investito nella ricerca e nello sviluppo di prodotti innovativi ed efficaci.

La necessità di proteggere i consumatori e di mantenere credibilità nel mercato, ha spinto molte aziende cosmetiche all'utilizzo di vari standard e certificazioni per garantire l'affidabilità dei propri prodotti. Come vedremo nel corso dell'analisi, la regolamentazione dei prodotti cosmetici definiti 'naturali' e 'organici' è ancora oggi molto controversa. Il problema principale è dovuto alla mancanza di uniformità nell'industria cosmetica caratterizzata da una forte autoregolamentazione. Le autorità governative continuano a mantenere una posizione poco chiara riguardo alla materia, infatti nella maggior parte dei casi le definizioni ufficiali di 'naturale' esistono solamente in riferimento al settore alimentare e non al settore cosmetico. Per questo motivo i numerosi standard esistenti sono stati formulati da organizzazioni terze, e ognuno di essa presenta i propri requisiti specifici da rispettare. Negli Stati Uniti ad esempio gli standard più riconosciuti sono l'USDA National Organic Program, l'OASIS, l'NSF's Made with Organic Personal Care Standard e l'NPA Certification

Program. In Europa si sta manifestando in maniera evidente la necessità di conformare i vari standard esistenti (ECOCERT, Soil Association, BDIH, ICEA, BioForum) in un unico standard universale, il COSMOS, che stabilisce delle regole precise per la formulazione e la certificazione di prodotti cosmetici naturali e organici.

Successivamente verranno approfondite le questioni relative alla regolamentazione e al commercio dei prodotti cosmetici nell'ambito dell'Organizzazione Mondiale del Commercio (WTO). Vedremo in che modo il nuovo Regolamento Europeo No 1123/2009, e nello specifico il divieto di commercio imposto sui prodotti cosmetici testati su animali e su singoli ingredienti cosmetici testati su animali, possa rappresentare un ostacolo al commercio internazionale, violando quindi l'articolo III:4 del GATT.

Grandi controversie sono sorte e continuano a presentarsi riguardo alla pratica di testare i prodotti cosmetici sugli animali. Molti paesi continuano a perpetrare questa pratica crudele e un esempio rappresentativo è dato dal governo cinese, che impone che qualsiasi prodotto cosmetico vengano testato su animali prima di essere rilasciato nel mercato. Ciò nonostante, nel corso degli anni molte case cosmetiche hanno investito molto nella ricerca e nello sviluppo di test alternativi che non richiedono l'utilizzo di animali ma che attraverso la simulazione in laboratorio dei tessuti umani sono in grado di fornire dati precisi sulla tossicità di ingredienti potenzialmente dannosi, garantendo maggiore affidabilità, sicurezza e allo stesso tempo costi minori.

L'importanza di tale questione è evidente non solo dal punto di vista etico e morale, ma anche perché contribuisce a sua volta a far sì che venga posto l'accento anche sulla dimensione sociale della sostenibilità. Infatti, per ottenere un prodotto sostenibile è necessario investire non solo sulle pratiche riguardanti l'impatto ambientale ed economico del prodotto durante le varie fasi di produzione, ma anche sulla sfera sociale e istituzionale che ruota attorno al prodotto stesso.

Lo sviluppo e il processo produttivo dei prodotti cosmetici rappresentano una delle fasi fondamentali della filiera cosmetica, e su di esse l'industria manifatturiera ha investito molto per ridurre l'impatto ambientale e gli effetti negativi sull'ambiente dovuti all'utilizzo di materie prime non rinnovabili, all'eccessivo consumo di energia, acqua e alla produzione di rifiuti. Molte compagnie cosmetiche hanno sviluppato dei progetti di cooperazione con numerosi paesi in via di sviluppo per il reperimento e l'approvvigionamento delle materie prime necessarie nella produzione manifatturiera.

La creazione di reti di solidarietà e l'attuazione di pratiche di commercio equo-solidale, fanno sì che piccoli villaggi di contadini riescano a far fronte al proprio sostentamento ricevendo un salario fisso commisurato al lavoro compiuto. In questo modo, da un lato le comunità locali sono in grado di investire in attività locali, contribuendo allo sviluppo economico della propria società, dall'altro lato le compagnie cosmetiche che operano in questa rete reperiscono e utilizzano delle materie prime che provengono da un ambiente che viene tutelato e valorizzato attraverso la salvaguardia dei diritti dell'uomo e dell'ambiente.

Queste iniziative, riconosciute e certificate da standard attraverso l'adempimento di specifici requisiti, rispondono anche alle esigenze dei consumatori che sempre di più richiedono prodotti naturali, sostenibili e attenti alla tutela dell'ambiente.

Nella fase successiva dell'analisi, verrà evidenziato in che modo il packaging e la fase di confezionamento del prodotto finito rappresentano una delle componenti essenziali per il raggiungimento della sostenibilità. Vedremo, infatti, che il packaging rappresenta una delle fasi produttive più impattanti a livello ambientale, non solo per ciò che riguarda la produzione dell'imballaggio, ma anche per lo smaltimento stesso del prodotto nella fase finale del ciclo di vita. Tra le iniziative più importanti orientate verso la sostenibilità troviamo l'utilizzo di materiali riciclati per la produzione dell'imballaggio, la riduzione del peso e quindi l'assottigliamento del packaging stesso, che oltre ad un risparmio di materie prime evidente mantiene intatte la sicurezza e la conservazione ottimale del prodotto, la formulazione d'imballaggi biodegradabili, riciclabili, o in alternativa riutilizzabili.

Nella fase conclusiva verranno presentati la storia, lo sviluppo, e le scelte di mercato di due case cosmetiche di successo internazionale, The Body Shop e Lush. Queste due compagnie hanno fatto della sostenibilità e dell'attenzione per l'ambiente i loro punti di forza, proponendo nel mercato prodotti naturali, sani ed innovativi. Il successo e la credibilità acquisita nel corso degli anni sono il risultato di una politica orientata verso lo sviluppo di soluzioni alternative ai tradizionali metodi di produzione dei prodotti cosmetici. Un esempio di ciò è dato dalla scelta fatta da LUSH di produrre la maggior parte dei propri prodotti in forma solida, privi d'acqua, e quindi vendibili senza alcun tipo di imballaggio, risparmiando quindi energia e materie prime e garantendo al cliente un prodotto sicuro, efficace e allo stesso tempo sostenibile.

Ciò che emerge in maniera evidente dal quadro generale fornito sul concetto di sostenibilità applicato al mondo della cosmetica è la necessità di trovare una strategia

condivisa da tutte le parti coinvolte. Per strategia condivisa s'intende la consapevolezza di concepire la sostenibilità come parte integrante dello sviluppo di qualsiasi bene e servizio e non come un valore aggiunto che aumenta la qualità e l'immagine del prodotto. I problemi principali si presentano soprattutto nella sfera giuridica e normativa, poiché le questioni legate agli standard di sicurezza e conformità dei prodotti, e la gestione stessa del commercio di tali prodotti sono sottoposte a numerosi regolamenti governativi e certificazioni private che cambiano in maniera rilevante nei vari paesi. Tra tutte, la questione riguardante il commercio di prodotti testati sugli animali continua a rappresentare uno degli scogli maggiori che impedisce la definizione di una strategia comune e condivisa a livello internazionale. Oltre a ciò l'introduzione di pratiche sostenibili all'interno dell'intera filiera produttiva incontra ancora molti ostacoli da parte di numerose compagnie cosmetiche tra le quali la pratica del "greenwashing" evidenzia un apparente impegno verso la sostenibilità che si maschera dietro a campagne pubblicitarie che spesso non sono veritiere e non rispecchiano le reali iniziative intraprese dall'azienda. Le ragioni principali stanno nella difficoltà di convertire l'intero ciclo di produzione e di introdurre innovazioni relative al reperimento e all'utilizzo delle materie prime, alla riduzione delle emissioni e all'utilizzo di energie alternative. I vantaggi che si ottengono da questa conversione sono ancora più evidenti a lungo termine, e inducono i consumatori a preferire un prodotto sostenibile e attento alla tutela dell'uomo e dell'ambiente.

Questa nuova visione sta diventando sempre più consolidata e condivisa e ciò che ci si prospetta dal futuro è un graduale e ulteriore avvicinamento verso pratiche sostenibili che coinvolgono ogni settore produttivo.

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1. General Introduction

Nowadays, sustainability and attention towards the environment are fundamental parts of the development strategy of each product and service. The application of these issues to the cosmetic world is currently very much relevant.

The cosmetic industry represents a worldwide market that over the last years has gone through an impressive and rapid growth, despite the global recession's adverse effects, which have deeply changed consumers' behavior toward the purchase of goods. The industry has proven to be able to adapt to market changes and to gain new niche products and technologies, especially in developing countries, where the market has much more potential. The worldwide cosmetics' industry annual revenue would make it the 30th largest country in the world, with 1/3 of \$1 trillion (\$333 billion) in annual sales¹. Demand from emerging economies has led over the last five years to a rapid growth, with revenue increases averaging 3.2% per year.

Despite a great number of small specialized players are getting more and more space in the global beauty market, major corporations and big multinationals continue to expand and gain greater market control. Merger and acquisition have been fundamental for big corporations, which have developed their role in the worldwide market over the years. This is the case for example of Procter & Gamble's takeover of Gillette and L'Oréal's acquisition of The Body Shop. At the same time we are witnessing to the continued entry into the market of new players from growing markets, such as India, Brazil, China, Korea, and Indonesia. Brazil continues to be one of the world's strongest and with most potential beauty markets, and its profile is going to rise with the upcoming World Cup and the Olympic Games.

Latin America and emerging Asia continued to fuel the global beauty industry in 2011 and 2012, driving collectively "more than 60% of worldwide incremental retail revenue"² and are expected to remain steady. However, developed markets still play their relevant and fundamental part, especially the U.S., which posted "its best performance in more than five years on the back of strong sales of premium brands"³.

¹ www.imf.org

² www.gcimagazine.com *State of the Industry*

³ *Ibidem*

In the last decades, we are witnessing to a radical change in the formulation of cosmetic and personal care products by beauty companies, which are paying more and more attention to natural, organic, and safety claims increasingly made by consumers. People are getting more and more aware about the fact that what they put on their skin can have some negative consequences on their body's health, but at the same time they are often unaware of the health risks that are hidden in the products they buy. Synthetic substances such as allergens, carcinogens, and hormone disruptors are rather unknown to common people.

The cosmetic industry has been able to respond to changing consumers' preferences for chemical-free cosmetics formulas and to switch to natural and organic cosmetic compounds, which are replacing harmful synthetic substances throughout the entire supply chain. The beauty industry is progressively going green and is moving toward an eco-friendly and ethical dimension. The importance of sustainability is essential in order to understand how the cosmetic industry has evolved and changed throughout the years. Sustainability has become the base of a new era of capitalism, where all stakeholders and business forces have been affected in different ways and along all the entire products' life cycle. This change, for cosmetic companies, means moving towards innovative formulations, eco-friendly packaging, waste and carbon emissions reduction, research of alternative materials, but also investments on the social and ethical dimension of the beauty world. In fact, sustainability means also working on social and ethical causes, such as human rights protection and animal welfare.

Throughout my analysis, after a brief introduction about the history, the developments, and the most important discoveries of the beauty industry, I will provide some basic notions about the concepts of natural and organic.

I will explain how cosmetic products defined as 'natural' and 'organic' are regulated by governmental and private standards and certifications. The most evident problem is in fact about finding shared definitions and regulations of these notions. The global cosmetic and personal care industry is generally marked by self-regulation, and this is particularly true when it comes to define what 'natural' and 'organic' mean and how these terms should be managed. Existing standards and regulations for natural and organic are most of all formulated by non-governmental agencies, such as third-party organizations and industry associations. The result of this process is an unavoidable general confusion among consumers, which are not able to distinguish which products

are reliable and which are not. The most internationally accomplished private standards will be analysed and discussed in details.

Then we will see in what way private and governmental standards, which are fundamental in the regulation of cosmetic products, can be challenged by international devices such as WTO provisions, and in a more specific way TBT measures. Products' standards are primarily addressed by the TBT Agreement, which covers all kinds of requirements that range from product's labelling to product's safety and quality. Making reference to cosmetic products, we know that there exist different governmental regulations that deal with the issue of safety and that establish specific guidelines and requirements for the ingredients contained in cosmetic products that must be fulfilled before being put into the market. The new European Cosmetic Regulation No 1223/2009 imposes clear requirements on the composition, labelling, and packaging of cosmetic products. One of the most relevant and controversial issues about this Regulation is the ban on animal testing.

The ban on animal testing is in fact a representative and concrete example of how WTO norms and provision can affect EU decision-making at different stages.

Anyway, what emerges from this scenario is the lack of a common policy both for what it concerns the identification of certifications internationally shared and also with regards to methods that allow the verification of products' safety. Great controversies arose and continue to come out about the practice of testing products on animals, and about the new European Cosmetic Directive, which entirely bans from 2013 the use of animals to test cosmetics. The main problem therefore is about the inability to find a common international policy that protects consumers, but at the same time ensure the safeguard of animals and the environment.

Of great relevance is the application of the 3Rs (Reduce, Reuse and Recycle), pillar of sustainable development, to all levels of the value chain of cosmetic products. This means investing in environmentally conscious and sustainable practices that must become part of each company's market strategy and policy.

This means taking into account different environmental impacting factors such as water consumption, carbon emissions, and waste generation, but also social factors as investment in education and training of local communities, all fundamental for the improvement of supply chain management. Many steps forward have been made in research and innovation, as cosmetic companies are increasingly investing in sustainable practices such as reducing carbon dioxide emissions, the use of alternative

energy sources, and the development of products with lower environmental impact and with a sustainable packaging.

What is important to highlight is that sustainability is a very complex process that involves different aspects, which ranges from economic, environmental, and also social and human fields. We will see how especially social and human sustainable projects, such as fair trade practices of raw materials can become fundamental to reach a standard of sustainability. In the last years Fair Trade is becoming an essential part of the policy of more and more cosmetic companies. This phenomenon is the result of a growing consumers demand of eco-friendly, natural, and sustainable products, but also of the greater awareness of beauty brands, which understood that sustainability and fair trade are not just good practices, but are entirely part of their business strategy and products' sourcing and manufacturing process.

When it comes to consider the total environmental footprint of all the stages for the production of cosmetic products, packaging is most impacting element. Some of the focal points of sustainable packaging can be summarized in what we call 'the 5Rs': Recycling, Reusing, Replacing, Recovery, and Reducing. In order to get the higher performances and to reduce as much as possible environmental negative impact, it is fundamental that beauty brands work on each of these points. As we will see a sustainable package can be obtained in many different ways, such as through package weight reduction, ensuring the same product's efficiency without compromising safety requirements, or with the use of recycled and post-consumer materials, which generates savings on new materials, water, and energy that should be used in the manufacturing process.

In the final phase of my analysis I will focus on two case studies of green and sustainable cosmetic brands. I will introduce the history, the developments, and the market strategy of two successful cosmetic companies, The Body Shop and LUSH, which have made of sustainability and care for the environment their successful strategy. These companies represent the concrete example of how it is possible to combine in a successful way product's quality and safety and attention toward sustainability.

2. Analysis of the history of the Beauty Industry over the years until today

Nowadays, on the background of the increasingly growing globalization of the world, there are some concepts and dynamics that are becoming more and more familiar in everyday people's life. We are getting used to hear from television, newspapers, the Internet, and all other different medias that one of the most important goals for our generation, but also for future generations is the struggle for reaching "sustainable development".

One of the most frequently quoted definitions of sustainable development is from *Our Common Future*, also known as the Brundtland Report, which states: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"⁴.

Reading this definition we understand how much this phenomenon has a global and universal dimension. Sustainable development requires that we look to the world as a system made of interrelated dimensions, and that we understand that a single event occurring in a certain place of the world can have serious consequences on the entire community. One of the key elements in the debate about sustainable development is the problem of environmental changes.

What comes out is that there is a very deep interconnection between sustainability and environmental issues. In fact, environmental awareness and green policy are fundamental in every social, economic, and political strategy.

What I will try to explain through this analysis is how, and to what extent, the world of cosmetic industry is affected by sustainability and green marketing strategies. The entire cosmetic supply chain, from the initial sourcing of raw materials to the final consumer use, can have a strong impact on sustainability. So, this is the reason why it is fundamental to integrate sustainable development in the overall strategy of each company.

The importance of the beauty industry in the world economy is given by its leading role played in the market trends. Beauty is certainly, as recent studies showed, "one of

⁴ World Commission on Environment and Development (WCED), *Our Common Future*, Oxford: Oxford University Press, 1987, p.43

America's most profitable industries, just behind pharmaceuticals and software, and far above the average of all industries"⁵.

It's a common belief among people to think that cosmetic and personal care products play a very marginal role in our everyday life. Especially men believed that beauty is typically a "women's affair". But just trying to think about every person daily routine, it is clear that each of us makes a wide use of cosmetic products.

If you imagine for a moment that you are in your bathroom in the morning, beginning your daily routine, what you will firstly do is use the toilet, and then spray an air freshener. You will take a shower, using soap, shampoo, and hair conditioner. Afterward, you will stand at the mirror and apply underarm deodorant or an antiperspirant and brush your teeth. The list can go on long with other countless examples, but what is important to underline is that beauty certainly affects everyone's life.

We live in a competitive and stressful world where beauty image, unfortunately, plays a leading role. We are asked to be vital, energetic, active and always good-looking, and efficient cosmetic products are able to provide consumers daily benefits. As a consequence, cosmetics and personal care products contributes to improve people's self-confidence, since they guarantee better sanitary conditions, health and well-being.

"Today, consumers around the world spend \$ 330 billion a year on fragrances, cosmetics, and toiletries"⁶. The scale of this industry is really impressive, but its existence also raises many controversial questions. In fact, many alarms have been raised in connection with cosmetics consumption. Nowadays, people are becoming more and more aware about the different ingredients and substances that are contained and used in cosmetic products. What is under question is not only environment's protection, but also human's health. Skin is the largest organ of human body. It works as a barrier to keep fluids within the body and to protect from external environment, but it also and especially absorbs many things with which it comes into contact. This is particularly important in the case our body would be directly exposed to carcinogens that can be contained in cosmetics and personal care products.

While, when we ingest some food contaminated with carcinogenic pesticides this is absorbed by the intestines, filtered by the liver after being detoxified by enzymes, the

⁵ Geoffrey Jones, *Beauty Imagined*, p.1

⁶ Ibidem

same thing does not happen as when carcinogens are absorbed through skin, since they enter body organs without any kind of protections. So it is evident how much important it is to be aware of what substances are contained in the several products that we use every day and that we apply on our skin as an automatic routine of our day life. This is the reason why through the history of cosmetic industry we witnessed to one of the biggest trends towards organic and natural products made of innovative compounds that are replacing dangerous toxins and harmful chemical ingredients.

To better understand the different stages and developments of beauty industry it is useful to start by giving a short analysis of the history of cosmetic market.

The beauty business began its course in a very modest way, with the sale of products to a niche of consumers that were considered different from common people for their social status and for the prominent role they played in high society. The industry has gone through a deep transformation, starting as a small business that mainly regarded the knowledge of the scents and healing properties of plants, flowers and herbs that were used in religious practices, and gradually evolving into a global trend until its establishment as one of the most profitable industries.

The strength of beauty industry is based on its uninterrupted growth that has not ever been stopped by any kind of wars or economic crisis.

The very first appearance of the use of natural components as cosmetic products, dates back to the far ancient Egypt, when the last pharaoh, Cleopatra, gave rise to the creation of beauty standards that continue to affect our everyday life. During her reign from 51 to 30 BC, she was able to influence Egyptians, Greeks, Romans, and coming societies beauty taste, with her wide use of minerals and natural compounds to tint her face and fingernails. She used kohl, a mixture of burnt almonds, soot, and malachite, to shadow her eyes and to darken her lashes, and she tinted her nails with henna, a flowering plant. This tradition parallel arose in China, “where the wealthy wore nail polish fashioned from beeswax, gelatine, gum arabic, and egg whites, and only the nobility were allowed to paint their nails gold and silver, which signified the wealth of precious metals”⁷.

Also the craft of making perfume has its origin in the Greek and Roman heritage. “Roman emperors were said to have slept and bathed in a world of scent”⁸. After the fall of Rome, the ancient knowledge of fragrances survived with the Islamic

⁷ Samuel S. Epstein, *Toxic Beauty*, p. 16

⁸ Geoffrey Jones, *Beauty Imagined*, p. 15

civilizations that continued to use aromatic plants and new essential oils with healing power. Furthermore, women started to apply lead and chalk powders to their faces to show off their high rank and to look younger and healthier, being unaware of the harmful consequences of their actions. In fact, these facial powders contained lead and mercury, responsible for health's harms.

The growth of perfumery strongly developed along the reign of Louis XIV, the Sun King, when the perfumery trade gained a widespread success. This trade was deeply linked to the production of leather gloves, as they needed to be scented due to the putrid and toxic substances used to produce them. By the end of the 18th century perfumes became only one part of Parisian beauty culture, since we witness to the spread of other beauty products such as soaps, powders, rouges and hair dyes. The 19th is the century of the rise of new creative and innovative figures such as Eugène Rimmel, who started to widespread the beauty markets to new customers. The two European's most important capital cities, Paris and London, became "the headquarters of perfumery"⁹, as sales dramatically increased expanding the market of beauty. The range of available raw materials is widened and new methods of solvent extractions are developed. Science was put to the service of beauty, as organic chemists "acquired a deeper understanding of the chemistry of scent which in turn allowed them to produce the synthetic equivalents of natural scents"¹⁰. These new fragrances were revolutionary, since they allowed to create new combinations of scents, not found in nature, that were previously unknown. At the same time there were strong development in design and packaging, as the perfumery houses started to exploit the Art Nouveau style in their products.

Other markets started to grow fast. There was the entrance of Russian perfume houses among the world's largest companies, and also the United States took a prominent position in the perfume business focusing on the cheaper end of the market.

With the beginning of the new century "the French fragrance industry was further transformed by one of the beauty industry's most creative figures, François Coty"¹¹. He expanded the beauty market to a larger scale making not only perfumes, but also cosmetics, including face powders and lipsticks, accessible to everybody. He put a lot of attention to the shape and the design of perfume bottles, which started to be produced

⁹ Ibid. p.20

¹⁰ Ibid. p. 23

¹¹ Ibid. p.29

with expensive decorations, in a way that elegance and design became central in market strategies.

This was an age of general growing progress, with developments in transports, communications, international travels and trades. As a consequence also the market of beauty echoed the general trend of the rising modern society.

With the growth of fragrances market, we parallel witness to the continuous new discoveries of commercial products and services to make people look more attractive. A different attitude towards self-appearance among people, and especially women, evolved into a high demand of hair, skin, and face products. In this age where particular attention was given to appearance, women wanted to look beautiful, and modern beauty industry was at their service. “The origins of some of today’s most important beauty companies lay in the creations of brands and products designed to shape, clean, and change the colour of hair”¹². The first safe synthetic hair dye, called “L’Aurèale”, was created in 1907, in the laboratory of a French chemist, Eugène Scheller. In 1908 he changed the name in L’Oréal, and he launched into the market his innovative hair colour in three different shades. This was the beginning of what would afterwards become one of the biggest multinational beauty brands in the world.

At the turn of the century, the beauty industry boomed. During the two decades before the First World, we witness to the unveiling of an unprecedented number of creations, which would bring a revolutionary effect into the personal-care products industry. The market of skin’s creams underwent a huge widening with the discovery of the properties of petroleum derivatives that could be used in beauty industry. Robert Chesebrough created “the first petroleum jelly which was pure, odourless and safe, and he patented the name Vaseline to describe it”¹³.

The Hamburg firm of Beiersdorf launched what became the iconic skin brand Nivea, developing a mass market that would combine health claims with artifice.

In these years, many of the popular companies and best-selling cosmetic products of today were created and launched.

¹² Geoffrey James, *Beauty Imagined*, p.45

¹³ Ibid. p. 53

Here is a list of the most successful:

- 1907: the French chemist Eugène Scheller created the first synthetic hair dye and gave rise to L'Oréal.
- 1909: Max Factor, often called the father of modern makeup, opened his first store in Los Angeles.
- 1917: Maybelline founder, T.L. Williams, formulated a synthetic mascara after getting the idea from his sister Maybel.
- L'Oréal's founder invented sunscreen.

During the 1920s the American beauty market boomed. Against the background of World War I, American's position of initial neutrality allowed a wide expansion of the beauty market. "By 1919 US production of cosmetics and toiletries had reached \$60 million, whilst retail sales in the following year were nearly \$130 million"¹⁴. This is the result of the establishment of a shared cultural idea of the importance of being clean and good smelling, and with the instant association between hygiene and beauty. Soap became a mass-market product and as a consequence a lot of industries and brands arose. "Between 1926 and 1928 Colgate, Palmolive, and Peet merged. Lever Brothers merged with the largest Dutch manufacturer of margarine in 1929 to create Unilever, the largest company in Europe"¹⁵.

With the spreading popularity of photography and Hollywood films, western celebrities and actress that used makeup during their performances became the symbol of beauty and success for generations of women that wanted to have their same appearance. With the huge success of the cinema industry and its glamorous players, the consumer demand for more cosmetics and personal-care products were further fuelled by the rise of new kind of professional figures: make-up artists. Polish immigrant Max Factor, with his marketing pitch that "every girl could look like a movie star"¹⁶ played a significant role in legitimizing the use of cosmetics.

It was not just Max Factor who benefited from Hollywood glamour; these are the years of Elizabeth Arden and Helena Rubinstein, which both created a successful business in beauty salons and luxury department stores, and Coco Chanel that launched her famous

¹⁴ Geoffrey Jones, *Beauty Imagined*, p. 98

¹⁵ Ibid. p.98

¹⁶ Samuel S. Epstein, *Toxic Beauty*, p. 18

N°5 into the world market. She revolutionized the fragrance industry “with the introduction of aldehydes and other synthetics, which gave fragrances greater consistency and stability at lower cost”¹⁷.

With the extraordinary crisis of 1929, different events took place, in an overall context of deep difficulties and insecurities for the markets of the entire world. The beauty industry, as all other industries, went into shock; the production and the number of companies dramatically fell. Anyway, despite great difficulties for almost every firm, by the mid-1930s the general beauty industry was again moving upwards. “The Depression destroyed some companies and provided new opportunities to others”¹⁸.

During the Second World War, despite some firms shifted to wartime production, the industry had already become so much important that it could not be restricted. From this moment onwards the size of the markets, more and more global and trans-national, further propelled the rapid growth of beauty industry. With the spread of colour television, and fashion magazines such as *Vogue*, *Cosmopolitan*, and *Harper's Bazaar*, it took place a strong diffusion of Western, and especially American standards and way of life. As a result, cosmetic companies started to invest part of their income on advertising, in order that mass-consumers would be able to widely know their products and buy them.

Strong and established companies such as Unilever and L'Oréal used a strategy of enlargement and took-over other small brands in order to acquire a wider piece of the market. Between 1965 and 1973, François Dalle, L'Oréal's new manager and successor of Eugène Schueller, acquired Garnier, Parfums Guy Laroche, Biotherm, and Lancôme. In this way L'Oréal entered into new market's categories, such as skin care and luxury, but at the same time the mass market remained one of the main focus.

In parallel with the relentless western advance, another big giant appeared into the beauty industry's world scenario: Japan. “The scale of the growth of the Japanese beauty market in this era was almost as miraculous”¹⁹. During the Second World War the beauty business was completely eliminated in favour of the production of war materials, but in the post-war years everything changed and the business was completely rebuilt. “The market reached over \$300 million in 1966, and it was about to

¹⁷ Ibid. p. 19

¹⁸ Geoffrey Jones, *Beauty Imagined*, p. 112

¹⁹ Ibid. p. 185

become, and remain, the world's second largest beauty market"²⁰. Japanese beauty industry focused much more on innovation, research, and distribution strategies rather than price competition. Shu Uemura, Shiseido, Kanebo, and Kosé were among the most successful beauty companies. They were interpreters of American beauty ideals and beauty standards, but at the same time they developed their own market values focusing on Japanese cultural traditions. For example, Japanese customers were much more interested in buying skin care products rather than hair colour products, in clear contrast with American trends. Furthermore, there was a strong interest in skin lighteners, as pale skin was and continues to be considered emblem of beauty, while this market's sector was unknown until recent days in western countries.

This leads to state that although levels of globalization in toiletries and cosmetic products were evident, there were still a lot of regional and cultural limitations to the homogenization of the beauty market. As in other categories, although some brands gained a strong international connotation, markets continued to maintain differentiations and distinctive features.

The practice of using deodorants, for example, "was much slower to spread in Europe than in the United States"²¹. Only some few companies had been able to be globalized. Unilever, for example, succeeded in understanding that the right market strategy to adopt was to believe in local autonomy and decentralization of decision-making.

As a result, though "by the 1970s almost all of the top 30 beauty firms had some international business, a surprising number remained heavily focused on their domestic markets"²². Anyway, during the last decades of the twentieth century, the dynamics of global beauty market would deeply changed.

Between the 1960s and the 1980s huge changes occurred in the ownership of the world beauty industry. A significant number of small and medium brands were sold and acquired by other bigger and stronger industries that wanted to widen their market. In this period, the beauty industry experienced a moment of incapacity to express and establish its own identity.

What came out was the inability to manage the different fields of beauty the market, from cosmetics, to toiletries and hygiene products, in a global and unitary way. Each of

²⁰ Ibidem

²¹ Ibid. p. 213

²² Ibid. p. 233

these items need a different market strategies and distribution channels. The lack of a clear identity of the beauty industry as a whole led to a moment of general confusion.

While the beauty industry went through this moment of self-establishment, a new set of challenges arose. During the 1960s and the 1970s we witnessed to the emergence of political and social movements concerned about different issues related to the production and the use of cosmetics. Health's concern about the ingredients contained in beauty products and environment's care due to the damages caused by the chemicals used in cosmetics' production were among the most relevant matters. Going back to the past, already during Roman age there was a widespread awareness the cosmetics containing toxic mercury compounds, and powders containing lead, were very dangerous and harmful for human's health. Throughout history the ingredients used in the formulation of cosmetics changed, going towards safer ingredients, but consumer confidence was challenged. In fact, a general feeling of scepticism spread among people, giving rise to social and activist movements and changing some aspects of the industry.

A series of dramatic incidents occurred over the years, as the use of synthetic chemicals grew. In the 1930s a skin cream called Koremlu, was sold through American department store. After some research, it came out that this cream contained thallium acetate, also used as a rodent poison, and people who used it developed abdominal pain, paralysis, and blindness. The cream was removed from the market in 1932 but it continued to be available in the market for a year more. One particular significant case of harmful chemicals in cosmetics, which strikes for its gravity involved “dozens of women going blind in 1933 as a result of using Lash Lure, a synthetic aniline dye marketed as an eyelash and eyebrow colorant”²³.

In France, a talcum powder “marketed in 1972 as talc Morhange, containing hexachlorophene, killed 36 children and injured a further 240”²⁴.

It is to say that the absence of government regulations about the use of cosmetic product ingredients generated a general concern for the potential carcinogenic ingredients used in the formulation of beauty products. For this reason the interest towards the use of natural ingredients started to develop as one on the main values of some brands.

The concept of green cosmetics started on a very small scale, but as we can observe nowadays, it turned through the years into one of the most revolutionary trends of

²³ Samuel S. Epstein, *Toxic Beauty*, p. 20

²⁴ Geoffrey Jones, *Beauty Imagined*, p. 277

beauty industry. One of the pioneering firms was Biotherm, created by a French biologist in 1950, which used in his skin care products mineral water from the thermal springs at Molitg-les-Bains in the Pyrenees. Jacques Courtin-Clarins, founder of Clarins, used plants, fruits, and flowers for his salon's treatments for the body and the face. In 1954, Edmund Georg Locher funded Juvena, a new beauty company that used "natural ingredients to create light skin creams instead of heavy fatty creams"²⁵.

All of these new business ventures, despite their small dimension and influence in the global beauty market, represented a big step forward towards consumers' expectations.

The green concept developed and became recognized not only in the mass market, but also in the more exclusive world of luxury. Anyway, what was, and continues to be controversial is the lack of a clear definition and regulation of what "green" really means. In fact, very often a product is labelled as natural, just because it contains a small percentage of natural ingredients, such as plants' extract, flowers, or fruit.

It would be naïve to think that a product, defined as "natural", would be completely formulated without chemicals components, since the employment of some synthetic preservatives, for example, are essential for the safety of the product.

Some companies reacted to the "green trend" with scepticism. This was the case of L'Oréal, which supported the belief that "natural substances were often synthesized and that manufactured production allowed better quality control than did natural products"²⁶.

Anyway, despite initial cautiousness, L'Oréal's understood that it was important to invest in the green philosophy, and it experimented with natural brands. This happened with the hair care brand Kèrastase, with the launch of hair product made with plant's extract.

There are two beauty companies that with their innovative work could be defined as the most revolutionary and iconic "natural" brands of the era. These two beauty brands are The Body Shop and Aveda.

Anita Roddick, the founder of The Body Shop, opened her first shop in Brighton, in the south of England, in 1976, selling skin care and hair products that were completely hand-made with the collaboration of local herbalists, and that were packaged in very cheap containers, such as urine-sample bottles. Her inspiration came from the beauty practice of women in Tahiti and other different countries of the worlds where she travelled and where she learnt a different way to think about beauty care. The

²⁵ Ibid. p. 281

²⁶ Ibid. p. 282

innovation of her brand laid in the ability of join an entrepreneurial success of market with feminine principles of self-confidence and emancipation. Anita Roddick's success was the consequence of her conscious involvement of the green trend in a much wider context of global and social mobilization. She was a pioneer of the ethical consumer movement, and she struggled against animal testing and in favour of fair trade business practices.

Another important figure of the green revolution, but with a completely different approach to the beauty world was Horst Rechelbacher. Interested in Eastern meditation, he studied in India the use of herbs and plants for health purposes. When he came back to America he developed salon's product using essential oils from plants inspired by the Ayurvedic philosophy and aromatherapy. In 1978 he funded Aveda Corporation, "the first product, a clove shampoo, was formulated in his kitchen sink"²⁷. Rechelbacher played an important role in promoting and popularizing in the American beauty market the concept of aromatherapy, which became associated with body's health and human well-being.

Despite this isolated market's success, by the 1980s the use of green cosmetics was still limited mainly to the European market. Nevertheless, along the years, the concept of greenness would widespread including different values and strategies such as recycling, sustainability, green packaging, and avoidance of animal testing.

Going back to the social dimension of the beauty industry it is necessary to underline that during the 1960s and 1970s different social changes occurred, giving rise to an evolution of the beauty standards and strategies. With the ending of racial segregation and discrimination, and the celebration of African-American identity, a new generation of black entrepreneurs got into the beauty market.

At the same time big white-owned companies, such as L'Oréal, Maybelline, Max Factor, and Revlon understood that it was necessary to introduce into the market specific products and brands for African-American consumers. In this way, cosmetic brands began to move towards a more complex market, which started to satisfy the requests of a more heterogenic scenario where diversity of ethnicities could not be ignored anymore.

²⁷ Ibid. p. 285

Unilever, for example, “launched research project into the needs of particular ethnic groups, such as powder shampoos for South and Southeast Asia, skin lighteners, and special products for African hair and skin”²⁸.

Also advertisement’s strategies changed, as it was clear that in order to gain the global market, using only white and western models were the wrong way to represent the beauty canons and standards as a whole. For this reason, also black and Eastern women started to appear in advertisement’s campaign, reducing the ethnical gap that for several years excluded non-Western standards from the beauty market.

This change of attitude is the direct consequence of a more and more widespread globalization of the world. During the last decades, the world market radically changed with the entrance of new leading actors. The rising importance of the four non-Western economies of Brazil, Russia, India, and China (the BRICs) is undeniable. By 2008, “Brazil, China, Russia, and India were the world’s third-, fourth-, eighth-, and fourteenth-largest beauty markets, respectively”²⁹. Big cosmetic companies such as Unilever, P & G, L’Oréal and Avon saw the market’s potential capacities of developing country. Changes in geopolitical assets after the fall of the Berlin Wall in 1989, and with the end of communist regimes in Eastern Europe countries, were fundamental for the opening of new markets to global economy.

Two parallel processes took place in the globalization of developing countries’ markets. On the one hand, international western megabrands established themselves in new market acquiring small local brands and launching innovative products that could satisfy and meet the demands of the new growing middle class. On the other hand, small local brands that were present in the market exploited local ideals, traditions, and standards of beauty in order to develop their own market strategy, which satisfy consumers interested in local beauty products.

A difficult coexistence between the global and the local dimension of the beauty market can be observed during the last decades, since the homogenization of beauty standards is hampered by the strength of traditional beauty identity, especially in Eastern countries. This is the reason why megabrands entered new markets, with different and unconventional strategies, focusing on unconventional products for Western culture,

²⁸ Ibid. p. 289

²⁹ Ibid. p. 318

such as skin lighteners, and using different advertising campaigns that enhance a wider beauty realm.

It is clear that consumers welcomed many benefits of globalizations, such as science and technology innovation and development, but at the same time they are not willing to lose their identities.

The beauty industry's evolution is still ongoing and will continue to introduce innovations into our life, over the coming years. The achievements of the modern industry have radically changed people's way of looking at beauty, and have completely influenced our attitude towards the use of cosmetic and personal care products. We started from perfumes, which went through a deep transformation, since at the beginning of the 19th century they were mainly consumed orally, and used to scent gloves. Nowadays, perfumes have widely spread into the mass market, they have deeply changed their own composition getting into the world of synthetic components and they meet more and more the requests of a globalized market. In the same way, cosmetics and personal care products underwent a significant evolution throughout history. The genius of personalities such as Eugène Rimmel, Max Factor, Eugène Schueller, Elizabeth Arden, Helena Rubinstein, were revolutionary for their discoveries and for their capacities to launch new products, concepts, and ideas.

At the same time, we have also observed that the beauty world have been challenged countless times, as there are different controversial issues related to the use of cosmetic products and to the ingredients and chemicals components that are detectable in them. The health and environmental problems are some of the most debated. The use of synthetic chemicals raised different health's problems and continues to be controversial, as consumers became more aware of what they buy and are more concerned with the ingredients contained in the products they put on their face and body.

This increased awareness among people contributed to produce the necessity of a different management and regulation of the beauty business. During the 60s and the 70s the concept of "green" products started to spread, with the consequence the big brands invested their money for the formulation of new products made with plants' extracts, flowers, and essential oils. At the same time, this trend can be put into a wider context of higher attention towards environment's safeguard, sustainability, and product's value chain.

In the next steps of my analysis, I will put a lot of attention on the way in which natural and green products are defined and regulated by governments. In fact, despite the global dimension of the beauty industry, there is still the lack of a universal standard regulating cosmetic and personal care products.

The main problem is about the definition of what can be claimed as “natural” and “organic”, since there are different perspectives existing in the regulation of cosmetic products. I will also classify and analyse the harmful ingredients, very often unknown to the majority of people, which are contained in cosmetics that we use in our every-day life countless of times.

3. Harmful ingredients in cosmetic products

Nowadays, when we want to buy beauty and body care products, we have a huge choice of different brands and manufacturers, each of which promise to offer the best and most effective products a demanding consumer can ask. But what is controversial is that consumers are often unaware of the health risks that are hidden in the products they buy, since they blindly believe in the safety and goodness of what beauty brands offer to them. The starting point from which it is necessary to begin is that “at least 1/3 of personal care products contain chemical linked to cancer, and many more contain hidden carcinogens that are listed on labels”³⁰. This data could seem striking for their extent to anyone, since each of us generally has a strong confidence in the honesty of beauty brands. When consumers buy a beauty care product, they take it for granted that the advertisement written on the label tells them the truth. But this is far away from being real.

When people buy a beauty product, they are more interested in getting what they desire rather than care about if that same item can hide health or environmental risks. For example, when a woman with very curly hair goes to the supermarket to buy an hair conditioner she will care about finding a product that smooth, comb out and moisturize her hair, but she won't ask herself if the ingredients used to get her desired result are harmful or not for her health. This lack of awareness is due not only to consumer's confidence towards beauty brands, but also to the absence of knowledge about health threats posed by cosmetics and personal care products. “It's proven scientifically that chemical cosmetics are linked to disorders like dermatoid allergies, cancer, and birth defects”³¹. People often do not understand the importance of paying attention to what they put on their skin. In fact they are often unaware of the high permeability and capacity of absorption of the skin.

Skin, the largest organ of the body, is very permeable. This is the reason why carcinogens, and chemicals in cosmetics can be very harmful for our health.

We are often told that synthetic chemicals cannot impact human health since they are used in a very low dose in cosmetic products, but this is not the truth. As Stacy Malkan

³⁰ Stacy Malkan at Sustainable Cosmetic Summit, *Shifting Paradigms: Science, Policy and Consumer Preferences*, p. 4

³¹ Luiu Magdalena Csorba, Vanina Adoriana Boglea, *Sustainable Cosmetics: A Major Instrument in Protecting the Consumer's Interest*, p. 169

supports in her analysis the old adage “the dose makes the poison”³², cannot be used when it comes to carcinogenic chemicals. There are many other factors that need to be taken into account when calculating and measuring risks of chemicals. The timing of the dose, for example, is crucial because there are some periods of our life during which we are more vulnerable to external agents. This is the case of exposures occurring in the womb, during childhood or adolescence, when also low doses could be dangerous. Other important factors are the size of the person, which again makes babies more vulnerable, and the mixture of chemicals. In fact while the reaction of the body to single chemical is known, there are some substances that mixed together produce unpredictable results. Furthermore there are some parts of the body that are more vulnerable than others, such as the endocrine system, which is highly sensitive to chemicals that can block the body’s hormonal system.

The main problem is that the majority of chemicals are not regulated or assessed for risk at all. The lack of a clear regulating standard is one of the most controversial, but also still unclear issues of beauty industry. The system for cosmetic industry is too often “trust the company”, and this is especially evident in the United States, where government regulations and directives are even weaker than European ones.

Going back to question of how we can classify harmful chemicals, it is important to underline that the use and the consumption of cosmetics and toiletries is really widespread. As a result, the threat of chemicals could damage women, men, and children in the same way. Against common belief, male grooming products such as skin creams, face cleansers, hair and shave products are emerging as an attractive and vital segment of the beauty market.

The main categories of harmful chemicals, which are also the most studied, are carcinogens, allergens, penetration enhancers and hormone-disruptors. The toxicity of these substances was demonstrated by two different approaches: “from laboratory studies on animals, and from epidemiological studies, that means studies on humans”³³. Very often the results obtained from epidemiological studies were the same predicted by animal ones. This is the reason why mice and rats, the standard test animals, are

³² Stacy Malkan at Sustainable Cosmetic Summit, *Shifting Paradigms: Science, Policy and Consumer Preferences*, p. 1

³³ Samuel S. Epstein, *Toxic Beauty*, p. 26

often used to predict which chemicals can have dangerous consequences on human's health.

“About 800 industrial chemicals in current use have been shown to be carcinogenic in standard rodent tests”³⁴. The difficulty and efficiency of doing studies on humans is due to the fact that when we want to study the reaction to a single carcinogenic ingredient, in the majority of the cases people are already exposed to that same product or even to a different number of chemical products hidden in cosmetics or toiletries that are consumed in every-day life.

Anyway, epidemiological tests have been successful to demonstrate the risks associated with the use of two beauty and personal care products. It was demonstrated that women who frequently dusted talc in their genital areas or used tampons dusted with talc, were more predictable to develop ovarian cancer during pre-menopause. At the same time it came out that women who used black or dark black hair colour for prolonged periods had higher risks to have cancer.

There are also some chemical contaminants that are not intentionally added to beauty products, but are produced as a result of the direct contact with other ingredients during the manufacturing process. This is the case of “many baby soaps, baby shampoos, and bubble baths, which hide a carcinogenic contaminant called 1,4-dioxane in a range of ingredients known as ethoxylates”³⁵.

Carcinogens

The first distinction that needs to be done is between “frank” carcinogens and “hidden” carcinogens. The main difference between the two terms is that while frank carcinogens can be detected on the label of the product, since they are listed on it, on the contrary, hidden carcinogens are undetectable. In fact, their production is often the result of the contamination with other substances. This is the reason why they are not listed on labels, and they are very difficult to be recognized.

There are three major groups of hidden carcinogenic substances: Contaminants, hidden in non-carcinogenic ingredients; Formaldehyde Releasers, which produce the release of

³⁴ Ibidem

³⁵ Ibid. p. 27

formaldehyde, a frank carcinogens; Nitrosamine Precursors, which are produced after the reaction with nitrites that can be present in the product or in the skin itself.

Allergens

There are some chemicals that cause in human body a reaction called allergic contact dermatitis. This happens because the skin reacts through the immune system to substances that with a regular use and exposition proved to be harmful. It is to say that people do not react to allergens all in the same way, in fact what could produce a sudden and instant allergic reaction to one person, can be apparently harmless to another. When the skin comes into contact with products that contain chemicals substances, the first symptoms occur within 24/48 hours, nonetheless the reaction can appear also after a week of exposure. Some of the most common reactions to allergic substances are skin redness, scaly patches of skin, blisters, skin burning or itching, hives, and swelling.

Very often we can read on some products labels the terms “hypoallergenic”, “allergy tested”, or “safe for sensitive skin”. But what we don’t know is that these terms are often misleading, as manufacturers, especially in the United States, are not required to do any skin tests to demonstrate and to prove what they write on their products.

Penetration Enhancers

Penetration enhancers are substances that increase skin permeability altering the top layer of the skin, the stratum corneum. They alter and decrease the resistance of the stratum corneum to allow substances to penetrate more rapidly up to the lower layers of the skin. They are widely used in some creams to increase the moisturization of the skin, or in some face and body peeling to deeply exfoliate the skin, which will look fresher and newer. The dangerousness of these substances is given by their potential to penetrate other substances to the lower levels of the skin. In fact, it is clear that if these substances are dangerous for the skin, penetration enhancers producing an higher absorption, make them even much more harmful.

Hormone Disruptors

A wide range of functions of human body is regulated by hormones. They are produced by the endocrine system, which includes the testes, for men, and the ovaries for women, the pituitary, the thyroid, the pancreas and other parts of the body. Hormones, then, are sorts of chemical messengers hidden into the blood, which communicate among different human body's systems. Hormone disruptors are chemical substances that interfere with the body's natural hormones, altering their normal production, transport, and life cycle. Some of the most commonly known hormone disruptors are Phthalates, Bisphenol-A (BPA), and DDT. The six major classes of hormone disruptors include preservatives, detergents, metalloestrogens, lavender and tea tree oil, and sunscreen ingredients. The first class, preservatives, is one of the most known, since it contains, among other substances, parabens, which are starting to be quite popular and well known among people. Parabens, which include ethylparaben, methylparaben, propylparaben, benzylparaben, and butylparaben, are commonly used in most of the cosmetic and personal care products that are available on the market. There are numerous controversial studies that demonstrate that parabens interfere with the natural estrogens present in human body. "The level of their hormonal effects vary widely, from the most potent, butyl, which can affect the human body at levels 100,000 times lower than natural estrogens, to the less potent methyl"³⁶.

The majority of the substances that have been classified under these 4 categories are rather unknown to common people. Nevertheless, in recent years people learnt to pay more attention to some of these substances, since in the label of some beauty products it is common to read "parabens free" or "formaldehyde free", especially in skin creams and nail polishes respectively. Rather than analyse every single chemical components, when we decide which product to buy, it is important to have in mind the most dangerous things to avoid. In fact, for a common person it is hard to remember all the name of harmful ingredients, or potential harmful ingredients, especially for the difficulty of the names themselves written on the label of the products.

It is possible to sum up in this list the most important chemicals that should be avoid when buying cosmetic and personal care products:

³⁶ Samuel S. Epstein, *Toxic Beauty*, p. 74

- Phthalates: one of the most dangerous ingredients that could be found in many cosmetics such as nail polishes, tanning agents and hand rinse solvents, is a sort of industrial plasticizer called Phthalates. “They are banned in a majority of countries, excluding the United States”³⁷. They are used also as a frequent component of fragrances in air fresheners, detergents, and cleaning products. Since they can be added to fragrances without being listed on products’ labels, their use is really widespread. The most important reason of concern for the presence of phthalates in beauty products is due to the fact that they interfere with the reproductive system disrupting and reducing the level of sex hormones in human body.

- Parabens: used as preservatives to prevent the growth of microbes, they are mostly found in personal care products that contain a high amount of water, such as shampoos, conditioners, facial and body cleansers, and scrubs. Some traces of parabens can be detected also in deodorants and nail polish. While there are some concentration limits for each parabens, there aren’t clear recommendations to regulate the use of multiple parabens in a single product. The use of products that contained parabens is linked to breast cancer, endocrine disruption, reproductive toxicity, neurotoxicity, and skin irritation.

- Triclosan: it is an antimicrobial agent that is used in a wide variety of cosmetics and personal care products, such as soaps, deodorants, detergents, toothpastes, and mouthwashes. It was initially developed as a surgical scrub for medical use, but recently, its use has been widened to many products to kill bacteria and prevent odours. Triclosan and its chemical related cousin triclocarbon have been proved to cause several hormonal effects on human body. It is proved their impact on thyroid function and thyroid homeostasis. The use of products containing tryclosan is also linked to allergies, asthma, eczema, and especially to resistance to antibiotic medications because of its antibacterial potential. Since a big amount of the products that contained triclosan are daily washed down by consumers into residential drains, the high amount of triclosan contained in

³⁷ Luiela Magdalena Csorba, Vanina Adoriana Boglea, *Sustainable Cosmetics: A Major Instrument in Protecting the Consumer’s Interest*, p. 169

waters negatively impacts also the environment. “Triclosan interacts with free chlorine in tap water and degrades under sunlight to produce chloroform and other carcinogenic and highly toxic chemicals known as dioxins”³⁸.

- Lead, Mercury and other metals: they can be found in a variety of beauty and personal care products such as lipsticks, whitening toothpastes, eyeliners, and nail polishes. They can occur in beauty products as intentional ingredients or as contaminants. At high accumulation these metals can have negative effects to human body linked to cancer, nervous system toxicity, respiratory toxicity, and hormonal changes
- Formaldehyde: is used as a preservative, primarily in nail polishes, nail glues, hair gels, but also shampoos and liquid body soaps. It causes allergic skin reactions and cancer if inhaled. Although the concentration of formaldehyde in beauty care products is generally low, it can nonetheless produce strong reactions in people with formaldehyde sensitivities.
- Hydroquinone: it is one of the most toxic ingredients used in cosmetics. It is mainly present in skin lightener products and it works by decreasing the production on melanin pigments in the skin. Hydroquinone mainly affects women on colour, which are the main users of skin lighteners in order to reach a specific standard of beauty where light skin in synonym of perfection. Its used is linked to skin cancer, but also to a skin condition called ochronosis, which makes skin become dark and thick.

³⁸ Samuel S. Epstein, *Toxic Beauty*, p. 75

In the following tables the four categories of the most important harmful chemicals are described in details³⁹.

Table 1: Frank Carcinogens

Acesulfame	DEA cocamide condensate
Acrylamide	DEA oleamide condensate
Aspartame (NutraSweet)	DEA sodium lauryl sulfate
Auramine	Diethylhexyl phthalate (DEHP)
Bisphenol-A (BPA)	Dioctyl adipate
Butadiene	Disperse blue 1
Butyl benzyl phthalate	Disperse yellow 3
Butylated hydroxyanisole (BHA)	Formaldehyde
Chromium trioxide	Glutaral
Coal tar dyes	Hydroquinone
• D&C	Lead
• Green 5	Limonene
• Orange 17	Metheneamine
• Red 3, 4, 8, 9, 17, 19, 33	Methylene chloride
• FD&C	Mineral oils
• Blue 2	Nitrofurazone
• Green 3	Phenylenediamines (following oxidation)
• Red 4, 40	Pyrocatechol
• Yellow 6	Saccharin (Sweet'N Low)
Cobalt chloride	Silica (crystalline)
Cyclamates	Talc (powder)
Diaminophenol	Titanium dioxide (powder)
Diethanolamine (DEA)	

³⁹ Tables from Samuel S. Epstein, *Toxic Beauty*

Table 2: Hidden Carcinogens

CONTAMINANTS	
Ingredient	Contaminated With
Acrylate and methacrylate polymers	Ethylhexyl acrylate
Amorphous silicates	Crystalline silica
Alcohol ethoxylates <ul style="list-style-type: none"> • Laureths • Oleths • Polyethylene glycol (PEG) • Polysorbates 	Ethylene oxide, 1,4-dioxane
Butane	Butadiene
Coal tar dyes	Arsenic, lead
Condensates and quaterniums	DEA
Glyoxal and polyoxymethylene urea	Formaldehyde
Lanolin	Organochlorine pesticides, PCBs, cetareths
Petroleum	Polycyclic aromatic hydrocarbons
Phenol ethoxylates <ul style="list-style-type: none"> • Nonoxynols • Octoxynols 	Ethylene oxide, 1,4-dioxane
Polyacrylamide and polyquaternium	Acrylamide

FORMALDEHYDE RELEASERS
Diazolidinyl urea DMDM-hydantoin Imidazolidinyl urea Metheneamine Polyoxyethylene Polyoxymethylene Quaterniums Sodium hydroxymethylglycinate
NITROSAMINE PRECURSORS
Brononitrodioxane (nitrite donor) Bronopol (nitrite donor) Cocamidopropyl betaine DEA and fatty acid condensates DEA sodium lauryl sulfate Diethanolamine (DEA) Morpholine Padimate-O Quaterniums Sarcosine Triethanolamine (TEA)

Table 3: Allergens

IN HAIR PRODUCTS	
Shampoos	Formaldehyde, fragrances, lanolin, solvents, surfactants
Hair dyes	p-Phenylenediamine (ppd), p-toluenediamine
Waving solutions	Ammonium thioglycolate, glyceryl thioglycolate
IN NAIL PRODUCTS	
Artificial nails	Methyl methacrylate
Nail base coats	Phenol formaldehyde resin
Nail varnishes	Resins (aryl sulfonamide, formaldehyde, methyl methacrylate)
Nail hardeners	Formaldehyde
IN COSMETICS	
Lipsticks	Castor oil, colophony, pigments (e.g., eosin, azo dyes, carmine), perfumes, preservatives, propyl gallate
Eyebrow pencils	Pigments
Eye shadows	Colophony, preservatives (e.g., parabens, triclosan), pigments
Mascaras	Colophony, preservatives (e.g., triclosan, parabens), pigments
IN OTHER PRODUCTS	
Deodorants	Fragrances (e.g., cinnamic salicylate, jasmine, methyl anisate, balsam of Peru)

Shaving products	Propylene glycol
Depilatories	Thioglycolate
Toners	Arnica, coumarin, lanolin, oak moss
Face creams	Benzyl alcohol, lanolin, cetyl alcohol, parabens, propylene glycol, stearic acid
Sunscreens	Benzophenone-3 (oxybenzone), benzyl salicylate, coumarin, para-aminobenzoic acid (PABA)
COLORANTS	
2,5-Toluene diamine	FD&C Red 2
3,4-Toluene diamine	FD&C Blue 2
Acid Blue 9	FD&C Yellow 6
Acid Orange 3	Henna
Acid Yellow 6	p-Phenylenediamine (ppd)
Acid Yellow 10	Red 22
Acid Yellow 17	Red 2G
Acid Yellow 23	Resorcinol
PRESERVATIVES	
Benzalkonium chloride	Imidazolidinyl urea
Butylated hydroxyanisole	Metheneamine
Diazolidinyl urea	Methyldibromoglutaronitrile
DMDM hydantoin	Parabens
Ethylenediamine	Quaternium-15
Ethyl methacrylate	Thimerosal
Formaldehyde	

Table 4: Penetration Enhancers

GENTLE DETERGENTS

Diethanolamine (DEA)

Monoethanolamine

Triethanolamine (TEA)

HARSH DETERGENTS

Bisabolol

Disodium ethylenediamine tetra-acetic acid (Disodium EDTA)

Ethylenediamine tetra-acetic acid (EDTA)

Glyceryl laurate

Sodium lauryl sarcosinate

Sodium lauryl sulfate

HYDROXY ACIDS

Alpha Acids

Alpha-hydroxy acid

Alpha-hydroxycaprylic acid

Alpha-hydroxyethanoic acid

Alpha-hydroxyoctanoic acid

Glycolic acid

Glycolic acid and ammonium glycolate

Glycomer in cross-linked fatty acids and alpha nutrium

Hydroxycaprylic acid

L-alpha-hydroxy acid

Lactic acid

Mixed fruit acid

Palmitic acid

Poly-alpha-hydroxy acid

Sugar cane extract

Tri-alpha-hydroxy acid

Triple fruit acid

Beta Acids

Beta-hydroxybutanoic acid

Salicylic acid

Trethocanic acid

Tropic acid

Alpha and Beta Acids

Citric acid

Malic acid

SUNSCREENS

Benzophenone-3 (Bp-3), or Oxybenzone

Octyl-methoxycinnamate

NANOPARTICLES

Table 5: Hormone Disruptors

PRESERVATIVES

Parabens

- Benzylparaben
- Butylparaben
- Ethylparaben
- Methylparaben
- Propylparaben

Resorcinol

Triclocarban

Triclosan

DETERGENTS (SURFACTANTS)

Disodium ethylenediamine tetra-acetic acid (Disodium EDTA)

Ethylenediamine tetra-acetic acid (EDTA)

Phenol ethoxylates

- Nonoxynols
- Octoxynols

SOLVENTS (PLASTICIZERS)

Bisphenol-A (BPA)

Butylbenzene phthalate (BBP)

Dibutyl phthalate (DBP)

Diethyl phthalate (DEP)

Diethylhexyl phthalate, or dioctyl phthalate (DEHP)

Dimethyl phthalate (DMP)

Nonylphenol (NP)

LAVENDER & TEA TREE OIL

METALLOESTROGENS

SUNSCREENS

4-Methyl-benzylidene camphor (4-MBC)

Benzophenone-3 (BP3), or Oxybenzone

Butylmethoxydibenzoylmethane (BMDM), or Avobenzone (Parsol)

Homosalate (HMS)

Octyl-dimethyl-paba (OD-PABA)

Octyl-methoxycinnamate (OMC), or Octinoxate

Case study: Harmful chemicals contained in Abercrombie & Fitch's perfume Fierce⁴⁰

A lot of people know Abercrombie & Fitch, the famous and successful American company that sells casual wear and accessories targeting a young category of customers, especially teenagers. The main strategy of the brand is to give an image of fun and thoughtlessness. For this reason in each shop there is the music thumping, the lights are switched off or are really faint as in a disco, and their famous cologne is sprayed in the place every 30 minutes. With bare-chested male shop assistants that welcome people into the shop, the company want to express a sense of virility that marks the brand.

Making an analysis of that same perfume that is massively sprayed every 30 minutes in each shop and which people is forced to breathe, what comes out is really incredible. Among the various chemicals contained in Abercrombie & Fitch's Fierce, there are eight sensitizers that can trigger allergic reactions in human body such as wheezing, coughing, headaches and asthma. Furthermore, it was detected the presence of diethyl phthalates, harmful and dangerous chemicals directly linked to man infertility and baby boys genital's feminization.

This discovery looks even ironic, in fact the strategy of the brand is based on that same virility and maleness that is challenged and undermine by the use of a perfume that contains very dangerous ingredients for human's and, especially for this case, men's health.

This is case is just one among many, but what it is important to take into account is that we, as consumers, have to pay a lot of attention to the products that big brands and corporations propose to us. We have to start by challenging the unconditional trust that we have towards them, and to think more to our health rather than to our appearance.

⁴⁰ Stacy Malkan at Sustainable Cosmetic Summit, *Shifting Paradigms: Science, Policy and Consumer Preferences*

To sum up, it is important to underline that consumers must be aware that when they buy beauty products they have to pay a lot of attention to the product's label. As we have seen, the advertising words that are written on products are often misleading. This happens because the regulation of harmful ingredients used in beauty products is still a controversial issue. As I will explain on the next stages of my analysis, in comparison with the past, a lot of steps forward have been done, especially in the European Union's regulations, but this is still not enough.

Anyway, the beauty market deeply evolved in recent years, and is now able to offer to consumers a wide range of natural and organic products. Many beauty brands have changed their product's formulation and have invested a lot in developing alternative and more sustainable products that ensure the same efficiency but with a lower impact on humans and environment.

In the next section we will see what does "natural" really means, and when a beauty product can be defined as such. As we will see, there are a lot of controversial issues that have to be taken into account, due to a lack of universal and shared rules and standards among different countries.

4. What do 'natural' and 'organic' mean?

As beauty brands developed towards the use of more and more synthetic ingredients to formulate their products, the controversial consequences related to human and environment's health lead to an increasingly request by consumers and markets of alternative products with different formulations. As we have seen this "alternative" trend arose during the 1960s, when the particular attention given to health food, was widened also to cosmetic and personal care products. The emergence of natural brands such as Aveda, Tom's of Maine, Burt's Bees and The Body Shop was directly connected to the different approach and demand of consumers but also to the beauty industry itself, which was able to be prepared and to respond to the rise of new trends and movements.

At the very beginning of its establishment, the natural industry seemed to be just a passing trend that would rapidly fall into failure. But soon things changed and the growth of "green chemistry" as a philosophy developed into chemicals and industrial processes that produce cosmetic and personal care products made with natural ingredients such as essential oils, plant extracts, fruits and vegetables, which are becoming more and more available to the global mass market. Thus, "formulating with natural and organic ingredients has moved from a novelty to an imperative for many cosmetic companies"⁴¹.

This is the reason why it emerged the necessity to clearly decide what constitutes a "natural" ingredient and when a product can be called "natural". The difficulties in doing so are mainly due to the lack of general and universal standards, as there exist just few government regulations in the area of natural ingredients. While there are clear regulations for natural and organic food, this is not the same for the definition of natural and organic cosmetic and personal care products.

It is generally possible to state that a natural ingredient "should be neither synthetically derived nor synthetically processed, but it must be found in nature and be free of synthetic additives"⁴².

Anyway, despite some attempts to regulate the area of natural ingredients made by few governments, the main issue of regulating finished products is still ignored and avoided.

⁴¹ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 3

⁴² Ibid. p. 5

For this reason, the majority of beauty industries are essentially based on self-regulation. Beauty brands are not required to do pre-market test of ingredients and final products, and they are not obliged to list carcinogenic or other harmful substances on products' label. In this very confused situation, government regulations would be essential not only to protect and ensure consumers' right to know, but also to drive beauty companies to develop alternative and safer standards and formulations for their products. It would be useful to guarantee tax incentives for "green" industries and at the same time to punish with tax penalties companies that continue to avoid the problem. But, with the lack of strict government regulations, the result is that companies are controlled and influenced by stakeholder groups such as supply chain members, competitors, non-government organizations, and others, generating much confusion in the market and among consumers.

Generally speaking, what each company that decide 'going green' should ensure and certificate to consumers is essentially based on some central points. First of all, it should be able to give a clear definition of what are natural ingredients. Then, it should provide a list of what are considered synthetic ingredients to avoid in a natural product's formulation. The next step would be a clear labeling standard where natural products are divided in 4 different categories according to the percentage of natural ingredients used. This distinction would result in the definition of:

- "100% natural" products, with not a trace of synthetic or banned ingredients but only natural ingredients used.
- "Natural" products made with at least 95% of natural ingredients or more.
- "Made with natural ingredients" products with a percentage between 70% and 90% of natural ingredients used.
- If the percentage of natural ingredients is fewer than 70%, natural ingredients used can be mentioned on product's label but without claiming any other different definitions previously explained.

Furthermore, it would be essential that any company's certification would gain shared recognition from both United States and European Union, which are the most important stakeholders.

In the next section of my analysis I will deeply explain what are the most important approved and accepted standards among different countries and how they regulate natural and organic ingredients used in cosmetic and personal care products.

What is now necessary to explain is the general idea of what a common consumer can consider natural and organic, and what are the main differences between the two terms. As I said before, it is possible to generally state that a natural ingredient should be something that is not synthetically derived or processed. Anyway, the lack of a universal standard does not allow giving a shared definition of the term. This is slightly different in the case of organic ingredients. In fact, the regulation of “organic” products is widely ruled by one of the most acknowledged organizations, among others, the United States Department of Agriculture (USDA).

According to USDA Organic Certification, “a certified organic product must adhere to the requirements outlined in the USDA’s National Organic Program, which include agricultural restrictions such as water usage, crop rotation, use of pesticides and herbicides”⁴³.

Since the early 1990s there has been a growing consumer demand for natural and organic cosmetic products. “Sales of certified organic products in Europe have been increasing by 20% annually”⁴⁴. The U.S. still play a leading role in the market sales, and this is mainly due to the widespread distribution of natural and organic cosmetics in mass-market outlets, drugstores, salons, and pharmacies. Consumers ask more and more products that are safer for their health and for the environment. Anyway, it is very important to underline that it would be misleading to think that ‘natural’ is always associated with pure and good. The main problems related to use of natural ingredients, which ranges from olive oil, grape seeds, white and green tea, jojoba oil, shea butter, herbal extracts, aloe vera and so on, are that they can potentially contain an high microbial load, they are more difficult to be preserved, they require a higher concentration to be as effective as their synthetic counterpart and they are often much more expensive. But, on the other hand, if managed in best way, they ensure often the same effectiveness of chemicals but with safer and healthier results on human body and on the environment. Anyway, it is important to make clear that ‘natural’ does not necessarily mean ‘safe’. Some well-known natural components such as carotenoids have established nutritional value, while others such as isothiocyanates or indoles are

⁴³ Ibid. p.7

⁴⁴ Samuel S. Epstein, *Toxic Beauty*, p. 194

harmful toxicants⁴⁵. Plant-derived ingredients are often harmless alone, but they can cause strong allergic reactions if directly applied on skin. Others can induce phototoxic effects or skin sensitization after intense exposure to the sun. For all of these reasons it is important to be cautious when it comes to safety of natural ingredients. In fact, the absence of a globally acceptable standard for safety natural substances makes the issue highly controversial. What is evident is the urgent necessity, not only of decisive standards, but also more advanced and effective technologies that enable formulators to assess and deeply identify the risks related to the use and the mixture of natural ingredients.

In order to better understand what are the most effective natural ingredients used in “green” cosmetic products I will provide a sort of synthesis of the most important substances that can commonly be used to partially substitute synthetic chemicals in the formulation of natural cosmetic and personal care products. We will see what are the main drawbacks for cosmetic manufacturer using them, and how formulators address key problems related to their use.

Some of the most important chemicals used when formulating beauty products are preservatives, essential to make products last long without being altered or damaged by external agents. The most common, effective, and cheap group of preservatives are parabens. As it was mentioned previously, parabens have potential hormone disruption capabilities, and are linked to breast cancer, endocrine disruption, reproductive toxicity, neurotoxicity, and skin irritation. For this reason, formulators have tried and are still trying to develop green and parabens-free formulations. The most common natural ingredients used as preservatives are essential oils (tea tree and thyme), grapefruit seed extract, and Vitamin E (D-Alpha Tocopherol Acetate). The most important problems related to their use is their ineffectiveness against some type of bacterial, the necessity to use them at very high concentrations, and their very expensive price compared with chemical counterparts. Furthermore, some natural preservatives do not mix well in emulsions and can cause allergic reactions.

On the other hand, a natural product completely formulated without the use of preservatives will have a shorter life, and will require a special packaging and the necessity to be refrigerated. It's up to consumers to feel free to decide if they want to

⁴⁵ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 127

choose between a long-lasting product formulated with synthetic chemicals that could be harmful for their health, or a completely natural product that present the drawbacks of a more difficult preservation and a higher cost.

Some of the products that are labelled as ‘preservative free’ are formulated with “high wax, oil, or glycerine content, which often make them more greasy and sticky”⁴⁶. There is a long list of natural substances that are used with functions of emollients, humectants, and emulsifiers. Despite they are hard to manage as preservatives, essential oils, butters, and waxes are among the most widespread natural ingredients used in natural and organic beauty products for their additional potential functions.

When we buy a beauty product, we know that on its label it is written a long list of ingredients each of which fulfils a specific function. According exactly to the function performed, an ingredient could be classified in different ways. These categories are: emollients, humectants, emulsifiers, surfactants, as well as preservatives that were previously mentioned. For each of these groups, there are some alternative natural ingredients that can partly substitute their synthetic counterparts.

Emollients, also known as moisturizers, help to soften dry skin and to prevent dryness. Water is the best existing emollient, but since it evaporates very quickly it is practically ineffective. In fact, the majority of emollients are then forms of oil or grease. Synthetic emollients are occlusive for human skin, since they do not allow skin to ‘breathe’, causing irritation and they are also impacting for the environment, as they are not biodegradable. The most common synthetic emollients are PEG Compounds, Synthetic Alcohol, Hydrocarbons (mineral oil, paraffin), and Silicone Oils (dimethicone, cyclometicone). Some natural alternatives are Plants Oils (Avocado, Jojoba, and Rosehip), and Butters (Shea, Jojoba, and Cocoa), which are safer, not contaminated and degradable. Another natural ingredient commonly used as emollient is the juice from the Aloe Vera plant.

Humectants play the important function of keeping skin moist. The main drawback of synthetic humectants is that they are occlusive for skin. Natural humectants that do not entail this problem are phospholipids, which are considered valid substitutes to

⁴⁶ Ibid. p. 176

synthetic humectants such as Propylene Glycol, PEG compounds, and Synthetic Alcohols.

Emulsifiers are used to mix and hold ingredients that for their nature usually stay separated when put together, such as water and oil. The emulsifying process can be obtained with the use of physical substances, such as waxes, or with a physical action, such as the words “shake well before using” written on the product label. The most effective natural substances that can be used as emulsifiers are plant Waxes obtained by different types of leaves, berries and nuts, but also Quince Seed, and Xanthan Gum.

The last category of functions played by ingredients contained in cosmetic and personal care products is the one of surfactants. They are substances used to dissolve oils and to remove dirty from the skin with the use of water. They are mainly found in shampoos, cleansers, and soaps. The majority of synthetic surfactants are very aggressive for human skin, since they can cause irritation in contact with eyes, skin, and scalp. They can cause allergic reactions due to their harshness to skin. Some of the most harmful are ingredients ending with –eth, such as laureth, substances containing the term PPG or PEG, TEA, DEA, and MEA. Natural surfactants, such as Castile Soap (olive oil based), Yucca Extract, and Soapwort, are example of effective cleansers that gently wash the skin and the hair without harming them, but on the contrary, nourishing and protecting them.

As we can see, the deep knowledge and the in-depth study of natural components are essential to formulate new beauty products where some harmful chemicals can be replaced by natural and safer ingredients.

There are several philosophies that deeply believe in the healing and therapeutic properties of herbs and minerals, used not only in the medical sphere, but also in cosmetic and personal care.

Some of the most relevant and best known are Ayurvedic and Chinese medical traditions, which both make use of natural and herbal ingredients for the health and well being of human body.

Ayurveda, which literally means ‘knowledge of life’, is a traditional science that emerged thousands of years ago in India and still exists today in traditional Indian medicine⁴⁷. The use of natural and mineral products are at the base of this traditional philosophy, which considers the human body as made of three driving forces known as

⁴⁷ Ibid. p. 287

vata, pitta, and kapha. “Vata for air or the energy, pitta for fire or the chemical activity, and kapha for earth or material elements”⁴⁸. When these forces lose their balance in human body, several skin diseases can occur. For this reason the use of ayurvedic herbs can be used to counteract various skin problems, such as vitiligo, psoriasis, leucoderma, skin irritation, acne, herpes, but also skin aging and general skin care.

Powdered seeds of *Psoralea corylifolia* are used in the treatment of vitiligo, psoriasis, and inflammatory skin problems for its antibacterial activity. Holy basil is used for treatment of leucoderma and fungal infections, aloe vera for healing of wounds and burn injuries and tea tree for different skin infections. Turmeric is proven to be effective against skin cancer, neem leaves are anti-inflammatory, and sandalwood essential oil is effective for eruptive skin diseases⁴⁹. Furthermore, several plant extracts and herbs are used in the formulation of masks, and body oils for massages.

Ayurvedic medical tradition is fundamental not only for its therapeutic purpose, but also for topical cosmetic applications. Ayurvedic herbs are then used in a different variety of shampoos, skin creams, lotions, and body and hair oils.

What contributed to the success of Ayurvedic tradition is the safety and the purity of the ingredients used in the formulation of beauty products, which are increasingly proved to be scientifically effective and validated. The rising trend of ‘green’ beauty, which is becoming more and more widespread in recent years, allows consumers to have access to a wide range of products that are innovative for their formulation but also for their return to ancient traditions.

⁴⁸ Ibid. p. 289

⁴⁹ Ibid. p. 290

Here is table with the list of some of the most commonly used Ayurvedic herbs in the formulation of cosmetic and personal care products⁵⁰.

Herb	Scientific Name	Plant part	Application
<u>Cleansing</u>			
Shikakai	<i>Acacia concinna</i>	Pods	Shampoos
Myrrh	<i>Balsamodendron myrrha</i>	Gum	Soaps and Shampoos
Soap wort	<i>Sapindus trifoliatus</i>	Fruit	Detergent
<u>Antimicrobial</u>			
Neem	<i>Azadirachta indica</i>	Leaves	Soaps, oral care
Devadaru	<i>Cedrus deodara</i>	Stem wood	Soaps
Zedoary	<i>Curcuma zedoaria</i>	Rhizome	Soaps
<u>Wound Healing</u>			
Turmeric	<i>Curcuma longa</i>	Rhizome	Cream, lotions, antibacterial
Gotu kola	<i>Centella asiatica</i>	Plant	Creams
Manjistha	<i>Rubia cordifolia</i>	Root	Creams
Garlic	<i>Allium sativum</i>	Bulb	Creams
<u>Skin care/moisturization</u>			
Aloe	<i>Aloe Vera</i>	Leaves	Skin care creams
Marigold	<i>Calendula officinalis</i>	Flowers	Skin creams/lotions
Oats	<i>Avena sativa</i>	Fruit	Moisturizer creams
Citrus	<i>Citrus aurantium</i>	Peel	Creams, lotions
Chandan	<i>Santalum album</i>	Stem	Lotions
Wheat germ	<i>Triticum sativum</i>	Germ	Lotions
<u>Powders</u>			
Galanga	<i>Alpinia galanga</i>	Rhizome	Dusting Powder
Orris	<i>Iris florentina</i>	Root	Dusting Powder
<u>Anti-inflammatory</u>			
Coriander	<i>Coriandrum sativum</i>	Plants	Creams/lotions
Chicory	<i>Cichorium intybus</i>	Seed	Creams/lotions
Licorice	<i>Glycyrrhiza glabra</i>	Root	Creams/lotions
Ginger	<i>Zingiber officinale</i>	Root	Creams/lotions
Ashwagandha	<i>Withania somnifera</i>	Root	Creams/lotions
Indian frankincense	<i>Boswellia serrata</i>	Gum resin	Creams/lotions
Guggul	<i>Commiphora mukul</i>	Gum resin	Creams/lotions
<u>Hair Care</u>			
Kapurkachir	<i>Hedychium spicatum</i>	Rhizome	Oil/conditioning
Benjamin	<i>Moringa oleifera</i>	Seed	Oil
Amalaki	<i>Phyllanthus emblica</i>	Fruit	Oil/shampoo
Henna	<i>Lawsonia alba</i>	Leaves	Shampoo/conditioning
Bhringraj	<i>Eclipta alba</i>	Plant	Shampoo
China rose	<i>Hibiscus rosa sinensis</i>	Flowers	Shampoo/oils

⁵⁰ Table from Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*

As for the Ayurvedic philosophy, also Chinese traditional medicine makes wide use of herbs and natural ingredients to get human body's health and balance. According to this philosophy, in every living thing there is a life force, a vital energy called 'chi', which flows through the body. When this energy is out of balance, different health diseases occur. The application of traditional Chinese medicine (TCM), in the beauty and skin care industry is made possible by the application of herbs properties to formulate products with specific healing purposes. As for the Ayurvedic tradition, also in TCM herbs play a fundamental role in counteracting several skin problems, thanks to their countless and often unknown beneficial properties.

It exists a very extended variety of herbs and medical plants that can be used to discover new active components able to replace synthetic chemicals. In fact, the amount of medical herbs recognized by Chinese medicine, which is around six thousand, led scientists, formulators, and chemists to try to take more and more advantage of their potentiality. As we have already said, the recent interest of consumers in natural cosmetic and personal care products is deeply driven by the belief that natural is equal, and even better than synthetic. But, in order to get these high performances of natural ingredients it is fundamental to ensure safety of herbal products. It is undeniable that a common person is not able to control and determine the quality and the authenticity of plant materials, which can range from whole plants, plant parts, leaves, fruits, extracts and so on. For this reason manufacturers' transparency is at the base of consumers trust. The buyer is in the hands of the sellers, which should be able to establish identity and quality of the botanicals sold⁵¹. Often it can happen that heavy metals or pesticides are traced in herbal ingredients, or that synthetic agents are added to improve ingredients' preservation. For this reason instrumental analysis on sample of raw materials, but also on the finished product are necessary to trace harmful substances.

The development of traditional natural cosmetics is a global trend widely fuelled by beauty industries, which are aware that they must be able to fulfil consumers' requests. With the gradual loss of faith in modern cosmetics, organic and natural markets are developing at a very high rate all around the world. Besides Europe and United States, some of the fastest and most potential markets for organic products are India, Brazil, Japan and China. Their potential is mainly due to investments made by new beauty

⁵¹ Ibid. p. 309

brands, which offer to consumers a variety of products such as shampoos, conditioners, skin creams, and hair dyes which are formulated with natural and organic ingredients. Furthermore, involvement of local and small farms in the production of oils and butters from seeds and fruits contributed to developed a more green and sustainable management of the beauty products' supply chain.

In the field of local production and natural resources preservation, Brazil has emerged as one of the most important countries that deeply invest on the production of natural and organic ingredients for cosmetic and personal care products.

Numerous cosmetic products contain extracts from seeds and fruits that are native to Brazilian tropical flora, such as the oils from andiroba, babaçu coconut, buriti, Brazilian nut, and butters from cupuaçu, bacuri, and muru-muru⁵². For this reason Brazilian government chose to launch a specific programme on Sustainability in order to exploit the many potential and unique resources of the country, but in the respect of natural environment and biodiversity. By giving value to local and small productions, the result is the improvement of the quality of life of local producers and communities. A conscious and responsible use of Brazilian soil, which is seriously threatened by the loss of biodiversity, is a meaningful example of how the cosmetic industrial sector can be directly committed to sustainability.

What is important to underline is that 'green beauty' is not just formulating products with natural and organic ingredients. 'Green beauty' is a complex set of strategies, initiatives, researches, investments, and responsibilities towards consumers but above all environment.

Some of the most effective strategies require a strong commitment in developing sustainability inside the value chain of products, investing in the use of recycled and biodegradable materials to produce sustainable packaging and less impacting products. Another fundamental issue is animal testing, as in the last years many more companies are researching alternative way to test cosmetic products, which do not cause pain and harm to animals.

⁵² Neila de Paula Pereira, *Sustainability of cosmetic products in Brazil*, p. 160

According to Paul Anastas and John Warner⁵³, there exist twelve principles of Green Chemistry that should be followed in order to formulate and produce chemicals that do not harm human and environment health. The 12 principles are:

- Prevent waste, rather than treat or clean up it.
- Design safer chemicals and products to reduce toxicity.
- Design less hazardous chemical syntheses.
- Use raw materials and feedstocks that are renewable.
- Use catalysts to reduce waste.
- Avoid the use of chemical derivatives.
- Maximize atom economy.
- Avoid the use of solvents and separation agents.
- Increase energy efficiency
- Formulate chemical substances that do not accumulate in the environment after the use
- Make use of controls to prevent pollution
- Reduce as much as possible potential chemical accidents.

It is clear that all of these processes and principles, as the cosmetic industry itself, need to be firmly regulated by definite and shared universal standards. In fact, as I will explain in the next section of my analysis one of the most urgent things that need to be fixed is the lack of governmental standards and certifications that establish how to define natural and organic products, how to regulate harmful ingredients contained in them, and how to address the problem of animal testing.

⁵³ Paul Anastas, John Warner, *Green Chemistry: Theory and Practice*, Oxford University Press: New York, 1998

5. Regulatory Aspects: existing natural/organic Standards and future outlook

Global cosmetic and personal care industry is generally marked by self-regulation. This is particularly true when it comes to define what ‘natural’ and ‘organic’ mean and how these terms should be managed. This happens because there are no shared governmental standards able to regulate and impose specific guidelines on this issue. While there exist several standards that control products’ safety and manufacturers’ transparency, especially in the United States and in the European Union, for the labeling and certification of natural and organic products the main existing results are from third-party organizations.

The Food and Drug Administration (FDA), which regulated cosmetics, toiletries, and fragrances, and the EU’s Cosmetic Directive, do not have an official, enforceable definition of ‘natural’ or ‘organic’⁵⁴. The only direct references made by the FDA to the use of ‘natural’ are related to food, not cosmetics. Furthermore, there are no state regulations regarding the claim ‘natural’.

Existing standards and regulations for natural and organic are most of all formulated by non-governmental agencies, such as third-party organizations and industry associations. The result of this process is an unavoidable general confusion among consumers, which are not able to distinguish which products are reliable and which are not. If on the one hand, organic and natural certifications are fundamental to answer consumers’ demand, to develop new ingredients and technologies and to ensure that industry manufactures all play on equal terms and conditions, on the other, the lack of unity and coherence is a big hindering issue, which can lead to the decrease of credibility of each standard.

It is also important to add that Europe and the United States have different positions and approached towards natural and organic products. In fact, while the United States regulate natural and organic as two separated issues, with different directions and formulations, in Europe organic and natural are connected one to the other, and therefore inseparable. As a consequence European standards often deal with a combination of natural and organic ingredients in products’ formulation and regulation, while in the United States each standards are concerned with a specific single issue.

To better understand the complex situation of natural and organic standards, it is necessary to start by listing the major existing certifications. As we already said these

⁵⁴ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 20

standards are the result of the work of third-party organizations, which addressed the issue of establishing guidelines for natural and organic products' market.

In the United States we find four different standards, each of which deals with a specific issue and which are very different from one another⁵⁵:

- USDA National Organic Program
- OASIS (Organic and Sustainability Industry Standards)
- National Sanitation Foundation (NSF)'s Made with Organic Personal Care Standard
- Natural Products Association (NPA)

In Europe the situation is quite different as there is a clear evidence of the attempt to unify all the existing standards in just one single regulation. In fact, the most relevant and acknowledged organizations are:

- ECOCERT (France)
- Soil Association (UK)
- Bundesverband Deutscher Industrie- und Handelsunternehmen (BDIH), (Germany)
- L'Associazione Italiana per l'Agricoltura Biologica (AIAB) and Istituto per la Certificazione Etica e Ambientale (ICEA), (Italy)
- BioForum (Belgium)
- CosmeBio (France)

They were all formally merged into the Cosmetics Organic and Natural Standard (COSMOS), which is an international standard that establishes specific rules for the formulation of natural and organic products, addressing the issues of environment and men welfare on the planet with a specific attention to sustainability.

Before explaining the features and peculiarities of each of these standards it is important to underline what had been the driving forces and the mechanisms that gave rise to the establishment of these nongovernmental standards.

According to Ben Cashore⁵⁶ there are five different mechanisms that originated the spread of nongovernmental market-driven standards. These are: the lack of the state

⁵⁵ Ibid. p. 7

⁵⁶ Ben Cashore, *The Emergence of Non-State Market Driven (NSDM) Global Environmental Governance: A Cross Sectoral Assessment*, Cambridge University Press, New York, 2009

authority, which did not take a formal position on the issue; the important role played by stakeholders, such as industry leaders, trade associations, and ingredients suppliers; the social domain, which is the result of the public perception on natural and organic products; the role of the market, giving to consumers the possibility to choose among a wide range of different products, each of which with its own certified label; and legitimacy in the formulation of natural and organic products.

In the specific field of natural and organic cosmetic products, consumers' demand and growing concern about the safety of the products they buy is one of the most important factors that contributed to the development of regulating standards. In fact, the recent trends of 'green beauty' and 'green chemistry' generated an increasingly demand by consumers of sustainable and natural products. At the same time the beauty industry itself, has been able to move towards new market strategies through the formulation and the production of innovative products that are able to fulfil consumers' expectations. In order to do so standards are essential as they ensure not only product's safe and certification, but also consumer's transparency and confidence.

Existing Standards in the United States

As we said before, the most important and acknowledged America natural/organic standards are the USDA, NSF, NPA, and OASIS. Each of them specifically deals with different aspects, and has its own rules. Anyway, one of the most controversial problems is still the difficulty to accept to clearly regulate organic and natural cosmetic products in the same way as agricultural and food products. In fact, the American legislation through the Food and Drug Administration (FDA) does not give any enforceable definitions of natural and organic related to cosmetic products, so that it is not possible to clearly and definitely regulate the issue from a governmental point of view.

USDA National Organic Program

Organic claims and certification are regulated by the USDA through the National Organic Program (NOP), which establishes very strict guidelines for organic products that want to get the USDA label seal. The NOP, which is a marketing standard, gives definition of organically farmed agricultural products and establish the requirements of label contents⁵⁷. It is important to underline that the USDA does not regulate the term organic for cosmetics, body care, and personal care products, but only for agricultural products. Despite the Food and Drug Administration (FDA) has jurisdiction over cosmetic products, it refuses to regulate natural and organic claims.

However, in 2005 the USDA had to extend its regulatory authority also to cosmetic and personal care products after being sued by Dr. Bronner's Magic Soaps and other cosmetics manufacturer, for not allowing to use the USDA seal despite meeting their standard and certification requirements.

Then, the USDA certification can be extended to those cosmetic and personal care products whose agricultural ingredients meet the USDA/NOP rules about handling and processing. Once certified, approved cosmetic products can be classified into 4 labeling categories depending on the percentage of organic ingredients contained:

- '100% organic': the product must contain only organically produced ingredients, with the exclusion of water and salt. The USDA seal can be displayed on the label.
- 'Organic': the product must contain at least 95% of organically produced ingredients. The USDA seal can be displayed.
- 'Made with organic ingredients': the percentage of organically produced ingredients has to be of 70%. The USDA seal cannot be displayed.
- The term 'organic' cannot be used by products containing less than 70% of organically produced ingredients. The USDA seal cannot be displayed.

What it comes out is that the USDA allows the use of its seal and has legal authority only on cosmetic products that meet the standards. Anyway, beauty industries are free

⁵⁷ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 33

to use other private standards for their products, which won't be regulated by the USDA's National Organic Program⁵⁸.

NSF's Made with Organic Standard

As a consequence of USDA resistance and relentless to regulate natural and organic cosmetic products, other different third-party standards emerged in the following years. One of the first to be accredited was the National Sanitation Foundation (NSF)'s Made with Organic certification, which gained consensus involving different stakeholders such as Aveda, and Dr. Bronner's and other marketers. The NSF requires a minimum of 70% of organic ingredients contained in a product, excluding water to use the 'made with organic' claim.

Products that are covered by the standard, which is generally referred as NSF/ANSI (American National Standards Institute) 305, vary from rinse-off and leave-on personal care products, cosmetics, oral care and personal hygiene products.

The main difference with the USDA's NOP is that the NSF allows the use of some limited ingredients and chemical processing in the formulation of cosmetic products, which are prohibited in the NOP standard. For example, it is allowed the chemical process known with the name of 'saponification' to lather some organic ingredients contained in personal care products, such as soaps, which have to produce foam. This process would not normally be permitted in most of organic standards.

The NSF standard has recently extended its operating field including plant-based ingredients that are certified under the European Union organic standards. This is a step forward the intention to create a shared and global standard, which should be accepted by more and more countries.

⁵⁸ United States Department of Agriculture, Agricultural Marketing Service, National Organic Program, from www.ams.usda.gov/nop

OASIS (Organic and Sustainability Industry Standards)

In 2008 a group of leading companies in the beauty industry came together to create OASIS, a non-profit organization whose aim is to develop the first U.S. industry standard for organic and sustainable personal care and beauty products. A large number of beauty industries such as Estee Lauder, L'Oréal, Aveda, Private Label Select and others constitute the funding members of the organization. Also smaller products and ingredients manufacturers and suppliers are part of the members, which are 30 overall.

The lack of a clear industrial standard, mainly due to U.S. government relentless about the issue, led beauty industries to try to apply USDA NOP organic standard to their cosmetic products. But, the strictness of the rules and the nature itself of the standard, which was originally formulated specifically for food products, pushed beauty industries to try to challenge existing rules through the formulation of a new industry standard that would have been able to fulfil their needs. OASIS standard was formulated to satisfy consumers' need of a clear system of labeling for organic personal care and beauty products, but also for manufactures, retailers and raw materials vendors, which needed specific, clear, and credible guidelines for the management of ingredients and products.

The work of the OASIS organization was focused and is still focused on the development of a standard that would take into account sustainable practices, such as organic production and sustainable packaging. The initial necessity was to establish and certify ingredients used in cosmetics and personal care products, but recently innovative initiatives and researches are going more and more towards sustainability and green packaging, with a particular attention to environmental issues.

OASIS is the result of a work of nearly 10 years. At its launch, the initial target was of 85% of organic content in order to certify a product as 'organic', but future purposes are to reach 95% of organic content, as 'green chemistry' keeps on evolving. This standard allows certain chemicals processes such as sulfation, saponification, and hydrogenation in order to get necessary product's stability⁵⁹.

⁵⁹ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 35

Natural Products Association (NPA) Certification Program

As we already said previously it does not exist an official U.S. governmental definition for the term ‘natural’, neither for food nor for cosmetic products. According to the Food and Drug Administration (FDA) despite it is difficult to give a definition of a natural food products, as every finished product have gone through a process that modify its original nature, it is possible to use the term for food products that do not contain added colour, artificial flavour, or synthetic substances⁶⁰.

The difficulty in establishing a clear definition of the term, generated a lot of confusion among consumers, which are not able to understand how to distinguish and recognize natural products that are sold in the market.

The Natural Products Association, which was founded in 1936, was the first non-profit organization to develop natural standards and certifications that enabled consumers to identify certified natural products. In 2008 the NPA introduced its Standard and Certification for Personal Care Products, which got some changes through the years and was definitely set in 2010. According to the standard, a product that is labeled as ‘natural’, in order to obtain the NPA certification must contain at least 95% of natural ingredients, with the exclusion of water. Further, are considered ‘natural’ ingredients that “come or are made from a renewable resource found in nature (Flora, Fauna, Mineral), with absolutely no petroleum compounds”⁶¹.

In order to obtain the display the NPA seal on the label, a product not only has to contain at 95% of natural ingredients. It also has to fulfil other specific requirements that could be listed as such:

- The product must not contain ingredients that are suspected to create human health risks.
- The purity of the ingredients must be unaltered as much as possible.
- The ingredients should come from renewable source that are found in nature.
- Synthetic and harsh chemical should be avoided, as well as any kind of processes.
- The use of non-natural ingredients should be only an alternative to their natural counterparts when they are not available.

⁶⁰ U.S. Food and Drug Administration, www.fda.gov

⁶¹ NPA Standard and Certification for Personal Care Products, www.npainfo.org

In order to maximise its range of application, in 2010 the NPA developed a natural standard also for Home Care Products, which gives specific guidelines to natural home products such as laundry detergents, household cleaners, and hard-surface cleaners. Furthermore, the Natural Product Association published a list of more than 800 ingredients that fulfil the standard and certification requirements.

As we have seen until this point, the situation regarding the regulation of cosmetic products in the U.S. legislation is quite intricate. In fact, existing natural and organic standards are most of all the result of the collaboration among third-party organizations, as the governmental position is still undefined. In the United States, the federal regulations of ‘natural’, ‘organic’, and other claims for cosmetics and personal care products is in the hand of three different agencies: the Food and Drug Administration (FDA), the Federal Trade Commission (FTC), and the U.S. Department of Agriculture (USDA)⁶². Each of these organizations has its competencies. Generally speaking, the FDA deals most of all with labelling issues, the FTC has jurisdiction over the advertising aspect of cosmetics, and the USDA is directly committed in the regulation of cosmetics through the application of its ‘organic’ standards. The controversial thing is that these existing federal standards are not formally mandatory. This means that cosmetic products can be certified under the USDA NOP standard, if they fulfil the requirements, but it does not exist a formal authority that officially regulates them. For this reason the USDA allows other private standards to certify and market their products pursuant to private requirements.

The only existing governmental legislation that regulates organic claims for all products is the one that has been enacted in California. California through its ‘Organic Body Care Standard’ established specific requirements and guidelines for products in order that only products that fulfil the standard can be sold in the market claiming the term ‘organic’ in their label.

⁶² Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 67

Regulating standards in the European Union

In Europe, the position towards ‘natural’ and ‘organic’ claims is quite different compared to the United States. In fact, the perception itself of the two terms is interrelated, considering them as parts of the same matter, while according to U.S. regulations they are considered as two distinctive sectors, each of which has its different standards and certification. But it is to say that the EU shares with the U.S. the same relentless in adopting a clear regulation for natural and organic cosmetics and personal care products. While for food products there exist specific regulations, this is not the same for cosmetics.

Cosmetics are deeply regulated by Council Directive 76/768/EEC of July 1976, which underwent through substantial changes through the years with the introduction of new amendments. From 2013 the EC Regulation No 1123/2009 will replaced the existing Directive. This regulation determines a set of rules regarding safety of cosmetic ingredients, labelling of the products, monitoring of the market, and animal testing. As we can see, a lot of fundamental aspects are taken into account, but the disinterest towards the definition of natural and organic cosmetic products is still evident.

This serious lack has been partially overcome by the development of non-governmental standards and guidelines, as happened in the U.S. administration.

Some of the most acknowledged European standards are ECOCERT, maybe the most recognized for both natural and organic, BDIH, Soil Association, NaTrue, ICEA, and so on. Furthermore, in the European Union we witness to the attempt to try to harmonize all the existing non-governmental certifications in one single standard, the Cosmetics Organic and Natural Standard (COSMOS), which is the result of the collaboration between the most influential working groups, leaders in the regulating field.

What will follow is an explanation of some of the most important non-governmental European standards, of how they regulate natural and organic ingredients contained in cosmetic and personal care products, and how they are internationally accepted and considered by other market competitors.

ECOCERT Certifications

ECOCERT is a France-based non-governmental organization that is internationally present in many countries. It is considered the most important European organization that provides Organic Certifications. “It is perhaps the most recognized standard for both natural and organic in Europe”⁶³, and the one that is worldwide acknowledged, approved and requested by consumers. This popular eco-seal follows very strict rules and requirements. It supervises all the different producing steps of the product, from the formulation, to the manufacturing, the filling, and the final packaging.

The Standards for Natural and Organic Cosmetics, which were introduced in 2003, have been developed involving different stakeholders of the value chain: from experts, to suppliers, manufacturers, consumers, and different organisations. They are based on some basic principles that ensure environmental sustainability, and are aware of the importance of human health and natural resources safeguard. The absence of GMO, parabens, PEG, silicon, nanoparticles, and other synthetic harmful ingredients is one of the main targets of the organization. A particular attention is also given to animal testing and biodegradable and recyclable nature of the product packaging⁶⁴.

In order to obtain the certification, it exists a minimum threshold of natural ingredients from organic farming contained in the product that must be reached. Products can be certified with two different labels: ‘natural cosmetic’ and ‘natural and organic cosmetic’. A ‘natural cosmetic’ must contain at least 50% of all plant-based ingredients in its formulation and a minimum of 5% of ingredients coming from organic farming. While a ‘natural and organic cosmetic’ must be made of at least 95% of all plant-based ingredients and a minimum of 10% of all ingredients must come from organic farming. Some commonly used ingredients such water, salts, and minerals cannot be certified as organic, since they are not sourced from farming⁶⁵.

There is an Appendix to the Standards that lists different physical and chemical processes that are permitted and the ones that are prohibited. There is also a list of some synthesized ingredients that are permitted, including some approved preservatives.

⁶³ Ibid. p. 8

⁶⁴ Standards for Natural and Organic Cosmetics, ECOCERT, www.ecocert.com

⁶⁵ Ibidem.

As we can see, the Standards requirements are very strict and the certification process is really complex. For this reason, ECOCERT certification is one of the most recognized standards, synonym and exemplification of human and environment safeguard and care.

Soil Association

The Soil Association is the most important and the largest UK's organic certification body, which is responsible for the certification of more than 70% of all the organic products that are sold in the country. These products range from food and farming, textiles and beauty products. Existing Soil Association's organic standards have been developed following the EU Organic Regulation as guidelines. With specific reference to cosmetic and beauty products, the Soil Association organic standards define the requirements that cosmetic products have to fulfil in order to be labelled as 'organic'. The health and beauty standards were launched in 2002, and were developed to fill the existing absence of a formal legislation that would regulate organic and natural cosmetic products. The standards clearly establish the main principles to follow for a product to get the seal certification. There are some important values that must be respected. For example, beauty products should not be tested on animals, should not be harmful for human and environment health in manufacture and use, should respect some ethical trade standards and be labelled in a way that consumers clearly understand the features of the product⁶⁶.

The standards establish that a product can be labelled as 'organic' if more than 95% of the ingredients contained are organically produced, while the 'made with organic ingredients' label can be used when at least 70% of the ingredients are organically produced, with the exclusion of water. The percentage of organic ingredients can be specified on the product label, but the name of the product cannot contain the word 'organic'. The remaining ingredients must not be genetically modified, and can be used only when the organic version of a specific ingredient is not available.

With the emergence of the new COSMOS standard and certification, which is the result of the collaboration between different European organic organizations, from December 2014 all new health and beauty products will be certified with the COSMOS seal. By

⁶⁶ Soil Association organic standards health and beauty products, Revision 16.5 August 2012, www.soilassociation.org/organicstandards

that time it can still be used the Soil Association seal to certificate organic cosmetic products that fulfil standards' requirements.

Other important and relevant European natural and organic standards for cosmetic and beauty products are: the Association of German Industries and Trading Firms (BDIH), which certifies 'natural' but not 'organic' products; the Italian organizations AIAB and ICEA, which provide organic and sustainable certifications; the French CosmeBio and the Belgian BioForum.

Each of these certifications follows specific guidelines and requirements, with different levels of strictness. While some are competent on both organic and natural claims, other work and are specialized just on one single issue. The percentage of organic ingredients that must be contained in a product to be labelled as 'organic' varies, but is generally quite high, ranging from 85% to 95% for organic products.

As we can see these standards are a lot, maybe too much, as they often generate consumers' confusion for their lack of universality.

For this reason, we witnessed in recent years to the attempt of harmonization among the most acknowledged European standards, which had been merged into a single global standard, the Cosmetics Organic and Natural Standard (COSMOS).

Created in 2008, it was developed from the collaboration of six different organizations that we already mentioned previously: ECOCERT, Soil Association, BDIH, AIAB/ICEA, BioForum and CosmeBio. This new standard covers the certification cosmetic products that are market as 'organic' or 'natural'. It is important to underline that this standard not only defines what ingredients should be used in the formulations of cosmetic and with what percentage, but also and especially it addresses important challenging issues of our contemporary society such human and environmental sustainability and the responsibility towards the safeguard of our planet. According to the COSMOS main objectives, the natural and organic cosmetics sector should move towards:

- The use of products that come from organic agriculture and that respect biodiversity.
- The use of natural resources in a responsible and respecting way.
- The respect of human and environment health in manufacturing and producing processes.

- The integration of the concept of ‘green chemistry’, especially in the formulation of new cosmetic products⁶⁷.

The standard describes five different categories of ingredients: water, minerals, physically processed agro-ingredients, chemically processed agro-ingredients and synthetic materials. Some physical and chemical processes in order to obtain natural/organic ingredients are allowed, others are prohibited.

The Standard covers every manufacturing and producing steps for the creation of the finished product, from the origin and processing of the ingredients, to storage, manufacturing, packaging, labelling, and controls of the product as it will be available to consumers.

The COSMOS Standard regulates two different levels, in fact cosmetics can be certified under the Organic Certification and/or the Natural Certification. To achieve COSMOS Organic Certification, at least the 20% of the total product content must be organic, but to use the term ‘organic’ in the product name at least 95% of the ingredients must be organically produced. Water is not considered as organic, so products that are generally formulated with a high concentration of water such as shampoos and body lotions, should replace it with flower water or aloe concentrates, in order to get the certification. For products under the COSMOS Natural Certification, there is not a minimum level of organic ingredients required, but the percentage of organic product should be indicated in the label.

The founders will have to implement the Standard latest by 31st December 2014⁶⁸. Existing certifications and seals of founding members will then be replaced with the COSMOS new certifications. Nowadays we are still in a transition period during which founder members have the time to re-formulate their products according to the requirements until the implementing date when all certifications will be globalized and harmonized into a global and shared regulating system.

⁶⁷ COSMOS, Cosmetics Organic and Natural Standard, Version 1.1- 31st January 2011, www.cosmos-standard.org

⁶⁸ Ibidem.

EU and U.S. Cosmetic Regulations on Safety Issues

As we have seen until this point, natural and organic beauty products and the ingredients contained in them are regulated by different non-governmental standards, which have different specific features and requirements in each country. The most evident sign of harmonization is the one of COSMOS Standards, which is a clear attempt of getting a more and more universal and shared regulating system in the European Union.

While there is still a lack of governmental bodies that clearly regulate and manage natural and organic beauty products, the cosmetic industry as a whole is regulated by very strict rules, especially for what it concerns the toxicity and safety of the ingredients used in the formulation of cosmetic products. Here again we have to make a distinction between European and U.S. regulations, which can be considered the most influential powers of the beauty market. Obviously they are not the only existing regulating system, in fact each country, especially in the Asian region, which is gaining increasing market relevance, is developing and improving its own policy about cosmetics regulation.

In the European Union, during the 1970s, the necessity to harmonise the regulation and the free circulation of cosmetic products in the Community led to the introduction of a directive, which is known as Council Directive 76/768/EEC. This Directive, which was introduced in 1976 and was periodically updated over the years, establishes specific rules on the composition, labelling, and packaging of cosmetic products in order to improve and encourage free market circulation and to eliminate barriers to trade. With this Act cosmetic products no longer required a pre-market authorisation, as clear requirements for products to fulfil were deeply explained in the Directive in order to get free circulation. The responsibility on the composition, packaging, and ingredients composition of the product is entirely of the manufacturer, which places the finished products into the market⁶⁹.

The Council Directive 76/768/EEC has already undergone seven amendments and several adaptations to technical progress. On July 11, 2013 it will be replaced by the new European Regulation No 1223/2009. Since the new act is no more a Directive, but

⁶⁹ CosmetLex, The rules governing cosmetic products in the European Union, Cosmetic Legislation, Vol.1

a Regulation, this means that it can no more be encompassed in the local regulation of Member States, but it must replace all existing local laws. In this way all the problems related to the confusion for adapting to every different countries' legislation are no more present, as each Member States will have to adopt the same rules.

The most important innovations that were introduced with the Council Directive 76/768/EEC regard the definitions of prohibited ingredients and substances contained in cosmetic products, the requirements for product's labelling and packaging, the rules for monitoring the market, and the bans relating animal testing. Amendments and corrections had been incorporated into the basic text over the years. The Directive is integrated by 7 Annexes, which are outlined below:

- Annex 1: there is a list of all the categories that are defined as 'cosmetic products' that are freely allowed to use.
- Annex 2: all the substances that are banned, almost 1,400 total, are listed.
- Annex 3: there is a list of substances that must not be contained in cosmetic products except subject to the restrictions and conditions that are explained.
- Annex 4: colouring agents allowed and provisionally allowed for use in cosmetic products with specific limitations and requirements are listed.
- Annex 5: there is a list of substances excluded from the scope of the directive.
- Annex 6 and 7 respectively list preservatives and UV filters that cosmetic products are allowed to contain.

Packaging and container of the product must clearly show:

- the name and the address of the manufacturer;
- the weight/volume of the content;
- the date of minimum durability of the product;
- the function of the product;
- the identification batch number;
- the list of ingredients in descending order⁷⁰.

The names of the ingredients that appear on product's label follow a specific labelling nomenclature, which is known as the INCI nomenclature (International Nomenclature of Cosmetic Ingredients). Despite some differences, this international system is widely

⁷⁰ Official Journal of the European Communities, Council Directive of 27 July 1976

accepted both in Europe and in the USA, in order to avoid difficulties for importers and exporters, but also for consumers. The Directive approval by Member States includes also “the submission of a safety dossier to the EU Scientific Committee for Consumer Safety (SCCS), that issues an *Opinion* on the safety of the ingredients used in cosmetic products”⁷¹.

Furthermore, according to the Directive, each Member State is responsible for the monitoring of its market, and for the checking of products that are manufactured and imported in the EU.

One of the most significant innovations introduced by the Regulation is the bans on animal testing, which impose the end of testing final cosmetic products on animals (testing ban) and prohibit the marketing of finished cosmetic products that had been tested on animals or contain ingredients that have been tested on animals (marketing ban). With the 7th amendment to the Cosmetic Directive in 2003, the implementation of the testing ban on finished products has become effective since September 2004, while the testing ban on ingredients or combinations of them and the marketing ban have been applied since March 2009.

As we will further see along the course of this analysis, manufacturers and importers of cosmetic products in the European Union have to deal with several issues and problems for these bans. The lack of legal clarity towards the interpretation of the provisions and the existing conflicts with other European and international legislations, led to general confusion.

The Council Directive 76/768/EEC, after being amended 7 times and with about 50 technical adaptations in order to ensure scientific innovation to improve and evolve its course, will be permanently replaced by the new Regulation 1223/2009, which from July 2013 onward, will become mandatory for all the Member States. The basic objectives that were traced on the previous Directive, such as consumer safety, product traceability and the transparency of the composition of the ingredients, remain the same. The main advances imply the identification of a ‘responsible person’ established in the Community for each product placed on the market, the creation of a central reporting system for cosmetic products, higher controls about the use of certain CMR substances (Carcinogenic, Mutagenic or toxic for Reproduction), which will be allow under strict

⁷¹ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 131

conditions, the indication of nanomaterials in the list of the ingredients, and new labelling requirements. The bans and the strict regime that regulate the procedure of animal testing were not modified.

Anyway, it is possible to say that one of the most important steps forward in the European cosmetic regulation is the formal transition from a Directive to a Regulation, which requires Member States to replace local laws with a single and globally acknowledged regulating system. The transitional phase that will last until the Regulation will come into effect on July 2013, allows cosmetic products formulated following the previous Directive to be placed into the market until the due date. Afterwards, products will have to fulfil new Regulation's requirements before entering the market.

The new Regulation's operative strategy advances in line with REACH, the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. This last entered into force on June 2007 provides a comprehensive evaluation of several groups of chemical substances in order to protect human and environment health. Both the Regulations are working to ensure transparency to the public and to consumers.

Until this point we have analysed how the European governmental bodies regulate cosmetic products and all the issues related to their safety, labelling, marketing and monitoring. We have seen how these issues are relevant, and how especially in recent years, innovations are coming into force involving all Member States of the European Union. In the United States, the most important laws that regulate cosmetic products are the Federal Food, Drug, and Cosmetic Act (FD&C Act) and the Fair Packaging and Labeling Act (FPLA). The FD&C Act was introduced in 1938, and since that date it remained unchanged, except for the Colour Additives Amendment of 1960. The FPLA, which regulates the labelling, the packaging, and the advertisement of cosmetic products, was adopted in 1967.

The FD&C Act prohibits the marketing of cosmetic products that are adulterated or misbranded. Under the Act a product is adulterated if it contains poisonous or deleterious substances, it is made of putrid or decomposed substances, and it has been prepared or packaged under insanitary conditions. The product is considered misbranded if there are missing, misleading, or false information on the label.

If these rules are violated the FDA can pursue action through the Department of Justice and remove from the market products that do not fulfil the requirements. The Regulations prohibit the use of some substances such as bithionol, chloroform, chlorofluorocarbon propellants, methylene chloride and so on, and restrict the use of certain substances, such as hexachlorophene (HCP), mercury compounds and sunscreens.

The first thing that it is worth noting is that FDA's legal authority over cosmetics is different from other regulated products such as drugs, biologics, and medical devices. In fact, neither the FD&C Act nor the FPLA requires a premarket approval on cosmetic and personal care products before being placed into the market, with the exception of colour additives⁷².

Individual cosmetic firms have the responsibility to test their products' safety before placing them into the market. Manufacturers are not required to communicate to FDA any kind of information about cosmetic establishments, data or safety report on ingredients they use. However, they are encouraged "to register their establishment and file Cosmetic Product Ingredient Statements with FDA's Voluntary Cosmetic Registration Program (VCRP)"⁷³.

As far as animal testing, the responsibility is entirely in the hand of manufacturers, since the FD&C Act does not require neither the use of animals in testing product's safety, nor premarket approval for products to be put into the market. The agency advised manufacturer to make use of any kind of tests they consider appropriate to control product's safety. Anyway, FDA supports researches for the development of alternatives to whole-animal testing, in order to replace the use of animals with other technologies that do not require and employ their use.

The lack of FDA's authority over premarket approval and other related issues are going to be addressed with the new Cosmetic Safety Act of 2011, a legislation that will strengthen and modernize existing regulations on the safety of cosmetic and personal care products, which was introduced in the U.S. House of Parliament on June 24, 2011. With this new act, companies will have to mandatory report to the FDA manufacturing facilities, information and reports on product ingredients, while with the previous law this act was voluntary. Further, the FDA will have to review ingredients safety, set safe levels of use on specified timetables, establish tolerance levels for specific substances

⁷² FDA Authority over cosmetics, from www.fda.gov/Cosmetics

⁷³ Ibidem.

traced in the product and review the findings on ingredients safety of the Cosmetic Ingredient Review (CIR) Expert Panel.

The bill is currently in committee, so it is still not enforced, but anyway it represents an important step towards higher levels of safety for cosmetic product. Despite someone believes that European standards are higher than U.S. ones, it is evident that both the regulations are working towards higher safety requirements in a shared attempt to get a harmonized and universal regulating system.

In fact ingredients safety, testing guidelines, and labeling are much more assessed in the new U.S. Cosmetic Safety Act of 2011. Nevertheless, the way is still long, and future outcomes depend by governmental bodies, but also manufacturers. Some of the most relevant key points, on which it is necessary to work are certainly higher evaluations of chemicals ingredients used in cosmetic products, mandatory list of all the product's ingredients that should be written on the label as clearest as possible, and a more definitive position towards animal testing.

It is possible to highlight some of the most important focusing points on which the new Act has worked:

- New labelling requirements, which state that all the ingredients must be listed on the label, including contaminants and nanomaterials.
- Mandatory registration to the FDA for all the companies whose annual sales are more than \$2 million, similar to the European Cosmetic Notification practice.
- Establishment of Good Manufacturing Practices (GMPs) for ingredients to fulfil the U.S. Department of Health requirements, as it was decided in Europe.
- More exhaustive data and information on each product: functions, properties, exposure, and results of safety test.
- Minimization of animal testing and publication of alternative testing methods.
- Spread and diffusion of safety data about product ingredients and free database assessment, in a way that all non-confidential information must be available to the public.

It is evident that consumer's safety is one of the most important and urgent things that must be guaranteed by each country's legislation. It is difficult to talk about a concrete aligned universal system regulating the cosmetic industry, as there exist different cultures, specific driving market-forces, and different directing criteria in the industry itself. But it is universally acknowledged that all consumers around the world have the

same right to be protected, and not to put their health on risk we they use cosmetic products.

At the moment the U.S. Act is still not enforced, but it is at Committee's level for investigation and revision. What is important to underline is that this law not only represents a step towards an efficient and exhaustive U.S. legal system, but also and especially, the first touching point between the new European Cosmetic Regulation 1223/2009 and the U.S. Cosmetic Law.

6. WTO on the regulation of Cosmetic Products

As we have seen in the previous section of this analysis, in modern society beauty products, as products in general, are subjected not only to specific regulations regarding product quality, but also to strict requirements related to the protection of human health, and the safeguard of the environment.

Standards are indispensable in order to establish clear rules in the international marketing of products, but at the same time they can themselves become barriers to trade. Government regulations or industry standards are fundamental to facilitate international trade transactions, but they inexorably turn into barriers when they differ widely from country to country. The solution to this problem is represented by the promulgation of international rules that are mandatory for all the Member States. This is the case of Sanitary and Phytosanitary Agreement (SPS) and the Agreement on Technical Barriers to Trade (TBT), which have been formulated to regulate and balance the use of standards that must ensure safety and public health without becoming protectionist devices.

Just to have a general idea of how wide is the range of application of the matter, here is a table with some of the most common everyday products, which are subjected to technical, sanitary, and phytosanitary regulations⁷⁴.

<i>Products subject to technical regulations</i> <input type="checkbox"/> <i>Machinery and equipment</i> Boilers Electricity-driven construction and assembly tools Metal and wood-working equipment Medical equipment Food-processing equipment <input type="checkbox"/> <i>Consumer articles</i> Pharmaceuticals Cosmetics Synthetic detergents Household electric appliances Video and TV sets Cinematographic and photographic equipment	<i>Automobiles</i> <i>Toys</i> <i>Certain food products</i> <input type="checkbox"/> <i>Raw materials and agricultural inputs</i> Fertilizers Insecticides Hazardous chemicals <i>Products subject to sanitary and phytosanitary measures</i> <i>Fresh fruits and vegetables</i> <i>Fruit juices and other food preparations</i> <i>Meat and meat products</i> <i>Dairy products</i> <i>Processed food products</i>
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⁷⁴ Table from www.jurisint.org, chapter 5: *Mandatory and voluntary product standards, and sanitary and phytosanitary regulations*

It is possible to state that the most important bodies that regulate safety and health issues are the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), the Agreement on Technical Barriers to Trade (TBT Agreement), and Article XX of the GATT⁷⁵.

The GATT regulates health and safety measures in the framework of the application of the national treatment's principle. In fact, Article III:4 states that "the products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin"⁷⁶. Article XX, which is an exception to GATT rules, allows countries to take measures to protect human, animal or plant health and safety, but without arbitrarily or unjustifiably discriminating between countries where the same conditions prevail⁷⁷. In this way, a national health or safety measure that is in conflict with Article III:4, can be accepted if it fulfils the criteria of Article XX. In order to prove this, it is necessary to provide objective evidence of the health or safety risk, and to demonstrate that the ban or other measure is 'necessary'.

In connection with health and safety issues, the TBT Agreement plays an important role in preventing the use of national or regional technical requirements that can represent unjustified technical barriers to trade. Technical regulations, which establish the features to which a product must conform, can turn into barriers in different ways. In fact, a regulation can result to be too much unrealistic or unreasonable, in other cases the high number of regulations can represent an obstacle for companies that want to sell their products in many different countries. What can further become an obstacle to trade is the verifying procedure of compliance with technical regulations, which due to testing processes and certifications extends the difficulties of trade between different states.

For these different reasons, the Agreement on Technical Barriers to Trade, which resulted from the Uruguay Round of GATT negotiations, has the objective to try to find a balance between states' possibility to establish trade regulations and the necessity to minimize trade negative effects. The rules of the TBT Agreement are applied to technical regulations, standards (including packaging, marketing, and labelling

⁷⁵ Mitsuo Matsushita, Thomas J. Schoenbaum, Petros C. Mavroidis, *THE WORLD TRADE ORGANIZATION Law, Practice, and Policy*, p. 486

⁷⁶ GATT Article III:4 from www.wto.org

⁷⁷ GATT Article XX from www.wto.org

requirements), and conformity assessment procedures⁷⁸. The Agreement does not apply to sanitary and phytosanitary measures, which are covered by the SPS Agreement.

It is necessary to start by giving a clear definition of the term ‘technical regulation’, which has been developed by the Appellate Body first in the *EC - Asbestos Case* and then further in the *EC Sardines Case*. In the *EC - Asbestos Case*⁷⁹, it was ruled that the prohibition of a product, in this case asbestos, could be a technical regulation since it establishes specific mandatory product’s features that must be observed. The second case that was decisive for the definition of ‘technical regulation’ under the TBT Agreement, the *EC Sardines Case*⁸⁰, led the Appellate body to state that a technical regulation in order to be regarded as such, must fulfil three fundamental requirements:

- it must be an identifiable product or group of products;
- product characteristics such as packaging, labelling, marking, terminology and symbols must be clearly specified;
- the compliance of the disposal is mandatory⁸¹.

A definition of ‘standard’ is also given in the Annex 1 of the Agreement, which states that it is a “document that provides rules, guidelines, or characteristics for products or related processes and production methods”⁸².

The TBT Agreement requires WTO Member States to “ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade”⁸³. These technical regulations should not be more restrictive than necessary, to fulfil legitimate objectives that are defined under Article 2.2 as “national security requirements, the prevention of deceptive practices, and the protection of human health or safety, animal or plant life or health, or the environment”⁸⁴.

⁷⁸ TBT Agreement Annex 1, para. 1 from www.wto.org

⁷⁹ This case involved a challenge between Canada and France about the prohibition of manufacture, processing, sale and importation of products made of asbestos fibres. More precisely Canada argued that French ban was too strict, and that it could have been replaced by less-stringent measures.

⁸⁰ The case involved an EC regulation that required that the use of the species ‘sardinops sagax’ for ‘canned sardines’ had to be prohibited from being marketed as preserved species.

⁸¹ TBT Agreement Annex 1.1 from www.wto.org

⁸² Ibid. Annex 1.2

⁸³ TBT Agreement Art. 2.2 from www.wto.org

⁸⁴ Ibidem.

In addition to this, WTO Members must ensure transparency, promptly publishing technical regulations that should be generally available⁸⁵, and justifying the adoption of any technical regulation that causes relevant effects to other Member States⁸⁶.

The central focus of the TBT Agreement is represented by Article 2.4, which establish that “where international standards exist, Members shall use them as a basis for their technical regulations except when such international standards would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued”⁸⁷. The Agreement does not specifically specify the standards of the international organizations that should be used when adopting a technical regulation. Nevertheless, it is possible to say that some of the most important and acknowledged organizations, which provide standards for industrial products are:

- the International Organization for Standardization (ISO);
- the International Electrotechnical Commission (IEC);
- the International Telecommunication Union (ITU);
- the Codex Alimentarius Commission.

As noted earlier, the presence of many different standards in each country can generate some problems of compatibility in international trade. For this reason the TBT Agreement contains a Code of Good Practice for the Preparation, Adoption and Application of Standards⁸⁸. This Code requires WTO Members to participate in and comply with standards formulated by international bodies, and to publish their work programme with periodic deadlines.

The TBT Agreement is administered by a WTO Committee, and TBT determinations are subject to WTO dispute settlement procedures⁸⁹.

⁸⁵ Ibid. Art. 2.9-2.12

⁸⁶ Ibid. Art. 2.5

⁸⁷ Ibid. Art. 2.4

⁸⁸ Ibid. Annex 3

⁸⁹ Mitsuo Matsushita, Thomas J. Schoenbaum, Petros C. Mavroidis, *THE WORLD TRADE ORGANIZATION Law, Practice, and Policy*, p. 133

The WTO Agreement on the Application of Sanitary and Phytosanitary Measures can be considered as a sort of complement of TBT Agreement. As the TBT Agreement, SPS rules are intended to regulate trade practices at the international level. The SPS Agreement confirms the rights and the responsibilities that each Member State has with regard to human protection and animal and plant safety. The Agreement sets out very clear measures, which are contained in the Annex A and are adopted by each country in order to:

- protect animal or plant life or health from risk related to the entry, establishment, or spread of pests, disease, disease-carrying organisms or disease-causing organisms;
- protect human and animal life or health from risks arising from additives, contaminants, toxins, or disease-causing organisms in food, beverages or feedstuffs;
- protect human life or health from diseases carried by animals, plants or product thereof, or from the entry, establishment or spread of pests;
- prevent or limit other damage from the entry, establishment or spread of pests⁹⁰.

All laws, decrees, regulations, requirements, and procedures that are related to products, processes, and production methods, are included in the SPS measures⁹¹.

The Agreement requires all measures to be harmonized on the basis of international standards, guidelines, or recommendations⁹², which should be developed by:

- the Codex Alimentarius Commission, for food safety;
- the Office International des Epizooties, for animal health;
- the International Plant Protection Convention, for plant health;
- any other international organizations designated by the WTO Committee on SPS.

The fundamental rules of the SPS Agreement require that the application of those measures necessary to ensure human protection, animal and plant life and health, should be “based on scientific principles and not maintained without sufficient scientific evidence”⁹³. Further, Member States must not discriminate arbitrarily or unjustifiably

⁹⁰ SPS Agreement Annex A, paras 1(a)-(d) from www.wto.org

⁹¹ Ibid. para 1

⁹² Ibid. Art. 3.1

⁹³ Ibid. Arts. 2.3 and 5.7

with respect to both national treatment and MFN obligations⁹⁴. Measures must be justified by scientific evidence or by an assessment of the risk of human, animal and plant life and health in order to determine an appropriate level of protection, but without being more trade restrictive than necessary⁹⁵.

The main difference between technical regulations and sanitary and phytosanitary measures is related to the objective to fulfil which they were formulated for. With regard to SPS measures the main scope, as explained previously, is limited in a specific way to human protection, and animal and plant safety or health. On the contrary, technical regulations are applied to a wider and more general field, including a variety of policy objectives, which range from national security, to prevention of deceptive practices and environment safeguard. Here are some examples that show what are the different areas of competence of technical regulations and SPS measures with regard to some specific issues⁹⁶.

<i>Controlling Agreement</i>	<i>Description of measure</i>
<i>Regulation on pesticides</i>	
<i>SPS</i>	<i>If the measure relates to residues in food or in animal feed, and the objective is to protect human or animal health.</i>
<i>TBT</i>	<i>If the measure relates to the quality or efficacy of the product, or to a health risk to handlers.</i>
<i>Establishment of labelling requirements for foods</i>	
<i>SPS</i>	<i>If the measure is related to food safety.</i>
<i>TBT</i>	<i>If the regulation concerns such matters as the size of the typeface used on the label, the presentation of information on contents, grade, etc.</i>
<i>Regulation on containers for the shipment of grains</i>	
<i>SPS</i>	<i>If the regulation is on fumigation or other treatment of these containers, i.e. disinfection in order to prevent the spread of disease.</i>
<i>TBT</i>	<i>If the regulation relates to the size or structure of the containers.</i>

⁹⁴ Ibid. Art 2.3

⁹⁵ Ibid. Arts. 3.3 and 5

⁹⁶ Table from www.jurisint.org, chapter 5: *Mandatory and voluntary product standards, and sanitary and phytosanitary regulations*

As noted previously, the TBT Agreement covers all kind of technical requirements and voluntary standards for almost every product, except for measures that are defined and ruled by the SPS Agreement. To give some practical examples, TBT Agreement regulates food and labelling requirements dealing with nutrition claims, quality and packaging regulations, while labelling requirements that specifically deal with food safety are considered SPS measures. In the list below, there is a summary of the different areas of competence of the 2 Agreements and the respective fields which they deal with⁹⁷.

Differences Between SPS and TBT Measures:	
SPS measures typically deal with:	<ul style="list-style-type: none"> • additives in food or drink • contaminants in food or drink • toxic substances in food or drink • residues of veterinary drugs or pesticides in food or drink • certification: food safety, animal or plant health • processing methods with implications for food safety • labelling requirements directly related to food safety • plant/animal quarantine • declaring areas free from pests or disease • preventing disease or pests spreading to or in a country • other sanitary requirements for imports (e.g. imported pallets used to transport animals)
TBT measures typically deal with:	<ul style="list-style-type: none"> • labelling of composition or quality of food, drink and drugs • quality requirements for fresh food • volume, shape and appearance of packaging • packaging and labelling for dangerous chemicals and toxic substances, pesticides and fertilizer • regulations for electrical appliances • regulations for cordless phones, radio equipment etc. • textiles and garments labelling • testing vehicles and accessories • regulations for ships and ship equipment • safety regulations for toys • etc.

It is possible to state that there are 4 main fundamental differences between the rules of SPS Agreement and TBT Agreement.

The first one is about the role played by scientific evidence in the formulation of regulations. While for SPS measures it is fundamental to provide sufficient scientific evidence in order to support adopted measures, for the TBT Agreement the use of scientific evidence depends on the objectives for which measures have been taken.

⁹⁷ Table from www.wto.org SPS Agreement Training Module: chapter 1

The second difference is about the application of the Most Favoured Nation (MFN) Principle. The TBT Agreement requires that the application of technical regulations should be made on a MFN basis. This is true also for SPS measures, but there are some exceptions and more flexibility with regard to those SPS measures that are formulated to prevent the entry into a country of plant or animal-borne pests and diseases.

Third, the conditions that allow Member States to deviate from international standards are different depending on the Agreement. The TBT Agreement states that different or higher standards than the existing ones should be taken only when necessary and under certain specific conditions. For the SPS Agreement, in order to adopt higher standards, there must be a scientific justification, or the request must be justified on the basis of an assessment of risks.

Finally, SPS measures are taken on a provisional basis in a precautionary way when risk exists without scientific evidence, while any of such provisions are contained in the TBT Agreement.

One of the most important and central pillars in the regulation of international trade, which contributes to global stability, is dispute settlement. In fact, the WTO itself wouldn't be effective without an efficient system able to regulate disputes. As provided in Article 14.1 of the TBT Agreement and in Article 11.1 of the SPS Agreement, violations of both the Agreements are handled pursuant to the provisions of Article XXII and XXIII of GATT 1994, as elaborated and applied in the WTO Dispute Settlement Understanding (DSU).

The WTO's dispute settlement procedure has a clear and definite structure with strict timetables. Here is a table with a summary of all the Dispute Settlement's stages⁹⁸.

⁹⁸ Understanding the WTO: settling disputes from www.wto.org

How long to settle a dispute?	
These approximate periods for each stage of a dispute settlement procedure are target figures — the agreement is flexible. In addition, the countries can settle their dispute themselves at any stage. Totals are also approximate.	
60 days	Consultations, mediation, etc
45 days	Panel set up and panellists appointed
6 months	Final panel report to parties
3 weeks	Final panel report to WTO members
60 days	Dispute Settlement Body adopts report (if no appeal)
Total = 1 year	(without appeal)
60-90 days	Appeals report
30 days	Dispute Settlement Body adopts appeals report
Total = 1y 3m	(with appeal)

As we can see, the mechanism of Dispute Settlement in its integrity is very long and complex. In fact, by 2008 “only about 136 of the nearly 369 cases had reached the full panel process”⁹⁹. Taking into account TBT and SPS Agreement, throughout years there have been very few WTO disputes in which the final outcome depended entirely on the TBT Agreement or the SPS Agreement. The most important and relevant are, for the TBT Agreement the *EC – Sardines* dispute, and for the SPS Agreement the *EC – Hormones* case.

In the *EC – Sardines* case, Peru challenged an EC regulation that established that only the species *Sardina pilchardus Walbaum* could be marketed in the EU under the name ‘sardines’. This meant that any other similar fish species could not be sold under the ‘sardines’ in the EU market, even though this happened in most of other world markets. However, according to the Codex Standard 94, set by the Codex Alimentarius Commission, Peru should have been able to sell its products in the EC markets under a specific designation, which specified the country of origin, the geographic area or the species common name, such as ‘Peruvian Sardines’.

The dispute was decided on the basis of the violation of Article 2.4 of the TBT Agreement by the EC. In fact, the WTO panel found that “the EC failed to comply with Article 2.4 of the TBT Agreement because it did not base its internal technical regulations on the Codex Standard, and was not able to demonstrate that this standard

⁹⁹ Ibidem.

would not be appropriate in ensuring market transparency, consumer protection and fair competition”.

This case is important and worthy of note for different reason. Not only it is the first case in which a WTO member was found in to be in violation of its obligations under the WTO Agreement on Technical Barriers to Trade, but it also establishes the importance of harmonizing Codex Alimentarius standards in WTO disputes.

Also in the *EC – Asbestos* dispute the TBT Agreement played an important role. Despite the case was decided on the basis of the GATT 1994, the Appellate Body found that the TBT Agreement was applicable.

The cause of the *EC – Hormones* dispute was an EC ban on the imports of beef of cows treated with hormones for growth-promotion purposes, allegedly for human health reasons. The US and Canada, which requested the establishment of a panel under the WTO, claimed that there was no evidence of adverse effects. The panel found that the EC measure violated Articles 3 of the SPS Agreement, as there was an unjustified level of protection, and Article 5.1 as there was not a relationship between the measure and the scientific evidence submitted on five of the hormones used.

What is important to underline is that until recently, panels have avoided applying the TBT Agreement and the SPS Agreement, in favour of the application of GATT rules instead. But in recent years things have slightly changed, in favour of a use of TBT and SPS measures as protectionist devices to solve disputes.

As said previously, the WTO Dispute Settlement mechanism allows each Member State to protect and to defend itself from rights’ violations. In the specific context of TBT and SPS Agreements, there exist committees that address and discuss trade issues through consultation. Anyway, what is necessary to underline, is that often the dispute settlement process results to be too difficult and too costly to face, especially for developing countries. The first costs are related to the mechanism of bringing another Member State before WTO panels, but there are also costs strictly connected with the dispute, and the process of participation to meetings before a Panel and the Appellate Body.

Furthermore, “both SPS and TBT disputes often involve specific knowledge and complex analysis and assessment”¹⁰⁰.

It is also necessary to add that SPS and TBT measures particularly affect developing countries, which face a lot of problem in order to be compliant with all their related strict requirements. Compliance with third developed countries’ standards requires “know-how, capital and investments”¹⁰¹.

Article 11 of the TBT Agreement and Article 9 of SPS Agreement require that technical assistance and a more favourable treatment have to be given to developing countries, on the base of their trade and financial specific needs. Anyway, developing countries’ difficulties to respect and fulfil developed countries’ regulations, and to challenging the implementation of SPS and TBT measures adopted by developed countries where contrary to WTO obligations, produce a significant impact on the trade of products that are directly affected by the measures, resulting in an inevitable impaired situation for Member States¹⁰².

It results obvious that the most preferred way to settle disputes on SPS and TBT issues is always multilateral trade negotiations. Trade negotiations should be used as a forum to identify and discuss specific trade problems and to find a solution for the involved matters. This can be obtained through the identification of specific market access problems and with the attempt to find a solution that should be requested and shared by all the participating Members. Specific trade concerns and technical problems can be faced with the setting of roadmaps with specific deadlines, with the adoption of decisions or the establishment of dialogues that promote cooperation, with the use of existing trade facilitating tools for SPS and TBT requirements, and with the elaboration instruments formulated to improve existing provisions¹⁰³. Some progress in the settlement of SPS and TBT issues can be further obtained focusing on the regional and bilateral context of negotiations. This means that cooperation between for example two or few countries can be maximised when conducted on a more restricted basis, as the possibility of reaching a point of agreement and the solution of the problem is higher.

¹⁰⁰ Joseph A. McMahon, Melaku Geboye Desta, *Research Handbook on the WTO Agriculture Agreement: New and Emerging Issues in International Agricultural Trade Law*, p.191

¹⁰¹ Ibid. p. 189

¹⁰² Ibid. p. 194

¹⁰³ Ibid. p. 196

TBT Agreement on the regulation of cosmetic products:

Until this point of the analysis, we have seen what are the main fields of application of the TBT and the SPS agreements, what are their fundamental principles, and how disputes are settled within the context of WTO system. This preamble is pivotal to understand in what way private and governmental standards, which are fundamental in the regulation of cosmetic products, can be challenged by international devices such as WTO provisions, and in a more specific way TBT measures. As previously explained, products' standards are primarily addressed by the TBT Agreement, which covers all kinds of requirements that range from product's labelling to product's safety and quality. Making reference to cosmetic products, we know that there exist different governmental regulations that deal with the issue of safety and that establish specific guidelines and requirements for the ingredients contained in cosmetic products that must be fulfilled before being put into the market.

More precisely, we know that the new European Cosmetic Regulation No 1223/2009 imposes clear requirements on the composition, labelling, and packaging of cosmetic products. One of the most relevant and controversial issues about this Regulation is the ban on animal testing.

The ban on animal testing, which will be explained in details below, is a representative and concrete example of how WTO norms and provision can affect EU decision-making at different stages.

With the sign of the EU Cosmetic Directive 76/768 in 1976 different aspects of the cosmetic industry started to be regulated, but the problem of animal testing had not yet been addressed. It was in 1993 when there was the first attempt to regulate the issue, with the amendment of Directive 93/35, which sought to end animal testing for cosmetic products by 1998. Due to several postponements, the ban was further delayed to 2000 and then again to 2003. It was with the seventh amendment to Directive 76/768, which has now been recast as Cosmetic Regulation 1223/2009 that the situation changed in a decisive way. This amendment provided specific implementation deadlines to end animal testing for cosmetic products in the EU, to which every company must comply.

More precisely, it was established a testing ban on finished cosmetic products, applied from September 2004, and on ingredients or combination of ingredients tested on animals, applied from March 2009.

Furthermore, a marketing ban, applied from March 2009, determined the prohibition of import and sale in the EU of finished cosmetic products and ingredients contained in cosmetic products that have been tested on animals. One of the problems with this provision is that the initial aim to entirely eliminate animal testing by 2013 is hindered by some required tests, for which it still does not exist an alternative testing method. For this reason, it was decided the postponement of these three animal tests, or 'endpoints', which include: 'repeated-dose toxicity', 'reproductive toxicity', and 'toxicokinetics'. For these specific health effects, the deadline was delayed to March 2013, in order to find and adopt alternative methods to replace them.

What is important to note is that it exists also a problem of compatibility of the marketing ban with WTO rules, as it is likely to contravene Article III.4 of the GATT and the TBT Agreement. In fact, what is questioned is the existence of a discriminatory treatment between 'like' products that are originated in the EU and the ones originated outside the EU. As explained previously, the GATT, under Article III.4, prohibits treatments that favour domestic products over 'like' imported products. The EU Cosmetic Directive bans the sale of foreign products in the EU if they do not fulfil the above mentioned requirements, giving preference to domestic products, which are not animal-tested over foreign products, which are potentially animal-tested.

What should be underline is that the testing method applied to a product does not cause any physical consequences to the product itself. For this reason a product that was tested on animal and a product that wasn't are physically 'alike', so that differences in treating them represent discrimination under the GATT. As a direct consequence, the prohibition of the importation of animal-tested cosmetic in the EU contemplated in the Cosmetic Directive, while allowing the marketing and sale European cosmetic products that are 'alike', violated Article III.4 of the GATT. At this point, it is possible to mention Article XX of the GATT in order to ensure the protection of human or animal health. In fact, the Article represents an exception to the scope of Article III. In this specific case at issue, both animal and human health are taken into account, despite being on opposite sides. The aim of the Cosmetic Directive is to protect animal health through the imposition of a testing ban and a marketing ban. At the same time, looking

at the issue from a different perspective, it could be argued that the ban represents a threat for human health, especially if there still do not exist alternative testing methods. It is also true that the human health concerned is a permanent problem, which will be solved with the creation and the application of new alternative testing mechanisms. This process will furthermore led to an higher level of safety and protection not only for human but especially for animals, without perpetuating useless testing methods, which are often unreliable and unclear when used to predict human behaviour and reaction.

If on the one hand, the new European Cosmetic Regulation's requirements could represent a threat for the importation of foreign products, and an impediment for that countries that are still not able to comply with its measures, on the other hand it will contribute to the development and the adoption of new technologies by other non-EU countries in order to increase compliance with the ban¹⁰⁴.

This process is taking place for example in U.S. Cosmetic Regulations. In fact the new Safe Cosmetic Act of 2011, in a context of harmonization with European measures, will deeply focus on the issue of animal testing, requiring manufacturer to minimize as much as possible animal testing, and publishing a list of alternative testing methods following the positive model of the European regulations.

Outside the EU, "the ban could have potentially devastating effects on cosmetic manufacturers that do not comply with it"¹⁰⁵, as it would led to a deep crisis on exports to the EU, which represents one of the most profitable world market. For this reason, it is non-EU States' responsibility to protect not only their consumers' health and safety without endanger animals' welfare, but also the performance of their markets.

To sum up, legal challenges against the marketing ban are unlikely to be successful, as the human health concern does not exceed in its measure the importance of animal safeguard. This means that until it exists the possibility to find and to implement new alternative testing methods, the claims against human health concerns over animal safety and welfare will inexorably fail.

A WTO Technical Barriers to Trade (TBT) Committee meets every three years with the aim of reducing trade obstacles by working on technical regulations and standards and their implications on trade. The last meeting, which formally took place on 27-28 November 2012, focused on trade in goods, and ranged from food, medicines, and

¹⁰⁴ Jennifer Klein, *EU Cosmetic Directive and the Ban on Animal Testing: Compliance, Challenges, and the GATT as a Potential Barrier to Animal Welfare*, p.272

¹⁰⁵ Ibid. p. 273

cosmetics, to toys, telephones and tyres. Specific trade concerns have been identified and discussed, and among the 36 trade concerns raised also cosmetics and animal welfare have been included.

Worthy of note are especially two Specific Trade Concerns that have been raised on China and Korea.

The Trade Concern CHN/821 was raised by the European Union on China's burdensome and lengthy cosmetic registration requirements, which were set in the Guidance for Application and Evaluation of New Cosmetic Ingredients by the Chinese State Food and Drug Administration. EU was especially concerned with the following issues:

- the EU would like to receive clarification with regards to complex ingredients (mixtures, natural ingredients) that are of common use in the cosmetic industry, and if solvents used for the extraction of plants are considered in the Guidance document as a part of a mixture;
- the EU wanted to receive explanation about the reference made in the guidance document to 'Mutagenicity' test and if specific protocols have been defined;
- the EU observed that the draft had already been adopted before being notified to the WTO TBT Committee, with the violation of Article 2.9.2 of the TBT Agreement that establishes that Members shall notify other Members of proposed technical regulations at an early appropriate stage;
- finally, the EU reminded China that according to Article 2.2 of the TBT Agreement, members shall ensure that technical regulations do not represent unnecessary obstacles to international trade¹⁰⁶.

The other case examined is a Notification of technical regulations TBT/N/KOR/344 made by the EU to the Korean Amendment of the Enforcement Regulation of the Cosmetic Act. Some of the regulatory changes covered by the Act are considered to be burdensome, excessive, or discriminatory for European industry, especially with regards to the registration process for importers and the additional requirements imposed on foreign cosmetic products as compared to domestic ones. What is specifically questioned is the usefulness of the Electronic Data Interchange (EDI) system, operated

¹⁰⁶ www.wto.org Technical Barriers to Trade: 30 November 2012 Formal Meeting

by the Korean Pharmaceutical Traders Association (KPTA) as a mean of pre-market control. The EU asked to remove the obligation for foreign cosmetic companies to register their product in the EDI system, in favour of the establishment of a single pre-market notification system that is applied in the same way to foreign and domestic companies. The EU expressed its concern also for some Korean labelling requirements of the contents of cosmetic products' ingredients.

Also in this case it is mentioned the violation of Article 2.2 of the TBT Agreement, as Korean regulations and measures are supposed to create unnecessary obstacles to international trade.

7. Animal Testing: analysis of the issue and research of alternative methods

History of the development of animal testing methods

The practise of testing cosmetic products on animals started to widespread in the 1920s, when it begins to be evident the necessity to evaluate the toxicity of a different variety of ingredients used in the cosmetic industry, but also in many other sectors such as the pharmaceutical, chemical and medical ones. But it is fundamental to underline that experimentation on live animals, or ‘vivisection’, is an old practice, which started to be perpetuated from the beginning of the 17th century.

In 1933 a woman after using ‘Lash Lure’ mascara to darken her lashes went blind and eventually died, as the product contained paraphenylenediamine, a very toxic substance for human body. This incident clearly demonstrated the urgency of formulating a regulatory system in order to ensure public safety through the analysis of ingredients contained and used in cosmetic products. From this point onwards, we witness to the formulation of several different governmental Acts with the aim to protect consumers’ safety. In 1938 the Food and Drug Administration (FDA) passed the Federal Food, Drug, and Cosmetics Act (FDCA) to ensure that cosmetic products’ safety was clearly regulated in the United States. At the same time, also all the other countries realised the urgency of taking a clear position towards the issue of safety, and formulated governmental regulations, which became operative in different way and at different times, as mentioned in the previous chapters of the analysis.

In parallel with the establishment of regulating systems with the clear aim to evaluate cosmetic products’ safety, the practice of testing these products, or the ingredients contained in them on animals began to represent the most widespread and common procedure perpetuated by manufacturers. This had been possible, due to the lack of specific regulations that prohibited the use of animal in testing methods. In fact, despite not explicitly mentioning the mandatory use of animal in testing procedures, regulatory agencies have “historically used animal toxicity data as a gold standard to settle safety issues”¹⁰⁷.

¹⁰⁷ Kelly Renz McNeal, *Death: The price of Beauty: animal testing and the cosmetic industry*, p.2

As a consequence, nowadays it is still common belief that animal testing represents the best way to evaluate human body reactions to potential toxic ingredients contained in cosmetic products.

The practice of testing cosmetics on animals includes a different variety of procedures, which can be listed as follow:

- testing a finished cosmetic product on animals;
- testing an ingredient or a combination of ingredients on animals;
- contracting a third-party organization in order to perform any of the above mentioned practises;
- using a subsidiary company to perform any of the above tests in a country where animal testing is not banned¹⁰⁸.

It is evident that it results misleading the claims made by a lot of companies, which advertise their products as 'not tested on animals', in fact despite they do not perpetuate animal testing by themselves, they delegate to third-party companies or laboratories the performing of the testing practices.

As hard as it can results to believe, a lot of big cosmetic and personal care products companies still conduct experiments on animals. Many of these companies perform the tests by themselves or delegate the practice to various laboratories.

Every year painful experiments are carried out on hundreds of thousands of animals, including dogs, rabbits, mice, rats, guinea pigs, fish and birds¹⁰⁹. Some of the most common and widespread of these animal testing methods include eye irritancy tests (Draize test), skin irritancy tests, acute toxicity test (LD50), and cancer tests.

Even though the results of these tests are often unreliable and difficult to be applied on humans, animals are still forced to swallow or inhale massive quantitative of chemical substances, and to endure the pain caused by the application of chemicals on their sensitive eyes and skin.

In 1944, John Draize, toxicologist of the Food and Drug Administration (FDA), elaborated a scoring system in order to evaluate eye damage. This system, since the World War II era, became the standard procedure to estimate the capacity of eye

¹⁰⁸ Ibid. p. 5

¹⁰⁹ PETA website www.peta.org

irritancy of a different variety of products, such as shampoo, hairspray, deodorant, detergents, and drugs¹¹⁰.

The procedure of the test requires that a liquid, flake, granule, or powdered substance is dropped into one eye of a group of albino rabbits, which are specifically used for their insufficient tear ducts, while the other eye is used as a control parameter. They are often immobilized in full-body restraints and forced to receive this treatment for several days without any form of anaesthesia. The tests last up to 14 days, and during this time period different reactions are observed. Signs of erythema, redness, conjunctiva, discharge, ulceration, hemorrhaging, or blindness are recorded and classified according to a specific grade system. The maximum system score possible is 110, and it usually represents a very serious or fatal situation, such as the destruction of the eye¹¹¹, which occurs in the worst cases when the cornea ulcerates and perforates. If the test causes irreversible damages, the animals are euthanized, otherwise they are re-used for further tests.

The atrocity of this test and the intense pain that animals feel during it is undeniable. Rabbits during the tests are often forced into restrained devices, only with their heads out of the cage. They are not even able to close their eyes as their eyelids are maintained opened with clips. As a consequence of the pain felt, these poor animals often break their neck in the attempt to escape.

Besides its evident cruelty, there are other additional factors that make this test very controversial. For example, the scoring of the eye damage is highly subjective and it can vary significantly taking into account the analysis made by different laboratories. In addition to this, it is fundamental to consider the fact that there exist differences in the anatomy and biochemistry between the human eye and the rabbit eye. In fact, rabbit eye tends to be more sensitive and to have a stronger reaction to chemicals than human eye, resulting in a gross over prediction of the effects that can be expected on humans.

Skin corrosion and skin irritancy tests also make use of rabbits and guinea pigs that are forcibly immobilized. The process requires that a test chemical is placed on the shaved skin of the animal and then covered with an adhesive patch for the entire duration of the test, which generally last up to 14 days. After four hours of exposition, the patch is removed in order to evaluate the score of the damage at specified time intervals, during

¹¹⁰ Kelly Renz McNeal, *Death: The price of Beauty: animal testing and the cosmetic industry*, p.6

¹¹¹ Ibidem.

which laboratory technicians control and record the damage of the skin area under treatment. Despite the procedure remains the same, the main difference between irritant and corrosion tests is that irritants are chemicals that cause a damage to the skin that is reversible, while corrosive agents cause irreversible damages to the skin, which often cause the destruction of the skin itself through the burning of several layers of tissue. In both cases the untreated skin area is used as a control parameter in order to do damage evaluations.

After 14 days, which is the end of the period of observation, considerations are made by laboratory technicians. The general rule is that a chemical is considered to be an irritant if it determines reversible skin damages, such as irritated or inflamed skin, which are clinical signs that are going to heal during the period of examination.

On the contrary a chemical agent is classified as corrosive if it causes the burning of the outer layer skin leaving visibly dead tissue, by the end of the 14 days period of observation. For both tests, no pain relief is provided¹¹².

As for the Draize eye irritancy test, also skin irritancy and corrosion tests are considered unreliable. Generally, it has been demonstrated that these tests are often poor predictors of human skin reaction to chemicals. For example, from the comparison of data from tests made with rabbits, and tests made with skin patch applied to humans, it came out that the classification of several substances, which were considered potentially irritant on animals was wrong¹¹³.

The acute toxicity testing is an infamous practice that began during the World War I with the lethal dose 50 percent (LD50) test, which still nowadays is the most common animal poisoning study. LD50 signifies the single dose that is necessary to kill 50% of a group of animals, usually rats or mice, used in the experiments.

This test is largely used to test the toxicity of a wide range of products, such as pesticides, cosmetic and household products, drugs, weed killers, and industrial products. In order to determine the toxicity caused by the exposition to a chemical substance or a product that contains it, this substance is administered to animals in massive dose through different methods, such as forced feeding, forced inhalation, and dermal or intravenous absorption. This process, depending on the material that is tested,

¹¹² PETA website www.peta.org Animals used for experimentation

¹¹³ Ibidem.

can lead to severe abdominal pain, diarrhoea, discharge and bleeding from the eyes, nose and the mouth, convulsions, and paralysis.

The most common form of this test is processed through forced oral feeding, using a tube that is inserted inside the animal's throat. Another common form is the forced breathing of the vapour. Not only rats and mice are used for experimentation, but also rabbits, birds, dogs and monkeys. In the formal LD50 test generally a group of 60 animals of male and female is used. In this group, animals are force-fed gradually increasing the amount of substance until 50 % of them die. The test can proceed for up to 14 days until half of the animals have died.

The test obviously causes a lot of pain and great suffering to animals, since no pain relief is given to them. Sometimes, despite the substance administered is not so much toxic, the animal can die due to the volume of the material that he is forced to swallow into the stomach. After the 14-day period of duration of the experiment, all the animals that have survived are euthanized, and the tissue of all animals involved into the experiment are analyzed.

Here again, as with all the other animal testing methods that have been mentioned before, there exist a lot of problems about the reliability and the effectiveness of the LD50 test. In fact, it was observed that the results obtained from the experimentation change drastically depending on the species considered and even on the strain of the same species. Furthermore, many other factors and features are determinant, such as sex, age, health, genetic strain, degree of starvation, method of dosing, temperature and humidity.

It is also necessary to add that since this kind of test is not transferable between species, it is not reliable neither for humans. One striking example is given by the fact that animal's anatomy is different from human's anatomy in many different ways. The fact that animals, such as mice, have their organs overloaded with a massive quantity of a substance that cause their death, is completely unrelated to human body. In fact, in a similar situation, human beings might vomit in order to try to remove the substances from their stomach. This is impossible to do for rats, which cannot vomit.

In this case situation what causes the death of the animal is not the toxicity of the substance but the massive quantity that is administered to animals.

Very often animal testing methods are perpetuated not because they guarantee protection and safety for humans, but because they protect corporations and

manufacturers from legal liability¹¹⁴. Anyway, as we will see later on, the possibility to substitute animal-testing methods with alternative procedures is every day more and more available and concrete. The use of animal testing in the cosmetic industry is a very controversial issue, which raises a lot of technical but also ethical matters. What is questioned is the choice of consciously and deliberately poisoning and torturing helpless animals, which are forced to undergo suffering, despite test results are often not applicable to humans, and despite the development of more accurate, faster and less expensive sophisticated alternative testing methods is constantly ongoing.

Alternative testing methods

Today, hundreds of cosmetic and personal care products industries have decided to change their policy and to abandon permanently animal testing, in order to develop alternative non-animal test methods, which involve for example the use of artificial skin or corneas from human cells that can be used to substitute eye and skin irritancy test. This changing process is based on the promotion of the “three Rs” guiding principles of animals, which can be considered the most recognized and acknowledged guidelines that regulate animal care and welfare. The “three Rs” stands for: Refinement, Reduction, and Replacement.

Reduce means trying to control the number of animals used in experiments, conducting a statistical analysis in order to establish the suitable number to use for each test. This must be taken into account in those cases where no alternatives to animal-testing methods exist, trying to operate in the best way also in difficult ethical situations. It is fundamental that both overestimation and underestimation must be avoided. In fact, a low number of animals used makes that the test results are not reliable and then an additional test needs to be repeated, requiring further animals. On the contrary, if too many animals are used the results are actually reliable, but a lot of animal lives are unnecessary wasted. For this reasons the correct number of animals must be found at the first time. Furthermore, the procedure of testing must be followed and carried in the best way, so that proceeding mistakes do not result into the necessity to repeat the experiment, and then use other animals. Reduction can be obtained also using in

¹¹⁴ Kelly Renz McNeal, *Death: The price of Beauty: animal testing and the cosmetic industry*, p.15

experiments genetically identical animals in order to prevent incongruence and mistakes in the test results due to genetic variations between animals.

Refinement, means working towards the decrease of the pain and suffer that are perpetuated through different procedures to animals during experiments. Tests that involve the use of animals should be performed in a way that animals' pain is avoided as much as possible. This means for example give pain relief or anaesthetics to animals that feel pain and suffer during the testing procedure. Another thing that could be useful to try to guarantee animals' dignity is the avoidance of operations that can be replaced with less invasive procedures. This is the case of experiments that periodically involve taking blood samples from an animal to measure, for example, the level of a particular hormone. This painful procedure can be replaced with the use of a simple device that continuously monitors the level of the hormone and that is implanted with an ordinary operation.

Another thing that can help in the refinement process is try to ensure animals a decent life, as the majority of the time animals spend in a laboratory they are closed in small barren cages and left alone. On the contrary, if these animals are allowed to live in social groups and in larger cages, maybe they could live in better conditions.

Replacement is one of the most important and fundamental things that must be done. Replacing testing procedures that involve the use of animals with alternative non-animal techniques is a moral and ethical duty but also a priority. The starting point from which this process began has been the recognition of the fact that results obtained with animal tests are often not applicable to humans, because of the many biological differences existing among species. Non-animal testing procedures are, despite common belief, less expensive than animal tests and they cost a fraction of them¹¹⁵. Furthermore, they generally take less time to be completed and they are obviously less crude than tests that involve the use of animals that are constrained to suffer.

There have been developed a lot of different alternative testing procedures, such as methods that make use of cell or tissues maintained in the laboratory, which are generally known as in-vitro tests, computer and mathematical models. Anyway, it is to say that the validation of alternative non-animal testing methods is a complex and often

¹¹⁵ PETA website www.peta.org Alternatives to Animal Testing

intricate process, mainly because of the existence of substantial gaps in scientific knowledge¹¹⁶. The main difficulty lies on the fact that the human body has so much intricate systems that are very difficult to reproduce. The hormonal, immune, and nervous systems are for example so complex and full of intricate chemical interactions that often require a combination of testing strategies on order to replace a single animal-testing procedure. Anyway, despite these relevant difficulties, many steps forward have been made.

It is possible to summarize the most important alternative testing methods that have been developed in recent years as follow:

- skin corrosion and irritation tests have been replaced in Canada and in the European Union with the validated and accepted EpiDerm and EpiSkin tests. These tests involve the use of human-derived skin cells, “which have been cultured to form a multi-layered model of human skin”¹¹⁷. In another alternative test, called Corrositex, it is used a protein membrane instead of skin to measure the penetration capability of a chemical. This test can determinate the corrosivity of a chemical in a period time that ranges from 3 minutes to 4 hours, while animal-testing methods often take from 2 to 4 weeks.

In Canada some skin irritation tests have been replaced with the use of skin patch tests on human volunteers, but only before testing with other alternative methods that the substance considered is not corrosive or does not possess any kind of harmful properties.

- Phototoxicity or photoirritation tests, which are generally performed to evaluate the toxicity of a chemical after the exposure to sunlight or ultraviolet radiation, can be replaced with the 3T3 Neutral Red Uptake (NRU) Phototoxicity test. This test was developed and validated in the European Union but its reliability is still questioned by the Food and Drug Administration that continues to make use of animal testing methods to validate the phototoxicity potential of chemicals.
- Toxicity tests, of which the most common is the LD50 test, are very hard to be replaced with non-animal alternatives. The main reason is the lack of scientific skills on the issue. The use of donated human tissues for the performance of the test still gives a percentage of reliability and precision that is too low.

¹¹⁶ European Commission Joint Research Center's Institute for Health and Consumer Protection (IHCP) *Alternatives to Animal Testing* from www.ihcp.jrc.ec.europa.eu

¹¹⁷ PETA website www.peta.org Give Animals Five Alternatives to Animal Testing

All of these tests have been validated by inter-laboratories studies that have been performed by acknowledged organizations such as the European Centre for the Validation of Alternative Methods (ECVAM), the Organization for Economic Cooperation and Development (OECD), and the U.S. Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM).

The strategy adopted by the European Union to deal with the issue of animal testing is very straightforward. As explained previously, animal testing for finished cosmetic products in the EU is banned since 2004, while animal testing for cosmetic ingredients is banned since 2009. In addition to this, a marketing ban on cosmetic products containing ingredients that have been tested on animals is operating since 2009. A postponement of the 'marketing ban' to 2013 was decided for three animal tests, or endpoints, which were considered the hardest to replace. These tests are toxicokinetics, repeated dose toxicity (including skin sensitisation and carcinogenicity), and reproductive toxicity. This means that for these exceptional cases, companies can still rely on animal testing procedures carried out in countries that are not part of the European Union.

The process of developing and promoting new alternative non-animal tests has been carried out by the European Centre for the Validation of Alternative Methods (ECVAM), which was set up by the European Commission in 1991. The role of the ECVAM is to validate alternative methods but also to provide assistance and funds to laboratories that participate to the validation studies and work. Also new legislation, such as the European Regulation on Registration, Evaluation, and Authorisation of Chemicals (REACH), is contributing to the development of alternative testing methods, encouraging the avoidance of duplicating tests.

The main purpose of the ECVAM is to promote and develop new testing methods that comply with the '3Rs' of replacing, reducing, and refining in-vivo testing procedures, which involve the use of living organism, with alternative and innovative approaches. The ECVAM policy involves also regulatory acceptance at the European Union level, but also "with international organizations such as the Organization for Economic Cooperation and Development (OECD) and the International Conference on Harmonisation (ICH)"¹¹⁸. Since its creation, up to 2011, the ECVAM contributed to the

¹¹⁸ European Commission Joint Research Center's Institute for Health and Consumer Protection (IHCP) *Alternatives to Animal Testing* from www.ihcp.jrc.ec.europa.eu

validation of 34 alternative testing methods¹¹⁹, of which 18 have obtained international regulatory acceptance by the OECD.

The Threshold of Toxicological Concern (TTC) Approach, which has been proposed by COLIPA (the European Cosmetics Association), could be considered an additional useful instrument to evaluate, in the remaining few cases that still contemplate animals testing, the level of exposure to a substance under which there is hardly any risks to human health and safety¹²⁰. Some chemicals, which are commonly used in cosmetic products such as preservatives, fragrances, and dyes, can be present only in tiny percentage within a product. For this reason it is fundamental to establish for each ingredient the threshold of toxicity that must never be exceeded in order to guarantee products' safety, on the base of an evaluation made on a daily basis.

The Leaping Bunny

The Humane Cosmetics Standard and the Humane Household Products Standard, represented by the Leaping Bunny logo, are the most rigorous international cruelty-free certifications in the world. They are the only existing third-party certification standards that identify cosmetic, personal care, and household products that have not been tested on animals.

It is important to underline that in order to become approved a company not only must not directly test on animals, but neither commission animal testing to third-party organizations.

A large number of beauty companies and retailers have developed their own 'cruelty-free' guidelines, often in a misleading way. In fact, the Leaping Bunny logo is the only one existing certification that ensure that certified companies are truly committed in the process of eliminating animal testing in all of the stages of their supply chain, and that they are fulfilling each Standard's requirement.

In the next page, are represented some examples of misleading 'cruelty-free' logos that are often used by beauty companies, claiming in a wrong way their policy on animal

¹¹⁹ Ibidem.

¹²⁰ BUAV *Meeting the Deadline of the 2013 EU Marketing Ban: A Scientific Review of Non-Animal Tests for Cosmetics*, p.4 from www.buav.org

testing. Some companies proudly display on their products' labels environmentally committed or animal-related logos, represented with any kinds of rabbits, leaves, or globes. Despite their commitment can be real, and their products could actually not be tested on animals, companies that want to use the 'Leaping Bunny' logo have to strictly fulfil the Humane Cosmetics Standard requirements.

Only in this way, they can gain credibility in the cosmetic market and ensure consumers about their truthful policies and practices.

The Humane Cosmetics Standard, which has been in use since 1996, is the most authoritative standard a company can adhere to. Its effectiveness is ensured by the fact that companies that decide to comply with its requirements have to operate at the supply chain level in order to make sure that ingredients at the raw state have nothing to do with the practice of animal testing. A company that wants to obtain approval for its cosmetic products have to follow these requirements:

- it must not conduct or commission animal testing;
- it must apply a fixed cut-off date after which none of its products or ingredients must be tested on animals;
- it must implement a Supplier Monitoring System (SMS);
- it must obtain a Declaration of products and raw materials Compliance from its manufacturer and suppliers.

The Standard was developed by a coalition of international animal protection groups, which includes the European Coalition to End Animal Experiments (ECEAE) and the Coalition for Consumer Information on Cosmetics (CCIC).

Anyway, the Standard is managed in different regions and by different ECEAE members, such as:

- ADDA (Spain)
- Animal Friends Croatia (Croatia)
- Animalia (Finland)
- BUAV (UK)
- EDEV (Netherlands and Austria)
- Lega Anti Vivisezione (Italy)
- One Voice (France)¹²¹

¹²¹ ECEACE The European Coalition to End Animal Experiments, *Our Humane Standard* from www.eceae.org

Vegetarian and Vegan products are welcomed under the Standard but this is not a mandatory requirement in order to get approval. When a company applies for approval in its own country, then the recognition is extended to the worldwide level. Upon the formal acceptance, the company has the right to use the Rabbit and Stars (Leaping Bunny) logo on its product. It will be also added on the Go Cruelty Free website (www.gocrueltyfree.org), where there is a comprehensive list of all cruelty free certified brands.

Chinese regulations on animal testing: a discordant position

As explained until this point, we have seen how the general trend among countries is to move towards a progressive elimination of the practice of animal testing, developing alternative methods and investing in new technologies. Anyway, this policy is still not globally shared, as there are a lot of countries that allow this practice. The extreme case is represented by China, the only one country that explicitly required cosmetic products to be tested on animals before going to the market.

The situation becomes quite intricate when it comes to take into account Chinese regulations on cosmetic and personal care products. In fact, Chinese government clearly requires that every single cosmetic product that is going to be sold in China must be tested on animals before being marketed into the country. Anyway, it is necessary to make some fundamental distinctions. Products that are manufactured in China, but are sold outside Chinese territory are not required to be tested on animals. In fact a cruelty-free company can remain as such, despite it manufactures its product in China. What is important to underline is that only products that are marketed in China are explicitly required to be tested on animals. This mechanism resulted into the change of marketing strategy of several beauty companies, which decided to differentiate their plans in order to take advantage of the high request of Chinese cosmetic market. This led to the distinction between the manufacturing process and the entire value chain for products that will be sold in China, requiring tests on animals, and products that will be sold in all other countries where testing on animals is ban, and where the product will claim the ‘cruelty free’ label represented by the Leaping Bunny logo if it fulfils the requirements of the Humane Cosmetics standard. As cosmetic sales in China increased by 18% to

£10 billion in 2011¹²², the financial attractiveness for big brands is getting even more evident. Many companies want to enter into this new market, as they can manufacture their products with less costly impacts and with much higher products demand.

Several big international beauty companies, such as Yves Rocher, L'Occitane, and Caudalie, are among the big brands that decided to forego the Leaping Bunny logo that certified their cosmetics as free from animal cruelty, in order to enter Chinese market, which clearly requires animal testing before selling cosmetic products. Driven by market-forces these brands deeply changed their policies, despite all other countries are gradually moving towards a general ban of animal testing. As we underlined previously, the European Union ban on the marketing of cosmetic products will come into force in all of its parts in 2013, and also the United States, which have historically never prohibited the practice of animal testing for cosmetic products, is doing some steps forward in the regulation of this issue through the new Cosmetic Safety Act of 2011.

An initiative worth of note is the PETA (People for the Ethical Treatment of Animals) institution of an award grant to enable the Institute for In Vitro Sciences (IIVS) to hold a seminar at Beijing Technology and Business University (BTBU), in order to teach Chinese scientists new technologies to test cosmetic products without using animals¹²³. The IIVS, which was founded in 1997, is a non-profit research and testing laboratory that is deeply committed in the development of *in-vitro* testing procedures, helping corporations in the switching process to non-animal testing methods.

The \$33,000 PETA grant, enabled IIVS to train participant scientists on an alternative procedure that can be used to replace cruel Draize Eye irritancy test that is commonly perpetuated on rabbits. This process led to the first approval of the use of a non-animal testing method for cosmetic ingredients in China. This alternative method is the 3T3 Neutral Red Uptake Phototoxicity Assay, which is able to measure the potential toxicity of chemicals that come into contact with the sunlight and ultraviolet radiations, and which is already widely used in the U.S. and in the European Union.

¹²² Article from www.dailymail.co.uk *L'Occitane and Yves Rocher: The big-name beauty brands among those ditching cruelty-free animal testing policies to sell their products to China*, published on 31 July 2012

¹²³ The PETA Files: PETA's Official Blog, *Chinese Scientists Learn Non-Animal Testing, Thanks to PETA*, www.peta.org

This is an example of the fact that alternatives exist, and each country can change its policy towards animal testing without affecting their market strategy in a negative way. On the contrary, alternative testing methods are even less expensive and more reliable. At this specific stage, it is fundamental that every single procedure raised at the governmental level reach its fulfilment. This is the case of the European marketing ban on animal testing, which has to become effective on March 2013 despite the objections of different manufacturers and companies, which claim their inability to comply with its requirements and ask for a postponement. This thing must be strictly avoided, as it would undermine the excellent work made by many industries, which invested on the development of alternative effective methods. On the contrary, much more resources and funds should be given to further improve researches in this field.

8. Green strategies in the manufacturing process of cosmetic products: sustainable value chain and supply chain

When a cosmetic product goes through its manufacturing process, there are different factors and processes that work together in an integrated system, in which each information is strategic to determine the market success of the product. Nowadays, planning all of these manufacturing stages is a priority in the beauty industry, as the general trend of marketplace forces moves towards more and more highly efficient procedures. The performing of this intricate process involves two different systems that operate in the manufacture of the product. These systems, which have their own distinctive features, as well as some points in common, are the value chain and the supply chain. It is necessary to start by giving a brief definition of the two terms and to explain in which way these processes are related. Then, it will be explained how sustainable practices and green strategies can be applied to them, contributing to obtain new and innovative products.

One of the most important factors that determine the success of a beauty firm in the market is the efficiency of the value chain of their products. According to the first definition, developed by Michael Porter, a value chain is the sequential set of value added activities within and around the company that are fundamental to create the final product or service¹²⁴. The concept of value often depends on the context, and it generally occurs when the needs are met through the provision of a specific product or service. This means that, an effective value chain has to include and to pay special attention to trading relationships, consumer purchases, and interests of company stakeholders¹²⁵. Companies' initiatives and strategy must be oriented towards the appreciation and the awareness of customers' needs and values, which have to be provided in an efficient, accurate, and quick way. This led to state that it is fundamental, especially in the cosmetic industry, where the aesthetic and critical feeling of consumers are often decisive for the success of a product, to pay particular attention to consumers' voice within the value chain.

¹²⁴ Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*, Harvard Business Review, 1996, p. 61-78

¹²⁵ Andrew Feller, Dan Shunk, Tom Callarman, *Value Chains Versus Supply Chains* from www.bptrends.com, 2006, p. 2

Traditionally, marketing strategies have always assumed that customer involvement within the product value chain has to be relegated to the final phase of finished market offering. During the 21st century, this assumption has been completely overturned, gradually moving towards a consumer oriented marketing era. Consumers' satisfaction and loyalty have become some of the most important companies' targets, leading beauty industry to increasingly integrate them into their strategies and policy. This means that the entire product' value chain is completely managed in order to fulfil in the best way consumers' needs.

As mentioned above, the concept of value is related to the satisfaction of customer's needs, which occurs through the exchange of products with a given form of payment. The benefits that are generated by a product for consumer are the result of the combination of different factors, such as the quality of the product, the value of the brand, and the view of customers' perceived quality. This leads to state that since value is mostly a perceived measure, its definition is therefore based on subjective indicators. It is evident that in this context, every single detail and steps of the manufacturing process can make the difference and be decisive for the success of the product. One of the most relevant factors that especially in the beauty industry is of fundamental importance in the perception of the product, is product's packaging. Although packaging is commonly considered just as a mere cover that protects the product from external factors, very often it results to be one of the most decisive things that induce and persuade costumers to buy the product or not. For this reason, the use of new and innovative packaging can increase the value of the product but also the value of the company itself. At the same time, packaging is a fundamental marketing and communication tool, as it deeply influences consumer's perception through the use of specific images, colours, scents, and striking words.

During the course of my analysis, I will explain in depth the importance of investing in eco-friendly packaging for companies in order to move towards a sustainable management of the life cycle of products.

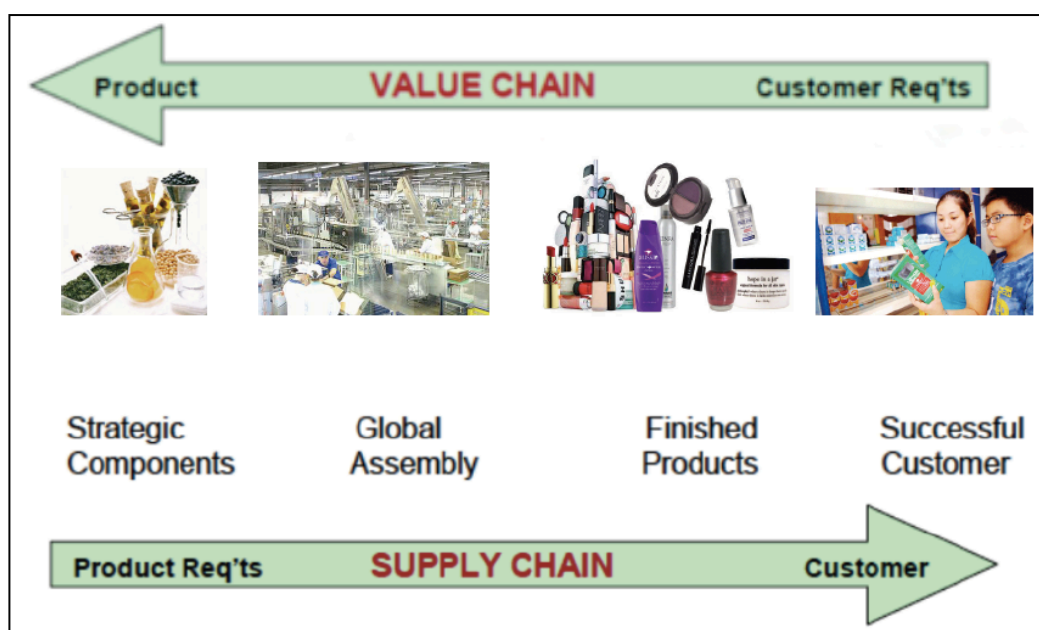
If on the one hand the value chain of a product is based on a human value-based perception, influenced by different advertising, social, and economic factors, on the other hand the supply chain is mainly focused on the costs and the efficiency of the supply, and on the process of transformation of raw materials and components into finished products.

Maximum efficiency on production, tracking, logistic, and shipment is at base of a good supply chain. The term supply chain management (SCM) was developed in the 1980s “to describe the flow of materials between organizations”¹²⁶, and intended as a set of business activities. During the 1990s the concept of term was widened with the incorporation of business processes into the composition of the supply chain, which provides products, services, and information. The main goal of a good supply chain is to satisfy customer’s demand and requirements through the use of resources, bringing materials from the manufacturers to the customer. In order to ensure that a finished product is available for sale at a retailer cosmetic counter, the efficiency of the supply chain must be guaranteed. This efficiency goes through different fundamental stages, which start from sourcing raw materials, and include shipments, processing, and management of the entire product’s life cycle until final sending to the marketplace.

It is important not to confuse the concept of value chain with the similar concept of supply chain. In fact, while they both operate and interact within the same system, providing products or services, they perform their functions in different directions. When we take into account the supply chain of a product, we mention the flow of goods and supplies that move from the originating source to the consumer. On the contrary, when it comes to consider the value chain, this flow of goods and supplies moves into the opposite direction, that is from the customer, which represents the source of value, to the supplier. Then, it is possible to state that the most evident difference between a supply chain and a value chain is about the final focus of the manufacturing process, which in the value chain is shifted from suppliers to consumers.

¹²⁶ André Pereira de Carvalho, José Carlos Barbieri, *Innovation and Sustainability in the Supply Chain of a Cosmetics Company: a Case Study*, Journal of Technology Management & Innovation, 2012, p. 145

Here below it is represented a comparative scheme that shows in a clear manner how the two systems operate.



In recent years, we witnessed to an increased interest for environmental safeguard through sustainable practices that require the work of industries, public and private institutions, governments, and NGOs. This interest, has affected the cosmetic industry in a relevant way, introducing big changes into the manufacturing process of products, the supply chain and the value chain, involving green strategies into the policy of each brand. The general trend of these last decades moves towards different environmental sustainability issues, such as “resource efficiency, dematerialization, reduction of waste and emissions control to restrain negative environmental impact”¹²⁷. For this reason green innovation and sustainability innovation with regards to Research & Development, production processes, and supply chain are driving the beauty industry to become very active in the formulation of products with a green life cycle and a greater green image.

According to the United Nation’s Brundtland Report of 1987, it is possible to state that “sustainable development is development that meets the needs of the present without

¹²⁷ Devashish Pujari, *Eco-Innovation and new product development: understanding the influences on market performance*, from www.sciencedirect.com Technovation xx (2004), p. 1

compromising the ability of future generations to meet their own needs”¹²⁸. Sustainability implies a global approach to development, which involves different aspects of the society: the economical, the social, and the environmental. This means that in order to address the sustainable development challenges, companies should try to find a balance among financial, social, and environmental performances. Beauty companies that prove to be able to combine at the best way these three basic pillars will certainly be successful in the marketplace. These three fundamental factors constitute what is generally called the triple bottom line of sustainable development. In the current economic scenario, a company’s success is deeply related to the relevance of suppliers. This means that a correct and proper Supply Chain Management is fundamental.

The incorporation of the environmental concern into the Supply Chain Management led to the implementation of the concept of Green Supply Chain Management (GSCM). GSCM is based on the inclusion into the supply chain of the different practices, such as green design of products, adoption of environmentally friendly materials, and cleaner production processes. This cooperation between beauty industries and suppliers is necessary in order to obtain valuable products formulated to provide a high economic and competitive performance.

Very often the introduction of sustainable practices into the policy of a beauty brand is the result of several external pressures and incentives from customers, different level of governments, and stakeholders. These driven forces generally operate and transfer their pressure on the supply chain level, through new legal requirements or demands. In the last years, pressure on cosmetic companies is gradually raising as resources are becoming more and more scarce, and raw material prices are rising, while at the same time retailers and consumers are asking for more transparency. Consumers are increasingly challenging and questioning the ethical and sustainable components of products, and they want to find on the market a rising number of fair-trade and eco-label certified available cosmetic and personal care products.

The search for more natural and organic product, which continues uninterrupted, is the result of an increased awareness among customers about green issues and sustainability. As a result of this trend, beauty industries deeply invested and continue to invest increasingly on products with alternative formulations, in a way that many cosmetic manufacturers are shifting to natural products as valid substitutes.

¹²⁸ World Commission on Environment and Development (WCED), *Our Common Future*, Oxford: Oxford University Press, 1987, p.43

Trade channels of raw materials in the EU:

Considering the manufacturing process of cosmetic products, the sourcing of raw materials and the market of natural and organic ingredients represents a fundamental stage in the supply chain of beauty products. As noted above, this market is driven by some fundamental and decisive forces, which are: increasingly high investments made by manufacturers in order to maintain the market young and productive, consumer concern and greater awareness about health and safety issues, higher demand for ‘green products’ that promote sustainable practices and are particularly concerned with environmentally committed issues, such as fair trade. The sourcing of raw materials and components from suppliers influence in a very relevant way the quality, the competitiveness, the cost, and the development cycle of products. One relevant example of sustainable strategy is the use of ingredients with plant origin in products’ formulation, instead of raw materials of animal, mineral or synthetic origin. This shift enables manufacturers to reduce their environmental impact throughout products’ life cycle, promoting sustainable cultivation and the use of natural resources.

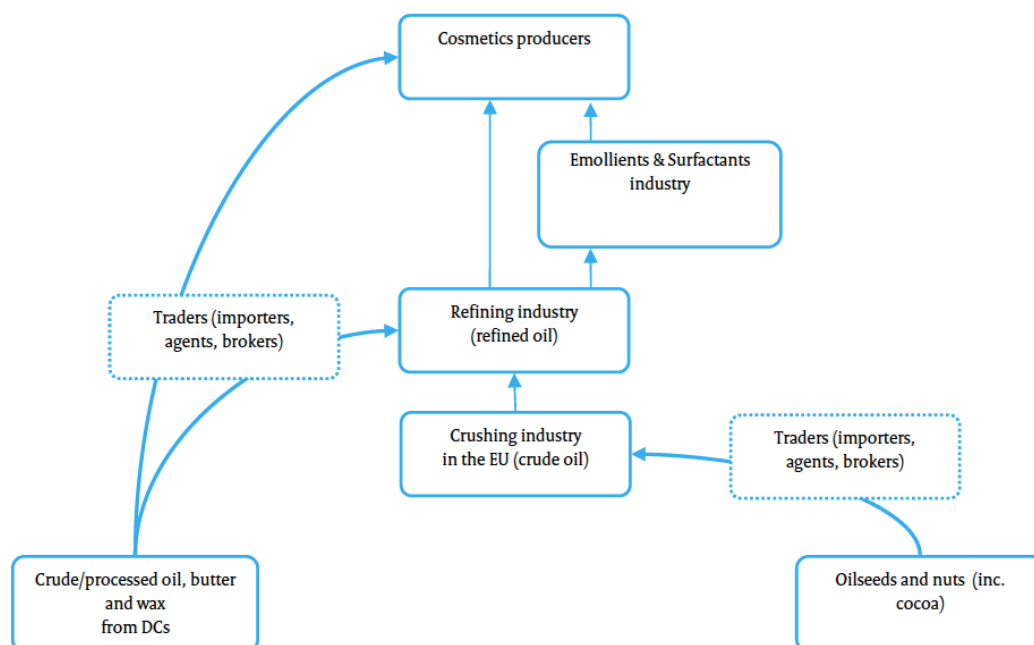
The trade channel and the distribution of natural and vegetable oils, fats, and waxes for cosmetic and personal care products is of relevant importance for developing countries, which contribute to one of the most important steps of cosmetic products’ supply chain. Since a number of raw materials are not produced inside developed countries, such as the case of European Union, the process of sourcing is generally based on direct trades from developing countries, which most of times provide to manufacturers virgin or crude oils to refine. After being refined oils are shipped in bulk to the final processing and cosmetic industries, then they can be directly used in cosmetics or further processed into emollients or surfactants¹²⁹.

The trade process is a bit shorter for organic, fair-trade, and special oils, since in these cases importers and producers usually work together in order to obtain high standards of quality and these oils are directly used in cosmetics.

It is evident that the smaller the cosmetic company is, the more intermediates are involved in the supply chain.

¹²⁹ *Trade channels and channels for vegetable oils for cosmetics*, CBI Centre for the Promotion of Imports from developing countries, from www.cbi.eu

Here below it is represented a synthesis of the fundamental stages of trade channels for vegetable and natural oils inside the EU.



Developing countries that directly export essential oils into the European market have to approach and come into contact with European intermediate companies, agents or traders. These intermediate figures perform fundamental functions giving value to materials before the sale, such as:

- purchase of natural ingredients in different countries;
- analysis and quality control;
- fulfilment to international standards;
- sale to users.

It is often difficult for developing countries to bring into the EU market new essential oils. Importers can contribute to this process through sample evaluation and quality control, but it is to say that high quality and certification standards in Europe make the approval of the launch of new oils into the market a process that could last even 2 years. What can make the difference for exporters is the attention for sustainable practices in the entire value chain of the oils. This includes all the different stages and activities that are involved in the transformation of raw materials into oils, such as research and development, raw material supply, production, marketing and sales activities. Prices and

margins applied to material deeply vary throughout the different stages of the trade process. Variations are influenced by several factors, such as the type of oil, cost of extraction, losses occurred during the extraction, exchange rates, availability in the market, level of investments needed, and so on. For this reason “the price of the final cosmetic ingredient can be up to five times as much as the raw materials”¹³⁰.

Furthermore, producers of natural essential oils have to face the competition of chemical equivalent ingredients, that are in most cases cheaper and easier to manage. But it is also true that not all oils can be replaced and substituted with chemical alternatives, as some aromas, used especially in aromatherapy, are unique and pure in their natural essence.

The manufacturing process of raw materials in developing countries:

The issues of sustainability, natural safety and preservation of the ecosystems are currently of very much concern in Brazil, where research and investments in the area of sustainable cosmetics and personal care products have focused on obtaining products formulated with ingredients from the native Brazilian tropical flora, which respect the country biodiversity. Very often this process involves the contribution of small farms, which cultivate the plants in preservation areas that are sponsored by companies that are partners in government’s sustainability programs¹³¹. Creating a connection between sustainable development and the cosmetic industry generates a significant income for local producers that cultivate raw materials and improve their life quality inside their small communities, but at the same time enables cosmetic manufacturers to invest on sustainable practices that improve the quality of their products but also, and especially, their market reputation. A lot of oils and butter that are used in the formulation of many cosmetic and personal care products are obtained from fruits and seeds of the Brazilian tropical flora.

¹³⁰ Ibidem

¹³¹ Neila de Paula Pereira, *Sustainability of cosmetic products in Brazil*, p. 160

Natura: A Case Study

One of the most important Brazilian beauty companies, which is deeply committed towards sustainability and the sustainable use of Brazilian biodiversity is Natura.

Natura, which was founded in 1969, operates in the cosmetic, toiletry and fragrance industry all around the world. Its founder, a young economist called Luiz Seabra, started from 1974 to develop the strategic policy and the activities of the brand, based on a direct sale model that uses a wide network of consultants. The company's products reach consumers through a consolidated network of 1.4 millions of consultants that operate in Brazil and all around the world. In fact, Natura operates in all Latin America, and several European countries by means of local outsourcing.

This policy led the company to become leader of the Brazilian cosmetics and toiletries industry and by 2009 to reach multinational cosmetic giants such as Avon and Unilever in the Brazilian market.

The strength of this brand lies not only on its market strategy but also and especially on its cultural values and relations that are based on the attention toward social environment attention through a sustainable use of Brazilian biodiversity. The mantra of Natura is 'bem estar bem' or 'Well being/Being well', that means create an harmonic relationship between ourselves, our body, and the natural environment that surrounds us, in the respect of ethnical, social, economical, and geographical diversities. The core idea of the 'bem estar bem' is based on four fundamental principles:

- Humanism cultivating valued relationship in the respect of diversities
- Balance of human and nature harmony
- Transparency in the conduct of business operations, trying to always ensure quality and safety
- Creativity always looking for innovation with a continuous improvement, determination, and passion.¹³²

What makes the company so special is its concern about global environmental and social issues, such as global warming, greenhouse gases emissions, biodiversity respect, and eco-friendly practices in products' design. At the same time the promotion of sustainable practices is a relevant way to increase the prestige and the credibility of the company itself, which gains trust and reliability among consumers.

¹³² www.natura.com

Natura's concern for the environment is proved by different actions and efforts taken by the company, which directly transfers its commitment into product's formulation and design. For example, in 1983 the company began to produce and sell refills with an average mass that is 54% lower than the mass of regular packaging¹³³. This project resulted into a strong reduction of solid waste in the environment by the company. At the same time Natura invested on projects to reduce water and carbon footprint through changes and innovation carried on the supply chain.

In order to evaluate the impact of the brand's business on water resources, in 2010 Natura launched a study of the different stages of the supply chain, from the extraction of raw materials used in the manufacturing process, up to the final product disposal, in order to evaluate the impact in terms of total water consumption. This method, which is known as the Global Water Footprint Standard was developed by the Water Footprint Network that is Natura's partner from 2009. The most relevant outcome from this initiative is a water consumption reduction of 4.7% per unit produced in 2011¹³⁴.

In the last years the company adopted a supplier development strategy that was focused on the reduction of costs and environmental impacts related to greenhouse gases (GHG) emissions through the reduction of transportation distances of products produced in Brazil. Of relevant importance have been the establishment of value relationships with local partners and organizations for the knowledge of social and environmental issues. In 2010 the company established clear project management rules with the creation of a department dedicated to internal innovation through Supply Chain Management¹³⁵.

All suppliers have to perform processes of self-evaluation that are based on the respect of social, environmental and quality aspects, which range from human rights safeguard and non discrimination, to the imposition of certification systems for environmental safety practices.

In 2007 the company adhered to the Carbon Neutral Program, in order to reduce and offset all emissions of greenhouse gases (GHG).

Natura's Ekos line of fragrances and personal care products, launched in 2000, is designed and inspired by the traditional plant ingredients of Brazil's environment, to promote biodiversity and the safeguard of Brazil's different ecosystems. The Ekos line products are made from exotic fruits, roots, and nuts, all coming from the Amazon

¹³³ www.brandchannel.com

¹³⁴ www.managementexchange.com

¹³⁵ André Pereira de Carvalho, José Carlos Barbieri, *Innovation and Sustainability in the Supply Chain of a Cosmetics Company: a Case Study*, Journal of Technology Management & Innovation, 2012, p. 152

rainforest and other Brazilian forests or plantations. These products are developed from clean and green technologies, whose objective is to reduce environmental impacts throughout the supply chain. They are formulated with the use of plants from organic farming or sustainable forest management, the packaging is made of “renewable materials, post-consumption recycled materials or renewable inputs, such as refills made of green polyethylene, made from sugar cane”¹³⁶, and products are often biodegradable.

The preservation of the environment is possible through the work of indigenous populations, which with their products fight against the destruction of fragile ecosystems “by the clearing of forests for the logging of tropical timber or for mining, cattle raising, or intensive farming of soybeans”¹³⁷.

Since 2005 the company makes use of palm olein, a 100% plant-based oil, in a wide range of its products, from soaps to massage oils of the Ekos line.

In order to ensure that raw materials and ingredients obtained for the formulation and the manufacturing process of the final product are extracted in a sustainable way and in the respect of native communities, in 2008 Natura implemented the Program for the Certification of Ingredients. This program involves the certification by third-party agencies of native forests and plantations that are cultivated in a sustainable way. At the same time the company pays a specific attention to the valorisation of the relationship with supplier communities, especially with regards to fair wage. Three different certification protocols are used to evaluate and label products coming from different regions as organic or sustainable products. These protocols are issued by the Sustainable Agriculture Network (SAN), the Biodynamic Institute (IBD), and the Forest Stewardship Council (FSC)¹³⁸. The company supports local groups to become independent for certifying their activities and to gain autonomy in management processes. This step is fundamental in the supply chain of products, since it generates not only positive impacts for rural suppliers, such as family farmers and local communities, but also it is decisive for biodiversity protection and for a more valued and sustainable final product.

¹³⁶ Ibidem

¹³⁷ www.managementexchange.com

¹³⁸ André Pereira de Carvalho, José Carlos Barbieri, *Innovation and Sustainability in the Supply Chain of a Cosmetics Company: a Case Study*, Journal of Technology Management & Innovation, 2012, p. 153

In 2011 the company gave the start to a Sustainable Supply Chain strategy, based on the development of plans to evaluate efficiency of the supply chain through the identification of indicators of social and environmental impact. This means taking into account different environmental impacting factors such as water consumption, carbon emissions, and waste generation, but also social factors as investment in education and training of local communities, all fundamental for the improvement of supply chain management.

The case study examined is relevant to understand how much science, technology and innovation are fundamental in supply chain management. The incorporation of sustainability into each step of management processes of a brand is made possible by the involvement of different dimensions, the social, the environmental and the economic one, which are the three pillars of sustainable development.

9. Sustainable Trade practices: Fair Trade

During the 21st century, the increasingly high awareness of consumers about environmental and social issues, led companies to operate towards the development of alternative practices in the different stages of product's life cycle that are more concerned and respectful of the environment and the most vulnerable people.

Among the different existing sustainable practices formulated to fulfil these requests, one of the most relevant and worth of note is fair trade. Sustainable trade, and more precisely fair trade, is that trade process of good and services that gives rise to social, environmental and economic benefits in line with the fundamental sustainable development's basic principles of:

- creation of economic value;
- reduction of poverty and inequality;
- regeneration of the environment¹³⁹.

The importance of fair trade in the sector of beauty industry is explained by the fact that the ingredients used in cosmetic and personal care products have animal, plant, mineral, or synthetic origins. These ingredients and their related final products are formulated with the use of raw materials that are for the most part imported from developing countries. Since the end of the 1970s, the importance of fair trade for the beauty sector has gradually increased in interest, as exports from developing countries became significant and beauty companies, organizations, and labels made clear their support for new sustainable practices.

According to the definition provided by the World Fair Trade Organization (WFTO), "fair trade is a trading partnership, based on dialogue, transparency, and respect, that seek greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers – especially in the South. Fair trade organizations, backed by consumers, are engaged actively in supporting producers, awareness raising and in campaigning for changes in the rules and practice of conventional international trade"¹⁴⁰.

¹³⁹ BTC Trade for Development, *Fair and sustainable Cosmetics*, p. 7 from www.befair.be

¹⁴⁰ World Fair Trade Organization (WFTO), Charter of Fair Trade Principles, Fair Trade Definition, 3 January 2012, from www.wfto.com

In order to put into practice this definition it is necessary to follow 10 fundamental guiding principles, which have been formulated by the WTFO and are explained above:

- create opportunities for producers that are economically disadvantaged;
- ensure transparency and accountability;
- promote individual capabilities;
- promote fair trade;
- guarantee a fair price of payment;
- ensure no child labour and forced labour;
- ensure good working conditions;
- ensure commitment to non discrimination and gender equity;
- respect the environment;
- promote commercial relations based on respect and mutual trust¹⁴¹.

It is clear that the essence of 'fair trade' goes far beyond the concept of natural or recycled products, as it is a mechanism based on a deep social and ethical responsibility. The main goal of fair trade is to improve the quality of life of local and indigenous communities while at the same time preserving planet's resources. In practical terms fair trade guarantees that producers in poor and developing countries can have access to specific trading conditions, such as price stability, favourable conditions and payment terms that ensure that their products are sold with a right and competitive price. With fair price it is meant that all the manufacturing costs of products are taken into account, always ensuring to local communities a decent standard of living.

It is necessary to make a distinction between two main regulatory channels that fulfil different functions according to the operative field on which they operate, but coexist one with the other. They are the integrated channel and the labelled channel. In fact when we use the terms 'fair trade' and 'fairtrade' we make reference to two different regulating systems.

The term 'fair trade' refers to the Fair Trade movement and to the organizations that abide to the 10 principles of Fair Trade that were previously explained. The most representative and acknowledge organization that is committed to 100% fair trade is the World Fair Trade Organization (WFTO), which is a global representative body of 450

¹⁴¹ Ibidem

member organisations that represent all of the links in the fair trade chain, including producers, processors, and distributors.

On the other hand, the term ‘fairtrade’ is used to describe the certification and labelling system governed by Fairtrade International (FLO), which is a labelling organization that coordinates Fairtrade labelling at an international level, through specific standards.

According to this basic distinction, there are essentially two internationally recognised and acknowledged labels, which can be set on products.



The first label is called Fair Trade Organization Mark and is issued by the WFTO to all registered members. This mark identifies all the organizations that practice Fair Trade. In this case the mark is awarded to organizations rather than to products.



The second label is issued by FLO and is called Fairtrade label. It certifies that products fulfil social, environmental, and economic requirements set by standards. The mark certifies products, not companies.

The major organizations and fair trade association are: the World Fair Trade Organization (WFTO), the European Fair Trade Association (EFTA), and the Fairtrade Labelling Organizations (FLO).

The World Fair Trade Organization (WFTO)

The WFTO is a representative body that brings together 450 organizations from 75 different countries, which are committed 100% to Fair Trade and to follow the 10 fundamental Principles of Fair Trade. The goal of the WFTO is to improve life conditions of small farmers and local communities through sustainable practices, encouraging dialogue, transparency and respect of people¹⁴².

It has always been considered the most important organization in the coordination of the fair trade sector, since its founding in 1989. From 2009 the old caption International Fair Trade Organization (IFTO) was replaced with the new one.

The Fair Trade Organization Mark was launched in 2004, in order to identify all the organizations that are part of the WFTO. Organizations that use the logo have to demonstrate their full commitment into fair trade and to guarantee that all the 10 regulating principles are followed.

The fulfilment to these requirements is proved and documented by a defined monitoring process, which includes different stages: self-assessment, mutual reviews and feedbacks, external verification and approval.

The self-assessment report is an internal tool that provides all the policy features of organizations making use of specific questions to prove whether or not the company operates according to the values mentioned on the 10 principles guideline. All the Self-Assessment Reports (SAR) are then reviewed by the WFTO's monitoring department, and final feedbacks are given. At the final stage, all the information are submitted to external readers, which will provide a final evaluation and score of the company's policy¹⁴³.

As previously anticipated, the logo is not awarded to products but to brand organizations. Anyway, once organizations obtained WFTO certification, they can displace the logo on the label of all of their products.

¹⁴² www.wfto.com *What is Fair Trade?*

¹⁴³ www.wfto.com *Monitoring*

The Fairtrade Labelling Organizations (FLO)

Fairtrade International (FLO), which was established in 1997, is an association of 3 marketing organizations, 3 producer networks, and 19 labelling organisations that exist in Europe, Canada, the USA, Japan, Australia, and New Zealand¹⁴⁴.

It sets fair trade standards, monitors their implementation and issues certifications for processed products. In order to ensure that both the Fairtrade certification and the labelling systems operate in a transparent and independent way, in 2004 Fairtrade International was separated into two independent structures:

- FLO International, an association of national member certification organizations, which develops and supports Fairtrade Standards and assists producers in the process of gaining and maintaining certifications. Fairtrade Standards are designed in order to promote sustainable development of small local producers and agricultural workers, following some fundamental core principles, which range from social, economic, and human rights to the prohibition of child labour, and the safeguard of the environment.
- FLO-CERT is a private company that ensure that Fairtrade Standards are followed by producer organizations. It is ISO 65 certified and it operated in an independent way as a certification organization. FLO-CERT verifies compliance with the Fairtrade Standards through the adoption of social, economic, and environmental skills that must be guaranteed. Products that fulfil obligations under the Fairtrade Standards can display the Fairtrade Mark on their label.

Over the last 20 years the sale of Fairtrade certified products have increased in an impressive manner, making possible that more and more marginalized farm communities in developing countries can benefit of fairer trades.

The sales of Fairtrade certified products “grew 15% between 2008 and 2009. In 2009, Fairtrade sales reached € 3.4 billion worldwide”¹⁴⁵.

¹⁴⁴ www.fairtrade.net *Our Members*

¹⁴⁵ www.fairtrade.net *Facts and figures*

The European Fair Trade Association (EFTA)

The European Fair Trade Association consists of 10 Fair Trade importers in nine European countries (Austria, Belgium, France, Germany, Italy, The Netherlands, Spain, Switzerland, and the United Kingdom)¹⁴⁶. It started to become operative since 1990. It is a small but strong association that works for the improvement of small-scale producers in developing countries.

It helps and contributes to the exchange of information and networks, creating favouring conditions for small local communities through the development of joint projects¹⁴⁷.

Up to this point, we have seen what are the most important fair trade organizations and how a fairtrade product is certified and labelled. As previously explained there exist a lot of different organizations that are directly or through third parties committed into sustainability practices and fair trade.

In the last decades, there has been a rising popularity of fair trade, ethical sourcing and sustainability in the cosmetic industry. Especially for the formulation of natural and organic products, the sourcing of fair trade ingredients is becoming more and more important in the strategy of different beauty brands.

Several cosmetic companies are deeply committed into fair trade practices, such as Lush, Boots, Bubble & Balm, Essential Care, Neal's Yard, Acure Organics, The Body Shop, and Aveda. Although not all of the products that we find in the cosmetic market carry a label or a clear certification, a lot of improvements have been done by giving much more attention to those products that are formulated with the use of fair trade channels. More and more organic and natural companies are working to adopt fairtrade standards to certify their products.

As already explained above, the WFTO and the FLO labels are the most acknowledged marks for the certification of fair trade products. For this reason, when products display these marks, consumers that buy them are sure about the reliability and the trust of the company.

¹⁴⁶ www.eftafairtrade.org

¹⁴⁷ Ibidem

Among all the different fair trade activities and efforts in the cosmetic industry, there are some that are worthy of mention. This is the case of **Boots**, which is a pharmacy chain in the United Kingdom that launched in 2009 its Boots Extracts range of fairtrade products, which display the Fairtrade label. This collection is made up of 32 different body washes, bath creams, body butters, body scrubs, fragrances, and lip balms¹⁴⁸, using ingredients coming from all around the world. There is a strong cooperation between the company and its suppliers, which source ingredients from disadvantaged communities ensuring fair price for the producers. The main ingredients that are used in these products are cocoa butter from Dominican Republic, shea butter from West Africa, bergamot oil from the Calabria region of Italy, coconut oil, mango extract from Burkina Faso, olive oil produced in Palestine, and Brazil nut oil. Many Fairtrade co-operatives operate to ensure that local communities that work to produce these fundamental ingredients can make a decent life and can get a fixed amount for their efforts.

For example, the cocoa beans used in Extracts products are sourced from a Dominican Republic farming co-operative called Conocado¹⁴⁹. This cooperative works to ensure that a fixed price is guaranteed to each bag of coca beans, and that farm workers can benefit from a stable income. The work of farmers mainly consists in opening the pods in which cocoa beans are contained, cleaning them, and dividing them according to the quality. Then they are sent to the fermenting house, let to dry in the sun and afterwards they are packed for export.

This working process generated an income for very poor local communities, which are then able to improve their life and at the same time to invest money into fundamental local activities, such as water irrigation tanks, medical needs, and the education of their children.

Another project that is worthy of mention is **Natyr** beauty products line, which was created in 2004 by the Gala Cosmetici company for the CTM Altomercato cooperative, which is the leader of fair trade in Italy. The production process of these products is managed by Gala Cosmetici, an Italian laboratory that develops, packages, and monitors the final product, which goes through its different manufacturing stages. The Natyr lines

¹⁴⁸ www.boots.com *Boots Extracts – Developed to make a difference*

¹⁴⁹ www.boots.com *Fair Trade: How it Works*

offers a wide range of products, such as cleansers, make-up removers, bath oils, milks, aftershaves and so on. There are four main cosmetic lines of products according to the basic ingredient used: Aloe Vera, Green Tea, Spices and Flowers, Mango and Papaya. These products are made with the use of raw materials from integrated monitored producers networks that operate in developing countries with the contribution of local farming communities to which are awarded the FLO and the WTFO label certifications. Some of the most important Natyr's raw materials producer networks are: the Green Net co-operative, the Stassen Group, and the José Martí Agricultural Production Cooperative (CPA).

Green Net co-operative operates in the northeast of Thailand since 1993. It encourages organic farming practices and supports local communities in the production of rice and aloe vera through the creation of solidarity funds and saving banks. It provides training courses in organic farming and production techniques to its members, and it ensures that local producers of rice and aloe vera receive a salary. The co-operative was FLO certified in 2002 and it became a member of WTFO in 2004.

The Stassen Group is a leader in the Sri Lankan tea market since 1988, with more than 20,000 hectares of exploited land. The strategy of the group has progressively moved toward an improvement of workers life and working conditions, especially for women, which pick and package tea leaves. Furthermore, it supported the development of infrastructures for workers, and in recent years it deeply committed to fair trade practices to ensure better hygienic and sanitary conditions to local communities.

The 70 citrus fruit producers (oranges, grapefruits, and lemon) of the José Martí Agricultural Production Cooperative (CPA) sell their products to fair prices thanks to the cooperation with the Citros Caribe State company. They partially own the land on which they work and part of their products is distributed for free to local school, hospitals, and communities.

Aveda, the hair and skin care beauty company funded in 1978 by Horst Rechelbacher and famous for its natural and aromatherapy-based products, is deeply committed in sustainability and fair trade. Since its creation the company has always been involved in the protection of the environment, and has always given attention to and invested in environmental causes. It was the first beauty company to use 100% post consumer recycled PET packaging, the first beauty company manufacturing with 100% certified wind power, and first to sign the CERES Principles (Coalition for Environmentally

Responsible Economies)¹⁵⁰. Despite it was taken over by the American group Estée Lauder ten years ago, it continued to make each aspect of responsible social and environmental practices part of its business and policy. In 2009, Aveda was the first cosmetic company in the world, and the second American company to receive Cradle to Cradle (C2C) sustainable certification, for its commitment in eliminating waste, in using renewable energy, and for supporting biodiversity.

In 2010 Aveda decided to start working in partnership with Hope for Women to the largest fair trade purchase of a sustainably harvested Colombian's rainforest product, an eco-friendly tagua hair band to include into the AVEDA Holiday Collection gift. Tagua is a sustainable rainforest product, which is used and crafted by artisans into art and beauty objects. With this partnership, local Colombian communities, such as the Awa Indians and the Afro-Colombians in the coastal Pacific rainforests, have been involved in the production of a valuable product, contributing to the preservation of the rainforest habitat, but at the same time gaining benefits for themselves. In this program 400 acres of native rainforest were used for the collection of tagua, providing a vital income to local populations, which collect, dry, cut, and polish the tagua that are then processed into the finished product¹⁵¹. All collectors, producers, and artisans are paid a fair wage, and are ensured safe working conditions.

The three case studies that have been discussed and examined are just some of the many existing cases of fair trade initiatives in the beauty industry. What is important to underline is that in the last years Fair Trade is becoming an essential part in the policy of more and more cosmetic companies. This phenomenon is the result of a growing consumers demand of eco-friendly, natural, and sustainable products, but also of the greater awareness of beauty brands, which understood that sustainability and fair trade are not just good practices, but are entirely part of their business strategy and products' sourcing and manufacturing process.

Fair prices paid to local communities involved in the manufacturing process and a fair living wage are often reinvested into the communities themselves, in a way that local business and activities, such as the building of houses, schools, clinics, and hospitals, are strengthened. Fair Trade practices not only respect the natural environment in which activities are performed, but it also promotes the empowerment of local communities through training and cooperation programs.

¹⁵⁰ www.aveda.com *Discover Aveda: Acting Responsibly*

¹⁵¹ www.hopeforwomen.com *Aveda Partnership*

10. Sustainable packaging: green strategies and innovations in the production of cosmetic products

As previously explained, one of the essential points of sustainability is environment protection and safety. The last decades have shown an increasing awareness and interest among consumers for natural, eco-friendly, and with reduced packaging products. As a consequence, a real trend toward sustainability developed in the beauty industry, since companies understood that the successful strategy was to invest in sustainable practices, not only to provide innovative and eco-friendly products, but also to gain credibility for the image itself of the brand in the market.

What started as an initial popular trend has become nowadays, in the 21st century a real consumer-driven movement that deeply influences people market choices. Consumers more and more perceive that ‘green’ cosmetic and personal care products are good not only for the environment but also for their health. According to a report of the market research company Mintel¹⁵², sales of green personal care products increased by 18% in the period time from 2006 to 2008, and rapid growth are expected for coming years, as products are reaching wider distribution channels, such as salons, spas, and other retail outlets.

The health and beauty industry is investing more and more on social and environmental responsibility initiatives, especially with regards to carbon footprint reduction and sustainable packaging. Any company that formulates and manufactures products should always take into account the issue of product’s packaging in order to pursue an environmentally sustainable profile. In fact, packaging is one of the most environmentally impacting elements in the formulation of cosmetic products, as it directly affects negatively the supply chain of the product, in terms of emissions and materials used, and after the product has completed its function, the package generates tons of waste that end up in landfills. According to the Environmental Protection Agency (EPA), “plastic packaging generates a significant volume of waste every year and a small portion of that is recovered through recycling”¹⁵³. This happens because the process of separating and cleaning used packages from residual substances that were contained before the product was used, is often too complex to be accomplished.

¹⁵² Jamie Matusow, *Sustainable Packaging: The Beauty Industry’s Perfect Storm?*, April 2010, from www.beautypackaging.com

¹⁵³ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 417

Many cosmetic companies have focused on the research of innovative solutions, which range from the use of biodegradable and recycled materials, energy-efficient manufacturing facilities, the lightening of the weight of the package, and the offer of product refills and recharges. This process is taking place with the cooperation of manufacturers and suppliers, which are fundamental along the entire production process of the final product.

We will now consider what have been the most meaningful steps forward in the identification of valid alternatives to traditional materials used for the formulation of product's packaging. According to the Sustainable Packaging Coalition (SPC), **Sustainable Packaging** can be defined with the use of eight fundamental features, which can be summarized as follow¹⁵⁴:

- It is beneficial, safe and healthy for individuals and communities throughout its life cycle;
- It meets market criteria for performance and cost;
- It is sourced, manufactured, transported, and recycled using renewable energy;
- It maximises the use of renewable or recycled source materials;
- It is manufactured using clean production technologies and best practices;
- It is made from materials healthy in all probable end of life scenarios;
- It is physically designed to optimize materials and energy;
- It is effectively recovered and used in biological and/or industrial Cradle to Cradle cycles¹⁵⁵.

As we can infer from this list, one of the most relevant factors in the realization of sustainable packaging is the use of optimal materials and resources.

The market intelligence firm Pike Research expects a very fast growth of the sustainable packaging sector, even more that the overall packaging industry itself, and it forecasts that between 2009 and 2014 eco-friendly packaging will almost double in

¹⁵⁴ Wendy Jedlicka, *Packaging Sustainability: Tools, Systems, and Strategies for Innovative Package Design*, p.191

¹⁵⁵ The Cradle to Cradle concept is a new approach for designing processes and systems, which is inspired to nature and takes into account the entire life cycle of a product, trying to optimize material health, recyclability, water efficiency, use of renewable energy and quality/social responsibility. It completely eliminates the concept of waste.

revenues, from \$88 billion to \$170 billion¹⁵⁶. Especially eco-friendly plastic based packaging will be the most growing and productive sector, as plastic represents “more than a third of the total global packaging industry, second only to paper packaging”¹⁵⁷.

The most common material used in a wide variety of cosmetic, but also food, consumer and pharmaceutical products’ packaging, is plastic. The main reason is that plastic is very versatile and cheaper than other packaging materials. But the use of plastic packaging results into a major problem that is the inability to recycle the majority of the material used. This happens because residuals contained in the package are often hard to be cleaned. It is estimated that in 2007, “13.6 million tons of plastic packaging was generated, out of which only 1.59 million tons was recovered through recycling”¹⁵⁸. In order to reduce this waste and try to challenge the problem, different alternative techniques have been adopted, among which the most relevant and worthy of note is the process of biodegradation. Biodegradability is in fact fundamental in the environmental sustainability strategy of each cosmetic brand, since it enables manufacturers to provide consumers a product with higher ‘green’ performances that has eco-friendly features and is not environmental impacting.

In order to better understand how this process takes place, it is necessary to start by giving a definition of the term. Biodegradation can be defined as “the breakdown of chemical bonds of organic compounds into smaller organic and inorganic compounds performed by microorganisms”¹⁵⁹. What remains after a product’s package has gone through the process of biodegradation are usually carbon dioxide and water, or methane. It does not exist a fixed threshold used to establish when a substance can be defined ‘biodegradable’, and often tests used to determine biodegradability and the ‘readily biodegradable’ caption attributed to the product’s label, are often arbitrary and variable classification. Anyway, there exist a wide range of test guidelines and methods that have been developed in order to establish the biodegradability of a chemical substance. According to the Green Guide of the U.S. Federal Trade Commission (FTC), the American agency that works for ensuring that products claiming biodegradability

¹⁵⁶ Jamie Matusow, *Sustainable Packaging: The Beauty Industry’s Perfect Storm?*, April 2010, from www.beautypackaging.com

¹⁵⁷ Ibidem

¹⁵⁸ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 411

¹⁵⁹ Ibid. p.390

captions are truthful, a product in order to be qualified as ‘biodegradable’ must meet five fundamental requirements¹⁶⁰:

- The entire product biodegrades;
- Biodegradation residual are just elements that can be found in nature;
- Complete product’s biodegradation must happen within a short period of time;
- The process must take place under customary disposal conditions;
- All the four point previously formulated must be supported by scientific evidence.

There are also governmental databases and reports that can be accessed and consulted for biodegradability data and studies, such as the International Uniform Chemical Information Database (IUCLID), the Australian Government Department of Health and Aging (NICNAS) Index of New Chemical Assessment Summary Reports, the Japan’s Chemical Risk Information Platform (ChRIP), and the Hazardous Substances Data Bank (HSDB) of the U.S. National Institutes of Health. The European REACH legislation includes besides other regulations also biodegradation data.

As previously mentioned, different biodegradable alternatives to traditional plastic packages exist. Here is a list of some of the most commonly available in commerce compostable polymers that are used in packaging applications¹⁶¹.

Polymer	Derived from	Type of applications	Company	Brand name
PLA	Biobased	Flexible and thermoformed	NatureWorks, LLC	NatureWorks® PLA
Poly(butylene adipate-co-terephthalate) (PBAT)	Petroleum	Flexible packaging	BASF	Ecoflex®
Poly(hydroxyalkanoate) (PHA)	Biobased	Thermoformed, injection molded, flexible	Mirel™	Telles®
PLA and PBAT	Biobased and petroleum	Flexible and thermoformed	BASF	Ecovio®

As we can infer from the table the main distinction that must be done is between biobased polymers, which derived from renewable materials such as corn, and petroleum based polymers. Several beauty giants, as well as niche brands such as Lush

¹⁶⁰ Ibid. p.392

¹⁶¹ Table from Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*

and Weleda, have started to incorporate the use of environment-friendly materials for the manufacturing of their products.

Bioplastics

The use of polylactic acid (PLA), which is a polymer derived from corn, provides the advantage of an higher carbon cycle replenishment speed than petroleum polymers, and the possibility to compost the package to obtain biomass. PLA is a clean, nature-based green option that is entirely obtained by corn or sugarcane. It can be composed within 45-90 days, at a temperature of more than 60°C and 90% of humidity, while petroleum based polymers products requires thousand of years to decompose. It is inexpensive and it requires less energy to be produced than petroleum resins.

Despite these evident advantages, packaging manufacturers and providers are getting more and more interested in PHA (polyhydroxyalkanoate), developed by Mirel. The main reason is that while PLA is compostable only in hot and with a certain humidity industrial compost, PHA is biodegradable in a wider range of natural environments such as soil, home cold compost, marine environments, and common waste treatment facilities. This kind of resin is durable and has an excellent resistance, and at the same time it provides greater environmental benefits than other biodegradable materials. Furthermore, it is worth noting that Mirel PHA maintains its functionality also at very high temperature, while PLA products biodegrade at about 60°C. This is a fundamental feature as very often cosmetic and personal care products are subjected to situations of high temperatures, for example when left in the car or in very hot environments.

PLA is not as effective as PET and high-density polyethylene (HDPE) as moisture barrier for water-based cosmetic products, anyway the efficiency is guaranteed with oil-based solution and with products that have a short shelf life.

In the image below are represented the different phases of biodegradation of a common PHA cosmetic case.



As we can see from the different steps represented, the cosmetic case made of PHA despite low and cold temperature, which are characteristic of marine environments, degrades in a relatively short period of time.

Anyway, PLA is still a popular choice for beauty firms that are looking for entirely plant-based alternatives to traditional petroleum-based polymers. Cargo Cosmetics has designed a PLA-based packaging system for the launch of its PlantLove line lipstick containers. This packaging system is not only less expensive than its previous conventional petroleum-based case, but it also fulfils consumers' expectations and desires, as eco-friendly and less impacting products are more and more required.

Besides the lipstick's case that is injection molded NatureWorks PLA, also the outer packaging is formulated in an innovative way. In fact it is made of a 100% postconsumer (PCR) paperboard, which is embedded with seeds.

After the use the product's package can even be moistened and planted into the soil, with the hope that flowers will grow from the seeds. So, the innovation of this product lies not only in the formulation and in the environmental positive impact, but also in its ethical purpose, as it is part of a charitable contribution.

As we have seen until this point there are a lot of researches and investments on bioplastics, anyway it remains relevant the challenge of using this kind of alternative materials for the cosmetic industry. In fact several beauty products, such as shampoos, creams, and lotions have the problem of high temperature sensitivity and water permeability, which prevent the use of bioplastics packages. This led many beauty brands to search alternative eco-friendly solutions. One of these is certainly replacing fossil-based materials with the use of recycled materials.

Recycled Alternatives

One of the most popular sustainable materials that is used in the green packaging sector is recycled PET (polyethylene terephthalate). A growing number of beauty firms are moving toward the formulation of packages that use PCR (post-consumer resin). PCR is obtained by recycled PET, which is usually collected at curbside and in commercial or residential recycling programs, cleaned, sorted and pelletized into PCR¹⁶². This process finally results into the manufacturing of PCR package through the use of standard PET blow molds. PCR plastic containers represent a sustainable solution for environmentally friendly final products. In fact, with the use of material that would otherwise ended up in landfills, it is possible to obtain a product that is comparable in appearance and effectiveness to PET plastic. Furthermore, another positive outcome is that “PCR bottles cost only 10% more than bottled made from virgin PET”¹⁶³, but environmental benefits are much greater, in fact less water and energy are required in the production process. In recent time, the for bottles that are made of post-consumer PET have been slightly higher than for bottles made from virgin PET, as the process of sorting, cleaning, and recapturing recycled resin is quite long and consuming. However, it is to say that while the cost of petroleum-based raw materials continues to get higher, the cost of PCR is expected to remain stable, generating advantages in the long term.

Packages manufactured with post-consumer PET have almost the same identical features as virgin PET in the outer appearance. What can slightly vary is the color of the finished packaged, which can result to be a bit more grey or yellow tinted than original PET, according to the variety of PET bottles that have been collected and used. Anyway, once PCR bottles are filled and decorated they can rarely be distinguished from PET ones.

Switching from virgin PET to PCR PET represents an easy way for beauty companies to move toward sustainable package solutions. It is clear that more and more firms want to become more environmentally friendly, not only because they want to fulfill consumers’ requests, but also because stakeholders themselves of the beauty brands are demanding for this process to take place.

¹⁶² Jamie Matusow, *Sustainable Packaging: New Strides and Strategies*, May 2009, from www.beautypackaging.com

¹⁶³ Ibidem

A significant example of this trend is given by the beauty firm Aveda. One of the first priorities of the company's strategy is sustainable packaging, in fact Aveda is the largest user of PCR plastic in the beauty industry. According to Organic Monitor¹⁶⁴, Aveda saves more than 1 million pounds of virgin plastic each year. In addition to this, the company through its 'Recycle Caps with Aveda' campaign succeeded in reusing 37 million of polypropylene caps, setting up recycling bins in beauty outlets, retailers, and schools¹⁶⁵.

Many other beauty brands are moving in the same direction of Aveda, and are incorporating innovative sustainable practices in their policy. For example, Kiehl cosmetics uses 100% post-consumer recycled bottled to preserve natural resources and reduce CO2 emissions for its "Aloe Vera biodegradable liquid body cleanser"¹⁶⁶.

In the same way, Lush was one of the first beauty companies that uses 100% recycled PET bottles to contain its products. The company, which is broadly known for using little or no packaging, converted all of its shampoo and liquid hair products bottles to 100% PCR in the spring of 2008. As Lush has always been deeply committed to ethical and environmental good causes, the strategy of the brand is oriented toward the entire elimination of package, when possible, or at least the simplest and most essential package as possible. This has practically been a real challenge, as the company has been able to provide consumers a product with environmental and ethical benefits, which at the same time is also visually appealing and attractive for consumers.

Package recovering campaigns have shown to be successful sustainable strategies. Beauty giant Estée Lauder has launched a number of innovative programs that involve not just the use of recycled materials in products' manufacturing, but also further recycling methods, such as the recovering and the recapturing of materials, with the direct involvement of customers.

MAC cosmetics and Aveda, which are both part of the Estée Lauder corporation, made of 28 brands, are promoting recycling programs. With its Back to MAC Program the company wants to reward customers that directly commit to return six containers to

¹⁶⁴ www.organicmonitor.com *Packaging: The Stepchild of Sustainability in Beauty Industry?*

¹⁶⁵ Ibidem

¹⁶⁶ Nava Dayan, Lambros Kromidas, *Formulating, Packaging, and Marketing of Natural Cosmetic Products*, p. 416

MAC counters with a free lipstick of choice. In this way people are encouraged to contribute to positive actions and to share their commitment to environmental causes.

Another Estée Lauder brand, Origins, established a recovery program called 'Return to Origins', which enables consumers to bring to any Origins retail store and department store counters their empty and used cosmetic and toiletry bottles, jars, tubes, caps, regardless of the brand. Then Origins will recycle the collected cosmetic packaging or use them for energy recovery.

This program represents an incentive for consumers, which get involved into a wider mechanism of social and environmental commitment, and feel part of a positive and conscious way of taking care of the earth.

Bond No. 9, a small-scale luxury niche perfumery in New York, famous for its unique scents and package, launched in 2007 a recovery program to reuse many of its fragrance bottles, but also to recycle any kind of empty perfume bottles. Consumers that bring their empty perfume bottles to Bond No. 9 boutiques had in exchange a refillable pocket spray. All Bond No. 9 bottles collected went through a process of cleaning, sanitization, refurbishment, refill and are sold to consumers with the 'recycle' caption on the bottle, in order that consumers consciously know about the positive initiative behind the program, and know that buying that product they are active part of a green project.

In addition to recycling strategies, reusing and refilling represent some other successful tools for cosmetic companies that want to cut down on packaging waste. Especially in the luxury field, reusing represents a valuable way to reduce packaging waste impact on the environment without losing the complex design that consumers ask for and that reflects total luxury. This means that high-end cosmetics and perfumes continue to be reused in their original complex design package as they are designed as keepsake boxes and not intended to be thrown away¹⁶⁷, while more environmentally friendly materials are used for box wraps or vacuum forms.

Yonwoo International/PKG Group is a leader company in complete packaging solutions for the beauty, skin care, and personal care industries that offers an innovative airless packaging system with high quality standards. These solutions are useful for reusable cosmetic and beauty products, in fact refills for the primary package can reduce overall waste in a much relevant way.

¹⁶⁷ Jamie Matusow, *Sustainable Packaging: The Beauty Industry's Perfect Storm?*, April 2010, from www.beautypackaging.com

Sustainability through Reduction: package lightening

Another way to reduce packaging environmental footprint is to lighten the weight of the product's package. Reducing packaging materials has been and continues to be the focus of many cosmetic companies. This process, which starts from the design phase, is a widespread practice that involves the reformulation of materials used as well as fuel transport costs.

People are more and more socially and environmentally responsible, so they don't want to see and buy overpackaged products, with size-inappropriate package. However, there is still resistance from the luxury field, which is reluctant to introduce package reduction. In fact, in the common perception, luxury and quality products have always been equated to weight consistency and solidity. But, what consumers often don't know is that just a minimal or small package redesign can have a huge positive environmental impact, but at the same time consumers can even not realize and perceive product's package different features. Very often cosmetic packaging is excessive, and this can be noticed just considering everyday beauty products, which are sold in the market wrapped into plastic and with useless containers and cards inside. What needs to be changed is especially the way of culturally and socially thinking about cosmetic and beauty products. Sometimes consumers are more attracted by what the product represents for them, like a sort of dream or must-have, rather than the concrete necessity of use. This is the reason why beauty companies invest a lot on market and design strategies, in order to catch consumer's attention and to lead them to desire a certain product.

But what is important to underline is that also very small changes in package's features can be relevant. Just lightening the weight or slimming the shape of a container bottle, tube or jar while maintaining the same volume of the product can results to be a positive strategy. The reduction of weight of a compact "by just 1 gram can save one ton of plastic for 1 million units"¹⁶⁸. Plastic reduction is the focus of many cosmetic companies, as well as several packaging manufacturers, which are investing in the research of innovative way of producing packages. As packaging designers have a strong voice in the decision-making process, it is fundamental to work in line with

¹⁶⁸ Jamie Matusow, *Sustainable Packaging: New Strides and Strategies*, May 2009, from www.beautypackaging.com

manufacturers in order to provide sustainable and environmentally friendly solutions to the market, but also to fulfil consumers' requests and needs.

Significant advanced in sustainable packaging, both in social and environmental terms, has been done in these years by L'Oréal, which is one of the most important multinational beauty giants. From the environmental viewpoint the most important outcomes consist in the reduction of product's package weight, the use of innovative materials and technologies, while from the social perspective several educating programs have been launched in order to share among people information about the use of new materials and technologies and especially to teach them how to optimize recycling.

Packaging innovation at L'Oréal is based on three fundamental pillars:

- Respect for nature and biodiversity;
- Reduce packaging weight and volume;
- Replace renewable resources and materials¹⁶⁹.

This means that the company is committed on different levels in a way that sustainable practices and principles are integrated in the entire lifecycle of products. The company is especially focused on the use and research of innovative materials to replace the extensive use of plastic for product's package. The use of PCR materials and 100% recycled PET has become common almost for all of the brands' products that are part of the company. Kiehl's, The Body Shop, Sanoflore, and L'Oréal Professional use up to 100% recycled PET, while Lancôme, Matrix, Redken include recycled PE in their tubes¹⁷⁰.

In 2008 Garnier was the first brand in the cosmetic and personal care sector to sign the ANIA-ILEC ECO-EMBALLAGES convention to reduce of 15% the weight of its packages and to minimise the environmental impact of its products¹⁷¹. The same strategy has been followed by Fructis, which in 2009 reduce the amount of plastic used in shampoo bottles.

In 2011 Biotherm has undertaken different innovative strategies, coming to the use of 40% recycled glass for the majority of its 50 ml jars used for skin creams, and using 100% certified cardboard packaging. Another successful strategy was to eliminate the

¹⁶⁹ L'Oréal Sustainability Factsheet, *Packaging and sustainable development*, June 2010

¹⁷⁰ Ibidem

¹⁷¹ Ibidem

instructions leaflets, now printed on the inside box, saving then 24 metric tons of paper in 2011¹⁷².

One of the most important and innovative programs, anyway, has been launched in 2007 with the Forest Stewardship Council (FSC) certification. The company since 2007 is deeply committed to a strict policy of forestry certification for all the wood fibre used for the production of package's paper and cardboard. The certifying process guarantees that all the stages of the supply chain (forest, pulping, board, printing) are FSC certified and respect forest's habitat through a sustainable management of each production phase. The employment of local and regional workforces guarantees human and civil rights and avoids the use of illegal work.

P&G, which is the largest consumer packaged goods company in the world today¹⁷³, has introduced package innovations especially through its mainstream cosmetic and personal care brands Pantene and Olay. Again, as for L'Oréal the main focus is package's weight reduction and use of alternative and recycled materials. P&G has reduced the weight of its Pantene Pro-V shampoo bottles saving 450 tons of plastic per year, and it further increased the use of renewable materials with the production of its first plant-based shampoo and conditioner bottles.

In the Pantene Pro-V Nature Fusion collection it is used sugarcane-based HDPE (high-density polyethylene), in order to support the company's goal to progressively replace petroleum-based materials with sustainable and renewable resources. The use of sugarcane-based plastic represents a big step forward, as consumer can buy a sustainable and environmental friendly product that maintains the same performance and expectations as before. Again, benefits are evident, as sugarcane-derived plastic over 70% less fossil fuels and releases 170% less greenhouse gases per ton than traditional petroleum-based plastic¹⁷⁴.

With the use of renewable resources Pantene supports P&G's goal to replace 25% of petroleum-based materials with renewable materials by 2020. This is just one part of a wider company's project, which among other things expects the use of:

¹⁷² L'Oréal Sustainable Development Report 2011, p. 21

¹⁷³ www.pg.com *Environmental Sustainability*

¹⁷⁴ *Ibidem*

- 100% certified virgin wood fiber by 2015;
- 100% recycled paper packaging by 2020;
- 100% certified sustainable palm oil by 2015¹⁷⁵.

Worthy of note is the work of Leoplast, the Italian company specialist in the production of plastic injection moulding for the perfume and the cosmetic industries, which since 2004 has specialized in the production of 100% vegetal plastic cosmetic packages. Vegetal plastic is made of 100% renewable resources like corn, plants and cellulose, which represent a valid alternative to petroleum-based resins.

These bio-based materials provide a lot of environmental advantages as their use can significantly reduce greenhouse gases emissions, shorten the carbon cycle, save fossil fuels without compromising on performance, quality and suitability of the package. Cellulose-based resin is made of non-alimentary resources and wood pulp comes from FSC forests. This kind of packaging represents a sort of compromise between biodegradable and thermal resistant products, as it provides good impact strength, high surface gloss, but at the same time also chemical resistance and warmth to the touch¹⁷⁶, all features that are hard to find combined in a package. Furthermore, all the materials are GMO, BPA, and phthalate free certified.

Thanks to its continuous efforts and investments in Research & Development, Leoplast is able to provide to cosmetic manufacturers a complete innovative line of packages for all the kind of cosmetic products, which range from lipstick cases, to jars, large and small compacts, and mascara caps and applicators.

Among the company's clients are: Bottega Verde, Cargo, Estée Lauder, Kiko, L'Erbolario, L'Oréal, Planters, and Pupa.

The company is able to provide also recycled traditional plastic, which has been regenerated without changing the quality and comes from clean industrial production wastes.

¹⁷⁵ www.pg.com *Using Resources Responsibly*

¹⁷⁶ www.organic-market.info, *Leoplast Group: Green Packaging from Italy*

It is clear that packaging is the most impacting element when it comes to consider the total environmental footprint of all the stages for the production of cosmetic products. According to Organic Monitor¹⁷⁷, beauty firms are investing much of their efforts in the development of green products, in the sourcing of materials, and in an effective supply chain, through the planning of different sustainability plans and strategies. Beauty firms are clearly aware of the relevance of the environmental impact of cosmetic products' package.

As we have observed previously, packaging sustainability is a very complex issue, where different strategies and processes have to work together in order to get positive and useful outcomes. It's not just about recycling or using innovative materials, is a unique mechanism that expects a balance of different factors on which cosmetic companies have to work.

It is possible to summarize some of the focal points of sustainable packaging in what we can call 'the 5Rs': Recycling, Reusing, Replacing, Recovery, and Reducing. This means that in order to get the higher performances and to reduce as much as possible environmental negative impact, it is fundamental that beauty brands work on each of these points. As we have seen some of most relevant initiatives, such as package weight reduction or replacement of petroleum-based resin with bio-based plastic are often less expensive, more convenient and hard to notice for consumers, which buy eco-friendly products that maintain the same appearance as the traditional ones, but are much more sustainable.

What every company should take for granted is that sustainability is not just something that can add value to their products, but is a fundamental part of the entire production process, which must always be considered when products are formulated and design.

¹⁷⁷ www.organicmonitor.com *Packaging: The Stepchild of Sustainability in Beauty Industry?*

11. LUSH and The Body Shop: two case studies of green brands

In this last part of the analysis I will discuss in depth the features, market strategies, and values of two important beauty companies, one operating on a wide international scenario, the other still a niche brand but with a growing potential, which have made sustainability their core value. These two beauty companies are The Body Shop and LUSH.

With the term sustainability it is meant not only, ecological and environmental sustainability, but also and especially human sustainability. This leads to state that positive environmental activities, such as carbon footprint reduction, greenhouse gases cut, development of innovative packaging and so on, are just one part of a wider project that includes different social and ethical values, such as human rights protection, support of fair trade community, responsible sourcing of raw materials, commitment to animal welfare and struggle against animal testing.

The story of these two companies is made of common strategies and values that take form in different ways and through different projects and actions. I will provide the most important information about both the companies, I will then focus on some existing common points and I will conclude with future expectations.

The Body Shop: an innovative pioneer

On 26th March 1976 the human rights activist Anita Roddick opened the first The Body Shop store in Brighton, on the south coast of England. When we talk about this company it is inevitable to associate it with its founder, Anita Roddick, who was the real pioneering and inspiring spirit of the brand and has the merit of its huge worldwide success.

The company arose in a dimension of social activism, promoting social and environmental causes. The Body Shop launch took place in a period of strong social change, with the rise of women's liberation movements and with the wave of feminism. In this context, Anita Roddick represented women's voice. She struggled against the manipulation of advertisement in the cosmetic industry, which had always been marked by a gendered and patriarchal connotation.

She denounced “the exaggerated claims made by advertising and its impact on the self-confidence of women”¹⁷⁸. At the same time, the company committed to support community and fair trade practices working with partners from different countries of the world. In 1985, The Body Shop sponsored posters for Greenpeace, while the next year it created the first major window campaign ‘Save the Whale’ with Greenpeace. The main five core values on which the company is deeply committed can be summarize as follow:

OUR VALUES



With a special attention to ethical values, The Body Shop established itself around the world as a real pioneer of natural beauty products, formulated with raw materials sourced in fair trade community and with the respect of animal welfare.

Against Animal Testing

The company has been well known for its policy against animal testing. In 1990 it launched the first of many public awareness campaign against animal testing, headed by the same Anita Roddick. Some years later there were presented to the European Union 4 million petition signatures, calling for a ban on the sale of cosmetic products tested on animals. In 1997 The Body Shop was the first international cosmetic company to sign up the Humane Cosmetic Standard, with the support of leading international animal protection groups¹⁷⁹.

Today the company is still very much committed against animal testing, and their strength resides especially on the fact that they ensure to consumers products that are cruelty-free and vegetarian-friendly.

Anyway, when in 2006 the beauty multinational giant L’Oréal acquired the company for \$1.3 billion, a lot of controversies came out. One of the first accusations was that

¹⁷⁸ Geoffrey Jones, *Beauty Imagined*

¹⁷⁹ www.thebodyshop-usa.com *Against Animal Testing*

Anita Roddick was selling her company and setting aside all its core ethical values, joining with a company that is not animal welfare concerned and continues to test cosmetic ingredients on animals still nowadays.

Animal welfare activists like Naturewatch and Uncaged joined together to boycott The Body Shop citing animals and human rights scandals surrounding L'Oréal and Nestlé. Anita Roddick was forced to defend herself from the allegation of abandoning her ethical values, the same on which her company is based.

In an interview with *The Guardian*, she gave her reasons and she explained why she decided to sell her company to L'Oréal. The main reason was the possibility to introduce a big change in the decision-making policy of such a big corporation, while at the same time gain greater potential and higher investments on fair trade for her brand.

What she stated was: *"I'm just excited that I can be like a trojan horse and go into that huge business and talk about how we can buy ingredients like Cocoa Butter from Ghana and sesame oil from Nicaragua farmers and how we can do that in a kindly, joyful way... I meet up with L'Oréal a lot as a consultant as part of my mission and vision for the beauty industry. I believe they are honorable and the work they do is honorable"*¹⁸⁰.

Anyway, the most evident thing that happened was that the positive ethical and green image of The Body Shop deeply influenced and had an impact on L'Oréal's policy, while on the other hand Anita Roddick's company lost in reputation among consumers.

This had been a strategic choice especially for L'Oréal, which needed to renew its image and to move towards sustainable and environmental-friendly production in order to fulfill consumers' expectation and requests. In fact L'Oréal's acquisitions didn't stop to The Body Shop, as other natural and organic brands, such as Sanoflore was acquired.

The relationship between L'Oréal and The Body shop is of particular relevance when it comes to consider the process of product testing and alternatives to animal testing methods. Both the companies are working to implement innovative projects in this field, especially L'Oréal, which has successfully developed a new synthetic skin called Episkin, which can be used to test the effects of many chemicals, as it mimics the physiology and reaction of human skin. This relevant step forward is a strong sign of change of the cosmetic industry as a whole, as every investment in researches and discoveries of new technologies is fundamental for everyone.

¹⁸⁰ Claudia Cahalane Interview of 3 November 2006 www.guardian.co.uk

The Community Fair Trade

In 1987 The Body Shop launched its Community Fair Trade project, to directly commit with suppliers to trade in a fair way, collaborating with local communities and small-scale farmers that are experts on a specific field. The first Community Fair Trade product was a Footsie roller, produced by suppliers in Southern India¹⁸¹. Today the program provides some of the finest raw materials that come from the four corners of the world, giving work and real benefits to more than 300,000 people. The company nowadays works with around 130 suppliers in 26 markets, and community fair trade suppliers in a further 21 countries¹⁸², where artisans, farmers and producer groups work and have established a unique relationship with the company.

Initially named 'Trade not Aid', the core idea of the project was, and continues to be throughout the years, to invest on small community and local groups in developing countries, ensuring to local workers fair conditions and a fair wage for their work.

In order to identify a community group that can become a supplier of the company, a team of specialist buyers focuses on that groups that have a market potential but don't have the right contacts, capacity or scale to compete international markets. When the right local group is identified, then the social, economic and cultural contexts are analyzed and studied, in order to provide workers the most suitable price to pay. Furthermore, the company gives funds to local communities to invest on the building of school, healthcare and local infrastructure.

In 2010 the 80% of The Body Shop's products contained one or more community fair trade ingredients, or were made by community fair trade suppliers¹⁸³. Now the company sources cocoa and shea butter from Ghana, hand massagers from India, honey from Ethiopia, Brazil nut oil from Peru, organic aloe vera from Guatemala, tea tree oil from Kenya giving work and benefit to more than 300,000 people.

In particular, one of the most outstanding successes of the company is the one of shea butter, sourced in a village called Tamale, situated in the north of Ghana. The extraction of shea butter is made by hand from the kernel of ripe shea fruits. The raw butter that is obtained is then heated to remove impurities and then allowed to cool before being

¹⁸¹ www.thebodyshop-usa.com/History

¹⁸² The Body Shop International PLC Values Report 2011: *Striving to be a force for good*, p. 16

¹⁸³ Ibid p. 20

shipped to Europe. To extract 25 kg of shea butter it is required the work of one woman for two days¹⁸⁴.

The Tungteiya Shea Butter Association, which collaborates with The body Shop for over 18 years, is made up of over 475 women that live around 11 villages in Tamale. The association, which has arose in a very patriarchal and male-dominated area, has helped many women to change their lives, giving them a work that empowers their life and position in the society, and ensuring gender equality. As the Tamale region is very dry and hot, with long dry season, the possibility to trade shea nuts can ensure them to raise money to buy food. Furthermore, the association has enabled the communities to build “11 school building, 8 teachers’ quarters, 5 community health clinics and 2 child feeding centers”¹⁸⁵.

Here below we can see the images¹⁸⁶ of a maternity clinic that was built with funds coming from fair trade with The Body shop, and some women of Tamale’s villages working on the manufacturing process of shea butter, picking the nuts and then sorting them with care.

The company’s achievements and successes are many, among other things the Body shop was the first cosmetic company in the world to start using organic Fair Trade alcohol in their fragrances. It is important to underline that in each project and programme, the brand is committed to take responsibility toward suppliers and their working conditions. In fact in 1998 the company became a founding member of the Ethical Trading Initiative, which is a partnership of different organizations that are committed to improve working conditions of people around the world.

¹⁸⁴ www.thebodyshop-usa.com *Community Fair Trade Shea Butter from Ghana*

¹⁸⁵ The Body Shop International PLC Values Report 2011: *Striving to be a force for good*, p. 20

¹⁸⁶ Images from www.thebodyshop-usa.com

All the suppliers are protected by a Code of Conduct that covers a wide range of issues, such as child labour, discrimination, working conditions, living wages and freedom of association¹⁸⁷.

The focal points of the Code of Conduct can be summarized as follow:

- people are free to decide where and when to work;
- workers trade unions are encouraged, as people can be involved in the assessment of working conditions;
- working conditions must be safe and hygienic;
- child labour must not be used;
- workers must be ensured at least minimum wage;
- working hours must not be excessive;
- all workers must be treated equally with no discrimination;
- regular employment must be provided;
- workers must be guaranteed fair and equal treatments.

The Body Shop Foundation

Launched in 1990, The Body Shop Foundation is a charity that provides financial support to different organizations that are not able to survive independently, groups that are not able to get public funding, and projects with the aim of increasing public awareness. The foundation especially focuses on working to achieve results on the fields of animal protection, human protection, and human rights, providing funding to local and global projects.

¹⁸⁷ The Body Shop International PLC Values Report 2011: *Striving to be a force for good*, p. 26

Here below are represented some of the most significant The Body Shop's campaigns that have been issued over the years¹⁸⁸.



2009 - 2012
STOP SEX TRAFFICKING OF CHILDREN AND YOUNG PEOPLE



1991
THE BIG ISSUE LAUNCHES



2008
GET LIPPY



1990
THE BODY SHOP FOUNDATION



2003
STOP VIOLENCE IN THE HOME



1989
STOP THE BURNING



2002
CHOOSE POSITIVE ENERGY



1986
SAVE THE WHALE



1998
MAKE YOUR MARK



1997
SELF-ESTEEM



1996
AGAINST ANIMAL TESTING



1993
PLIGHT OF THE OGONI PEOPLE

Today the company has more than 2,500 stores that are located in 66 countries around the world¹⁸⁹ selling 1,200 products. In 2011, The Body Shop sales growth of +4,2% was

¹⁸⁸ www.thebodyshop-usa.com

¹⁸⁹ Katja Assenmacher, *The Body Shop – An Analysis of the Company's Actions towards Sustainability*, Seminar Paper, e-fellows.net p. 1

the result also of a large expansion on new markets, especially Asia and Middle East¹⁹⁰. In India, for example, where consumers have a strong affinity with the brand, the growth rate is the highest and 23 new stores were opened in major urban centers and big cities. The strong expansion of the company has been possible thanks to an efficient network of expert franchise partners.

The growth of the brand has been further accelerated by the widespread use of digital resources, such as e-commerce and sales websites, also the involved in social networks led the brand to obtain more visibility in the worldwide marketplace and gain a large portion of new consumers.

LUSH: fresh handmade cosmetics

The history of the company dates back to the 1970s when a certain Liz Weir, a beauty therapist, and Mark Constantine, a trichologist, started their own business called 'Herbal Hair and Beauty Clinic' in High Street in Poole, UK. It was in the early 80s when Mark heard about Anita Roddick, who had already started her The Body Shop business in Brighton, he decided to send her samples of some of his products. From then, it started a collaboration between them, which lasted for many successful years. Constantine and Weir became the biggest The Body Shop's suppliers and they designed some of the most successful products for them¹⁹¹. Their business gradually grew, with the employment of new staff and with the development of new products. In the early 90s, after being bought out from The Body Shop and with the end of their profitable relationship, the founders reinvented their business and set up a mail order business with the name of Cosmetics to Go (CTG). Unfortunately, the first attempt was unsuccessful and the company was sold. Anyway, the team didn't give up and it started buying fresh products like oranges, lemons, juices and cinnamon to put into the soaps¹⁹². The doors of the Poole's store were opened again, this time with the name of 'Cosmetic House'. It was in 1995 that it was formally adopted the name 'LUSH', and this was just the beginning of the company's worldwide success. The first store in London was opened in Covent Garden, and very rapidly LUSH began to grow around the world until nowadays with more than 800 stores and several factories in over 50 countries of the world.

¹⁹⁰ L'Oreal Annual Report 2011, p. 66

¹⁹¹ www.lush.co.uk *Our History*

¹⁹² *Ibidem*

The company is one of the fewest that remained privately owned and that has not been acquired and absorbed by multinational beauty corporations.

LUSH is famous for its fresh and hand-made products, which range from soaps, shower gels, shampoos, hair conditioners, bath bombs, bubble bars, hand and body lotions, and fresh masks. All of these products are 100% vegetarian, 83% vegan and 60% preservative-free, and they are made with fresh and organic fruits and vegetables, and with the finest essential oils. The company is famous for selling its product with no packaging, or 'naked'. In fact 65% of the products are sold without packaging, and the remaining products with post-consumer recycled packaging. Furthermore LUSH is deeply committed on eco-friendly, ethical, and fair trade products and it is involved in many campaigns and charities. The company is also famous for its stand against animal testing and the use and buying of ingredients that have been tested on animals.

The core values on which the company works can be summarized as follow:



Against Animal Testing



Green Policy



Ethical Sourcing



Ethical Campaigns

LUSH is deeply committed to a policy of animal testing prohibition with regards to final cosmetic products as well as single cosmetic ingredients. At the same time it is engaged in not buying from third-party suppliers products and ingredients that have been tested on animals. At LUSH, product's safety tests are carried out through a merging process between scientific assessment and human results. This means that when a product is scheduled for launch, the company makes a test batch and sends it to

human volunteers, which will use the product and will provide accurate information about its effectiveness and eventual reactions compiling specific questionnaires that will be sent to specialists¹⁹³. Results are then reviewed and if standards are met the product is released to the market.

The LUSH non-animal testing policy exists even before the creation of LUSH itself. It was launched in 1991 and it was supported by BUAV and other organisations. Fighting against animal testing has always been and continues to be one of the core values of the company. On June 2012 LUSH launched in collaboration with Ethical Consumer Research Association its 'LUSH Prize' to reward with a fund of £ 250,000 groups or individual working in the field of cruelty-free scientific research, awareness-raising, and lobbying. The entire prize money will be split into 5 major categories. In November the prize winners were announced as follows¹⁹⁴:

- Science Prize: Institute for Health and Consumers Protection, Italy (£ 50,000)
- Lobbying Prize:
 - Humane Society International, USA (£ 40,000)
 - Federation of Indian Animal Protection Organization (FIAPO), India (£ 5,000)
 - PETA India (£ 5,000)
- Training Prize:
 - Institute for In Vitro Sciences, USA (£ 25,000)
 - InterNICHE ((£ 25,000)
- Public Awareness Prize:
 - Japan Anti-Vivisection Association, (£ 30,000)
 - Decipher Films, Canada (£ 10,000)
 - VITA Animal Rights Center, Russia (£ 10,000)
- Young Researcher Prize:
 - Elizabeth Woehrling, UK (£ 12,500)
 - Felix Rivera-Mariani, USA (£ 12,500)
 - Chiara Scanarotti, Italy (£ 12,500)
 - Line Mathiesen, Denmark (£ 12,500)

¹⁹³ www.lushusa.com *Against Animal Testing Policy*

¹⁹⁴ www.lushprize.org

On April 24th 2012 the initiative of a group of people as a part of the LUSH campaign against animal testing methods had a great resonance all around the world. Jacqueline Traide, a 24 year-old woman offered to voluntarily undergo different procedures that simulated animal testing methods. The procedure took place in the window of LUSH's Regent Street store in central London, in one of the busiest shopping street of the city. Jacqueline spent 10 hours in the shop window, under the eyes of thousand of tourists, shoppers, and office workers, subjected to force-feeding, injections, hair shaving, and other shocking procedures, often while restrained. The woman was tortured in front of hundreds of horrified shoppers in order to increase awareness about the issue among consumers. The gruesome spectacle had the aim to highlight and show to people the cruelties inflicted on animals during cosmetic laboratory tests¹⁹⁵.

The company deeply believes in protecting people, animals and the planet. Special attention is paid to packaging, which is one of the most distinctive features of the sustainability of LUSH's products. LUSH eliminated almost entirely packaging by selling solid 'naked' products that do not require plastic packages or containers, by removing water from products. This means that shampoos, conditioner, body butters and soaps are sold to costumers in the solid shape of bars, avoiding the production of millions of plastic bottles. Anyway, when package cannot be eliminated the company makes use of post-consumer or post-industrial recycled materials that are 100% recyclable, compostable, and biodegradable¹⁹⁶. Pots and bottles are made from 100% PCR plastic, store carrier bags are made with PCR paper and are compostable, and products for shipment are packed in biodegradable plastic bags, recycled paper and biodegradable fillers¹⁹⁷. Since LUSH is an international company, the impact of land, sea and air transportation on the environment, in terms of carbon emissions, is quite relevant. For this reason, the company is working with its suppliers and providers in order to source low-impact and ethically responsible fuels for the transport of raw materials and finished products around the world. An Internal Carbon Tax program has been instituted and applied to travel and shipments in a way that carbon emissions are regularly tracked and controlled. Also the use of water is monitored, and the production

¹⁹⁵ Natalie Evans *Treated like an animal: Demonstrator tortured in shop window in protest against animal testing*, 25 April 2012 from www.mirror.co.uk

¹⁹⁶ www.lushusa.com *Green Policy*

¹⁹⁷ *Ibidem*

of products in the form of solid shape with the use of water generates a save of over 450,000 liters of water per year.

Sourcing ethical raw materials represents another core value of the brand. For this reason the company launched different projects that involve fair trade. For example LUSH makes use of organic vanilla beans that come from Papua, New Guinea, where remote local farmers grow their beans without the use of pesticides, chemical fertilizers, and artificial additives. Furthermore, positive changes are taking place in Ghana and Indonesia with fair trade projects that have been planned to remove rainforest destroying materials like palm oil, widely used in the cosmetic industry.

The company supports many organizations and charity programmes through its 'Charity Pot' project, which was launched in April 2007 to raise money for charities and other good causes.

100% of the price of the product (minus the taxes) is used to help all LUSH's charity partners. In this way costumers buy a fair trade organic cocoa body butter, that is valuable and eco-friendly product, but at the same time they contribute with their money in helping and supporting organisations that work in the fields of environment, animal protection, and human rights.

A comparison between the two companies:

The Body Shop is nowadays one of the biggest retailers in the natural cosmetic sector¹⁹⁸, anyway, as previously explained there are many competitors that are approaching this market and investing a lot on social and environmental sustainability. As we have seen, this is exactly the case of LUSH, which is gaining more and more international acknowledgment in the natural and organic beauty market and which has made of packaging innovation its successful strategy. LUSH, which started its own activity as a supplier of The Body Shop, has become throughout the years an example of innovative company that deeply invested on sustainability. It is necessary to mention also the social policy of the company, which is committed to charity campaigns and social stands, for example against detention without trial or torture. This social aspect of sustainability is clearly evident in The Body Shop policy, which through its campaigns supports human rights and fights against sex trafficking and violence in the home.

¹⁹⁸ Katja Assenmacher, *The Body Shop – An Analysis of the Company's Actions towards Sustainability*, Seminar Paper, e-fellows.net p. 7

It is to say that the most distinctive feature of LUSH is certainly the innovative packaging, or better the almost complete absence of package, used for its products. This strategy is fundamental for many additional positive outcomes, such as water and plastic use reduction, and cut of carbon emissions. The fact that LUSH's products are mainly produced in solid bars means that saves on production, transport and storing of new plastic bottles and pots take place along the entire supply chain. For example a bar of shampoo is the equivalent of three regular shampoo plastic bottles.

The Body Shop's commitment to social sustainability is particularly high, however there are some points on which the company should work more and bring more improvements. In fact the company should have a more creative approach towards products innovation and should also be more committed to reduce energy and water usage.

Anyway, both the companies are working hard on most of sustainability business levels, and certainly both have the potential to be stronger sustainable companies in the international cosmetic market.

12. Conclusions

Sustainability has become a central issue for the design and the development of each product and service. As underlined throughout my analysis, sustainable development is the fundamental objective to which every cosmetic company should aim. Every stage of product's life cycle must then be addressed with specific strategies that are oriented toward economic, social, human and environmental sustainability. It is essential that there exists a balance among these different elements.

These areas are specifically dealt by cosmetic companies through several strategic actions, at every stage of the supply chain. For what it concerns human sustainability the sourcing process of raw materials is supported by many ethical projects of cooperation, which enable small and local communities in developing countries to obtain a fair wage for their work. In this way sustainable cosmetic brands are able to provide consumer eco-friendly products and at the same time they ensure human rights safeguard communities of people that live in developing countries.

Other fundamental strategies are related to the use of renewable materials and renewable energy, emissions reduction, and waste management. One of the most impacting element is products' packaging, and for this reason the use of recycled and biodegradable materials is helping a lot in moving towards sustainability.

As we have seen, in order to get effective outcomes, companies have to invest a lot on innovation and research. The main point that is at the base of sustainable development is the awareness that sustainability must be the central part of each company's strategy, and not something that simply adds value to final products. This is quite hard to get, especially because each party involved should follow only one shared and universal strategy. This is still something difficult to take place as the cosmetic industry is marked by complex features and issues. The lack of a common international policy is evident both for what it concerns the identification of certifications broadly shared and also with regards to methods that allow the verification of products' safety. Great controversies arose and continue to come out about the practice of testing products on animals, and about the new European Cosmetic Directive, which entirely bans from March 2013 the use of animals to test cosmetics. The inability to find a common international policy that protects consumers, but at the same time ensure the safeguard of animals and the environment has led to many controversies.

Especially with regards to the regulation of natural and organic cosmetic products, there is still a lot of confusion in the regulating field. The problem is that there exist so many eco-labels that certified products according to their own standards and requirements that consumer are often confused about what is the most reliable and safe product to buy. This issue is further amplified by misleading advertising campaigns often made by many beauty brands that with false marketing claims practice greenwashing.

One of the most evident problems is that consumers are often uninformed about natural, organic, and sustainable issues. It is true that in the last years a lot of things changed and many steps forward have been made, but companies should do even more.

A good solution could be represented by the sale of free samples to costumers of some of the most representative products or more investments in informative campaigns. Another problem is that these products are often sold in very few stores and still represent a niche market. Widening eco-friendly products market with new stores that sell natural and organic products of new brands would induce and lead people to try unknown products without scepticism. Social networks and new interactive tools are certainly useful to help people to get in contact with this new dimension. Especially young people are attracted by the possibility to buy cosmetic and beauty care products at on-line shops.

The beauty market is going through a continuous and uninterrupted evolution, as research and innovation are the base of the cosmetic industry. For this reason sustainability is expected to gain more and more relevance in product's life cycle, not only in the beauty industry, but in every productive sector and field.

One of the most relevant attempt to try to bring together international organizations to cooperate for sustainability in the cosmetic industry is the Sustainable Cosmetic Summit, which is an international event organized by Organic Monitor, the research and business consulting company specialized in organic products. The aim of the summit is to discuss sustainability issues and to face major problems bringing together key stakeholders, such as cosmetic manufacturers, ingredients and raw materials suppliers, researchers, and investors on a regular basis in a high level international forum.

The summit takes place in different parts of the world through the planning of many workshops, seminars, and meetings on natural cosmetics and sustainability issues at various locations such as New York, San Francisco, Sao Paolo, London, Paris, Hong Kong, Singapore, Bologna, Munich, and Nuremberg.

The next North American edition of the summit will take place in New York, 16-18th May 2013. Some of the most relevant issues that will be discussed in a 2-day conference program will focus especially on the social dimension of sustainability, which seems to be one of the most urgent problems for cosmetic companies. The challenge for beauty brands of implementing sustainable programs that are aware of the social impacts of the beauty industry, and the attempt to adopt ethical alternatives and more conscious initiatives for their production processes are among the most pressing priorities.

The issue of animal testing, especially for companies that export in Eastern markets, is of current relevance. Beauty companies have historically received many criticisms for unethical and non-environmental friendly business practices, which included animal testing, unsustainable sourcing of raw materials and chemical pollution. For these reasons, throughout the years, many beauty brands have focused on the development of their own sustainable strategy increasing investments on environmental, social and ethical projects.

This process has been the result of a great pressure made not only by consumers, but also the media, retailers, and ingredients manufacturers, which played an active role in the process on switching to sustainability. For some companies Corporate Social Responsibility (CSR) and sustainability initiatives constitute the basis of their business, for others this changing process is quite more intricate but still oriented toward ecologically and ethically conscious business practices.

As we have seen throughout the analysis some companies, such as The Body Shop, are focused on ethical sourcing, others on biodiversity and eco-systems preservation, and packaging innovations. For example LUSH obtained its worldwide success thanks to the innovative design of its products, which are available to consumers without any kind of packaging, but simply in a solid bar, saving in terms of water, energy, and emissions. A lot of progress has been made by cosmetic brands in the number and type of sustainable raw materials used, in the formulation of environmental friendly packaging, and in the research of innovative sustainable and often recycled materials used in the manufacturing process of products. All these initiatives are communicated to consumers on an annual basis through accurate and detailed reports, which clearly illustrate the corporate strategy of each company. Despite this, there is still a lot of confusion among consumers. In fact, the majority of them are not able to distinguish what companies support sustainable values or which type of products are sustainable, and are often

uncertain about the reliability of what they usually buy. What is even more difficult to understand is the difference between sustainable and natural or organic products, as people tend to perceive each of these claims as coming from the same dimension. Furthermore, the growing number of eco-labels and certification seals are making consumers more and more sceptical about green claims. According to Organic Monitor¹⁹⁹, consumers have a lot of difficulties in identifying green brands. In 2009 an international survey has polled 5,000 consumers on green products, brands, and companies. When consumers were asked to rank the greenest brands, surprisingly some unexpected results came out. While some green companies, such as Burt's Bees and Tom's of Maine were recognized as such by consumers, others, such as Unilever's Dove, were mistakenly defined as green brands. This is often the result of advertising campaigns that lead consumers to think that social commitment is necessarily associated with green claims.

In recent years beauty brands are investing a lot in marketing communication in order to drive products sales. The main problem is that for consumers it is becoming more and more difficult to distinguish between legitimate and reliable marketing by green brands and, on the contrary, greenwashing. Greenwashing is a common term used to describe the practice of making a product appear 'greener' or more environmental friendly than what it really is, using misleading marketing claims. This practice is used for products that are advertised as natural and green, and on the contrary are often formulated with harmful and toxic ingredients. As a consequence, misinformed people, who faithfully believe in brand's transparency and honesty, are cheated by misleading advertising.

This leads to state that consumers' behaviour is very much relevant to encourage sustainable practices. Despite one of the highest environmentally impacting factor of cosmetic products is detectable at the consumption level, also the consumer level has its relevance. A responsible consumption of cosmetic products is fundamental to promote sustainability and reduce environmental impacts, but at the same this results into the creation of a paradox for cosmetic industry's stakeholders. In fact they have to manage the conflicting challenge of convincing consumers to buy less of their products, but at the same time to consume more.

¹⁹⁹ www.organicmonitor.com *CSR & Sustainability: How the Beauty Industry is Cleaning Up*

All of these themes are a matter of debate for present and future generations, which are struggling to encourage sustainability at all the levels of the beauty industry. As we have seen these issues are of great relevance at the international scenario, and are strategic not only for industrialized, but also for developing countries, which are becoming active role players.

Bringing together key stakeholders will be the successful strategy to find a common way to go through, as international cooperation is fundamental to make sustainability the prerogative for the development of each good and service.

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