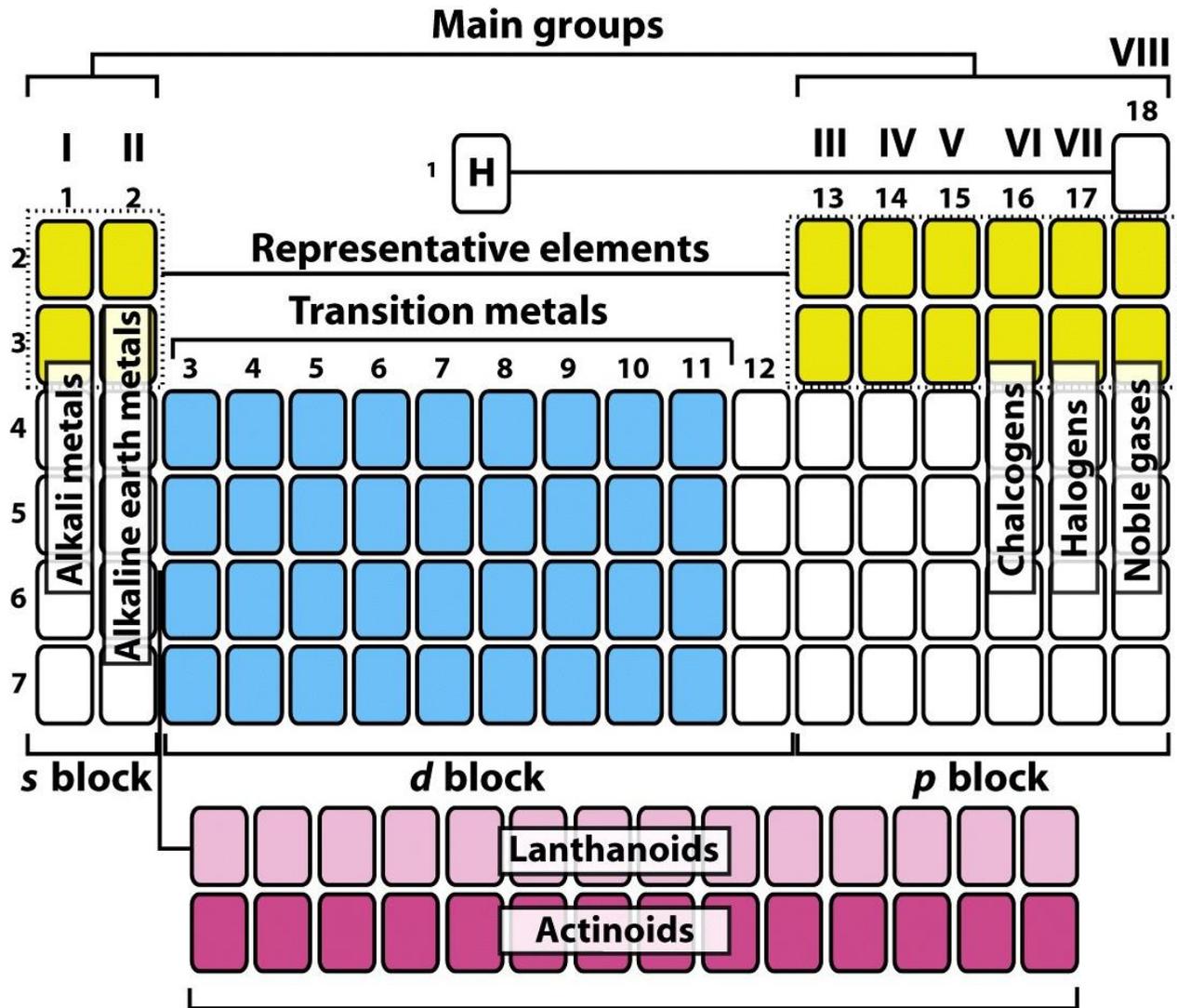


<http://www.rsc.org/periodic-table>



7	8	9	10	11	12	
Mn	Fe	Co	Ni	Cu	Zn	Al
Tc	Ru	Rh	Pd	Ag	Cd	Ga
Re	Os	Ir	Pt	Au	Hg	In
						Tl

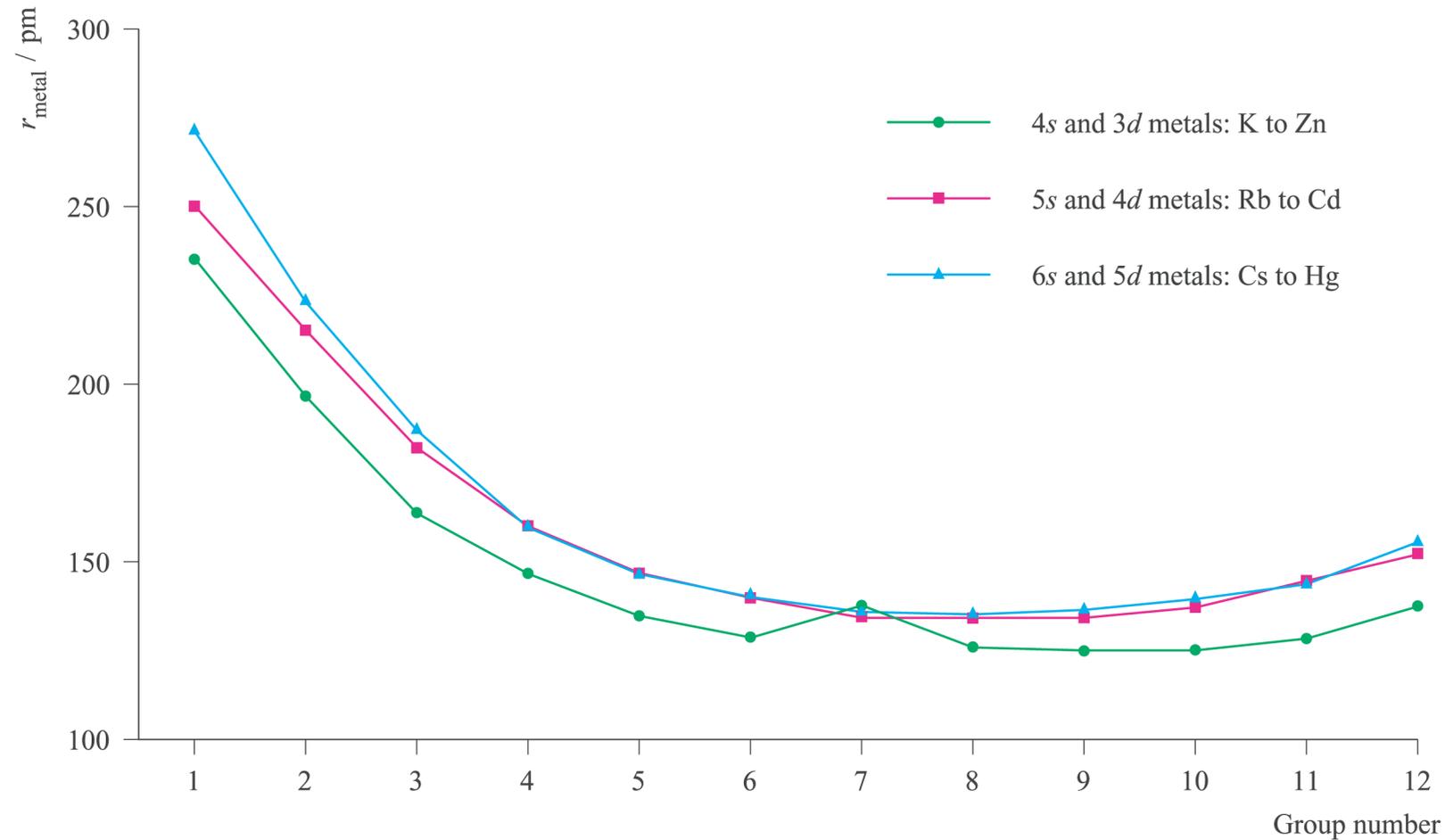
**Platinum
metals**

**Coinage
metals**

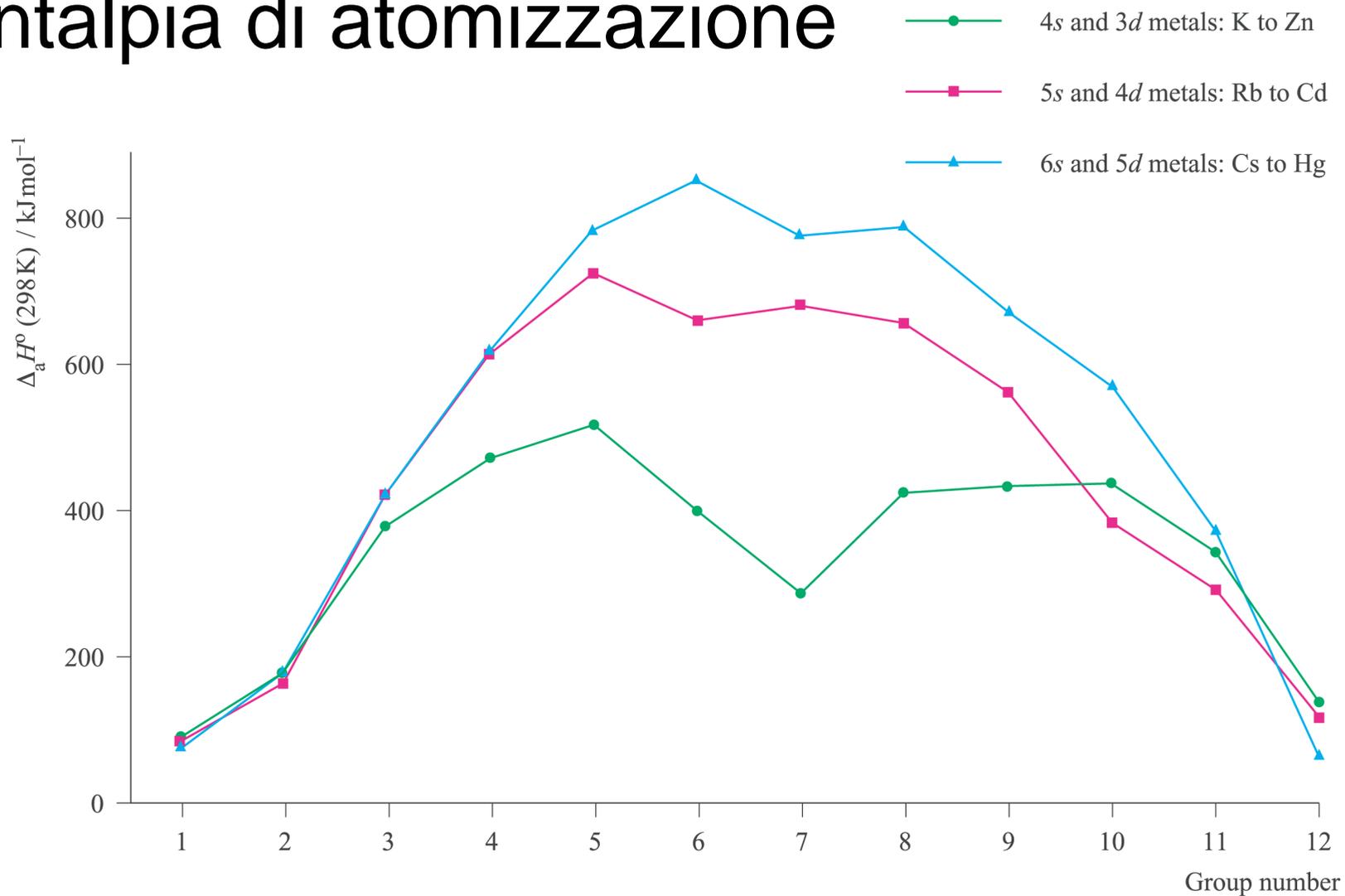
Platinum group metals

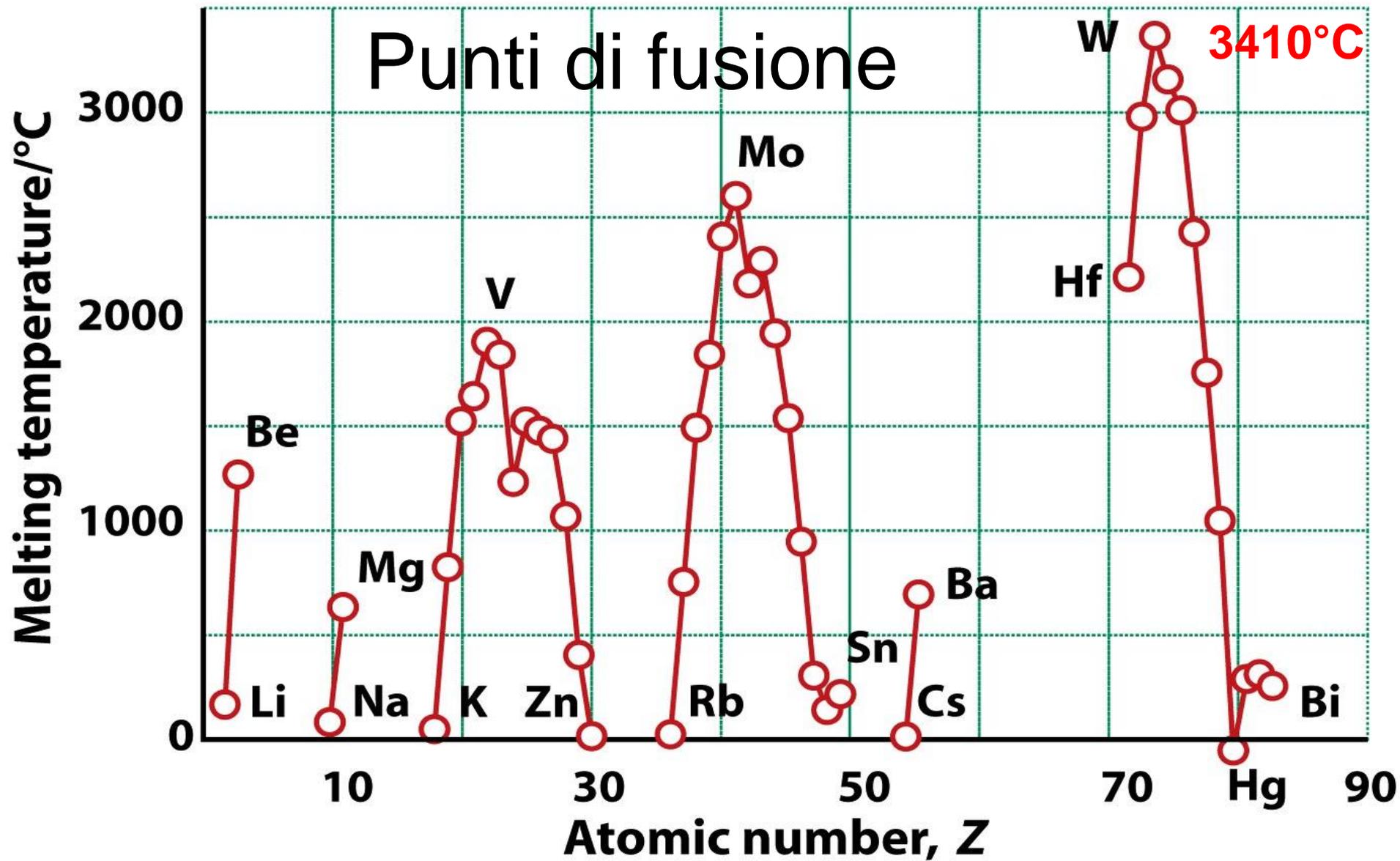
<https://www.youtube.com/watch?v=Fg2WzCzKpYU>

Raggio atomico

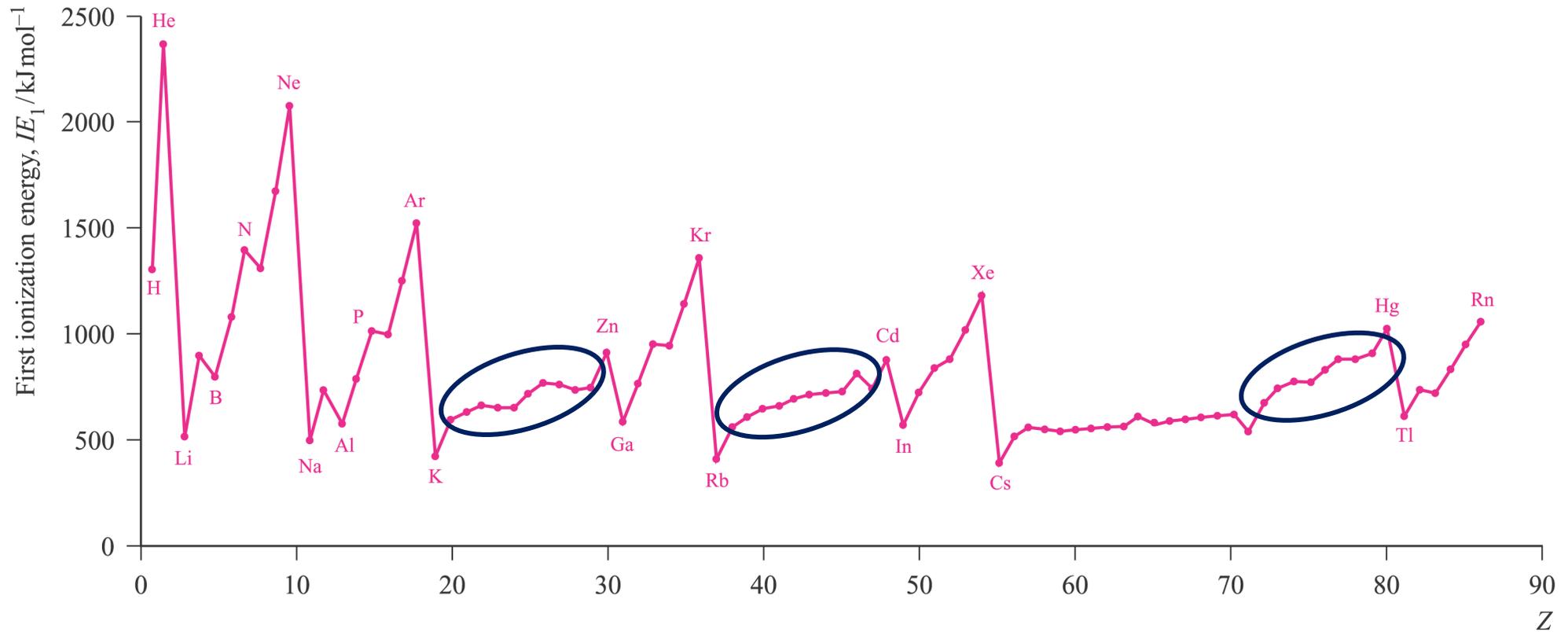


Entalpia di atomizzazione





Energia di ionizzazione



Potenziali standard di semireazione

Reduction half-equation	E^0 / V
$\text{Ca}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Ca}(\text{s})$	-2.87
$\text{Ti}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Ti}(\text{s})$	-1.63
$\text{V}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{V}(\text{s})$	-1.18
$\text{Cr}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Cr}(\text{s})$	-0.91
$\text{Mn}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Mn}(\text{s})$	-1.19
$\text{Fe}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Fe}(\text{s})$	-0.44
$\text{Co}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Co}(\text{s})$	-0.28
$\text{Ni}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Ni}(\text{s})$	-0.25
$\text{Cu}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Cu}(\text{s})$	+0.34
$\text{Zn}^{2+}(\text{aq}) + 2\text{e}^{-} \rightleftharpoons \text{Zn}(\text{s})$	-0.76

Andamento dei potenziali di riduzione dell'acqua con il pH

$$E^\circ(\text{Co}^{3+}/\text{Co}^{2+}) = + 1.92 \text{ V}$$

$$E^\circ(\text{Ce}^{4+}/\text{Ce}^{3+}) = + 1.76 \text{ V}$$

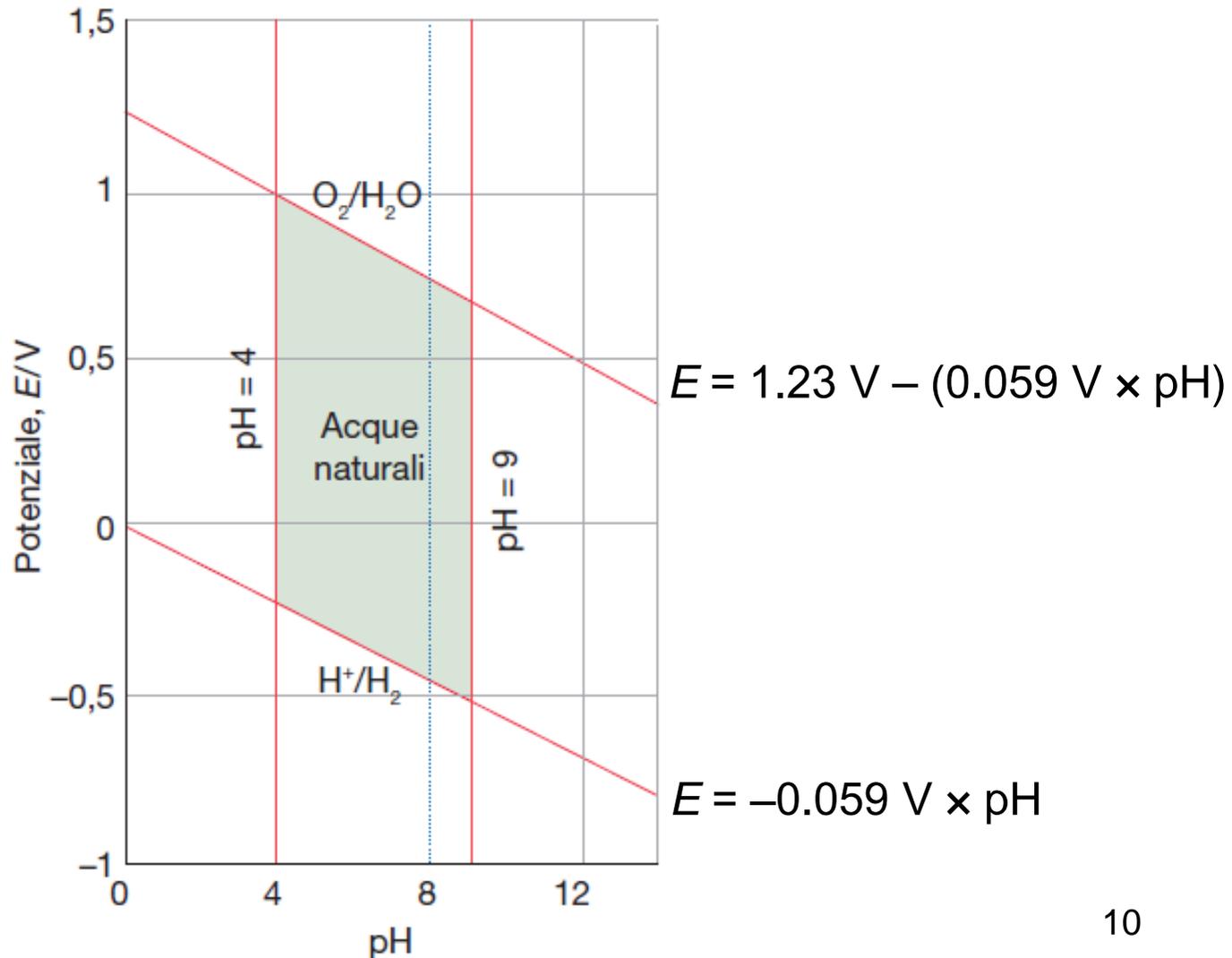
$$E^\circ(\text{MnO}_4^-/\text{Mn}^{2+}) = + 1.51 \text{ V}$$

$$E^\circ(\text{Cr}_2\text{O}_7^{2-}/\text{Cr}^{3+}) = + 1.38 \text{ V}$$

Perché Co^{3+} ossida l'acqua mentre gli altri ossidanti vengono usati in acqua seppure abbiano potenziali $> 1.23 \text{ V}$?

$$E^\circ(\text{Fe}^{3+}/\text{Fe}^{2+}) = + 0.77 \text{ V}$$

Perché le soluzioni di Fe^{2+} in acqua non sono stabili?



Colour of light <i>absorbed</i>	Approximate wavelength ranges / nm	Corresponding wavenumbers (approximate values) / cm^{-1}	Colour of light <i>transmitted</i> , i.e. complementary colour of the absorbed light
Red	700–620	14 300–16 100	Green
Orange	620–580	16 100–17 200	Blue
Yellow	580–560	17 200–17 900	Violet
Green	560–490	17 900–20 400	Red
Blue	490–430	20 400–23 250	Orange
Violet	430–380	23 250–26 300	Yellow

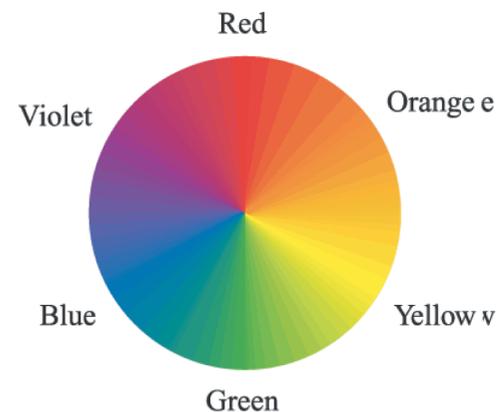
† When an electronic spectrum exhibits more than one absorption in the visible region, the simplicity of the colour wheel does not hold.

$$40 \text{ kcal (167 kJ)} \div 72 \text{ kcal (300 kJ)}$$

Colour
of light
absorbed

In a 'colour wheel'[†]
representation,
complementary colours
are in opposite sectors

Red
Orange
Yellow
Green
Blue
Violet



[†] When an electronic spectrum exhibits more than one absorption in the visible region, the simplicity of the colour wheel does not hold.

Stati di ossidazione dei metalli del blocco d, prima serie

Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn
	0	0	0	0	0	0	0	[0]	
		1	1	1	1	1	1	1	[1]
	2	2	2						
3	3	3	3	3	3	3	3	3	
	4	4	4	4	4	4	4	[4]	
		5	5	5					
			6	6	6				
				7					

Stati di ossidazione dei metalli del blocco d, seconda serie

Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd
			0	0	0	0	0		
				1		1		1	[1]
3	2	2	2	[2]	2	2	2	2	2
	3	3	3	3	3	3		3	
	4	4	4	4	4	4	4		
		5	5	5	5	5			
			6	6	6	6			
				7	7				
					8				

Stati di ossidazione dei metalli del blocco d, terza serie

La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg
			0	0	0	0	0	[0]	
				1		1		1	1
	2	2	2	2	2	2	2	[2]	2
3	3	3	3	3	3	3		3	
	4	4	4	4	4	4	4		
		5	5	5	5	5	5	5	
			6	6	6	6	6		
				7	7				
					8				

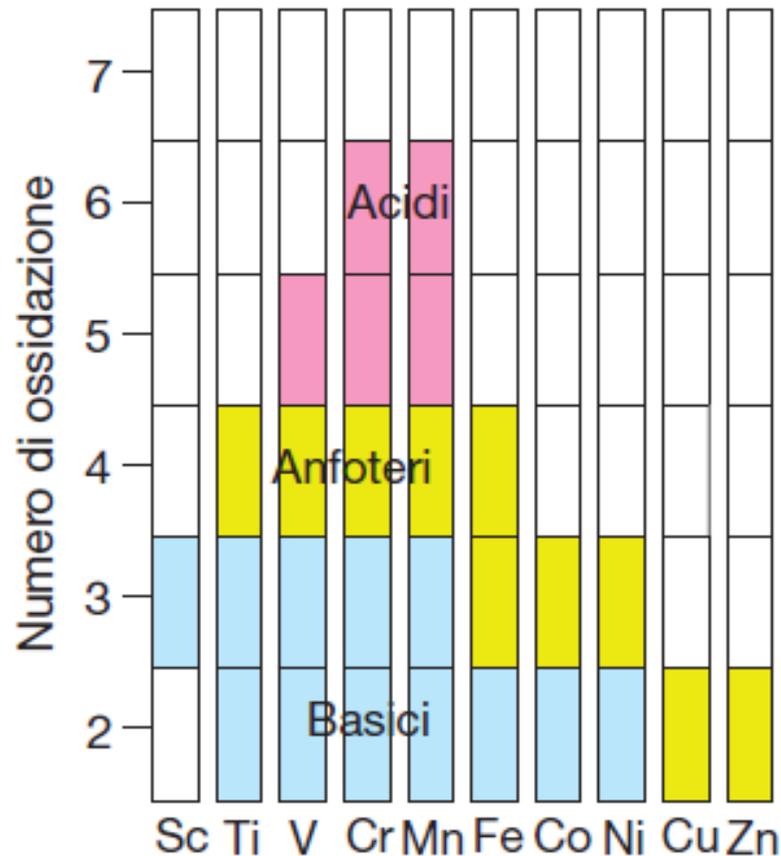


Identification of an iridium-containing compound with a formal oxidation state of IX

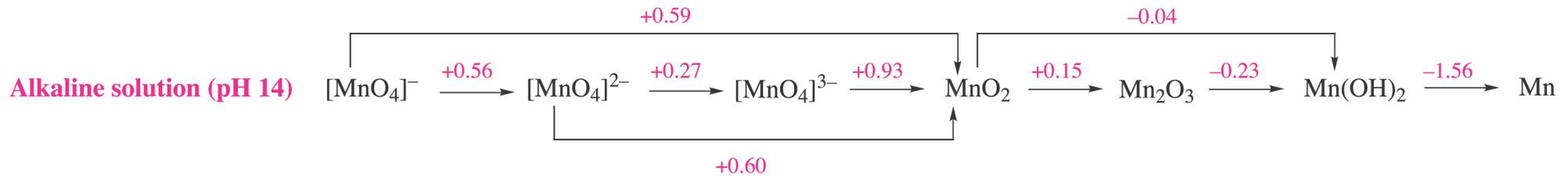
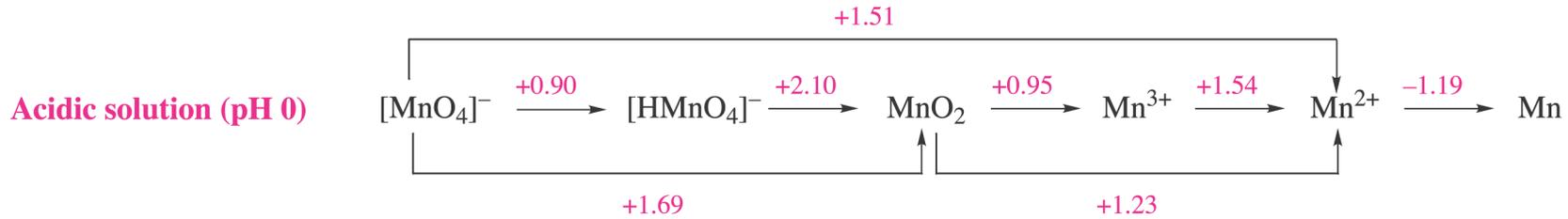
Guanjun Wang, Mingfei Zhou , James T. Goettel, Gary J. Schrobilgen , Jing Su, Jun Li, Tobias Schlöder & Sebastian Riedel 

Nature **514**, 475–477 (23 October 2014) | [Download Citation](#) 

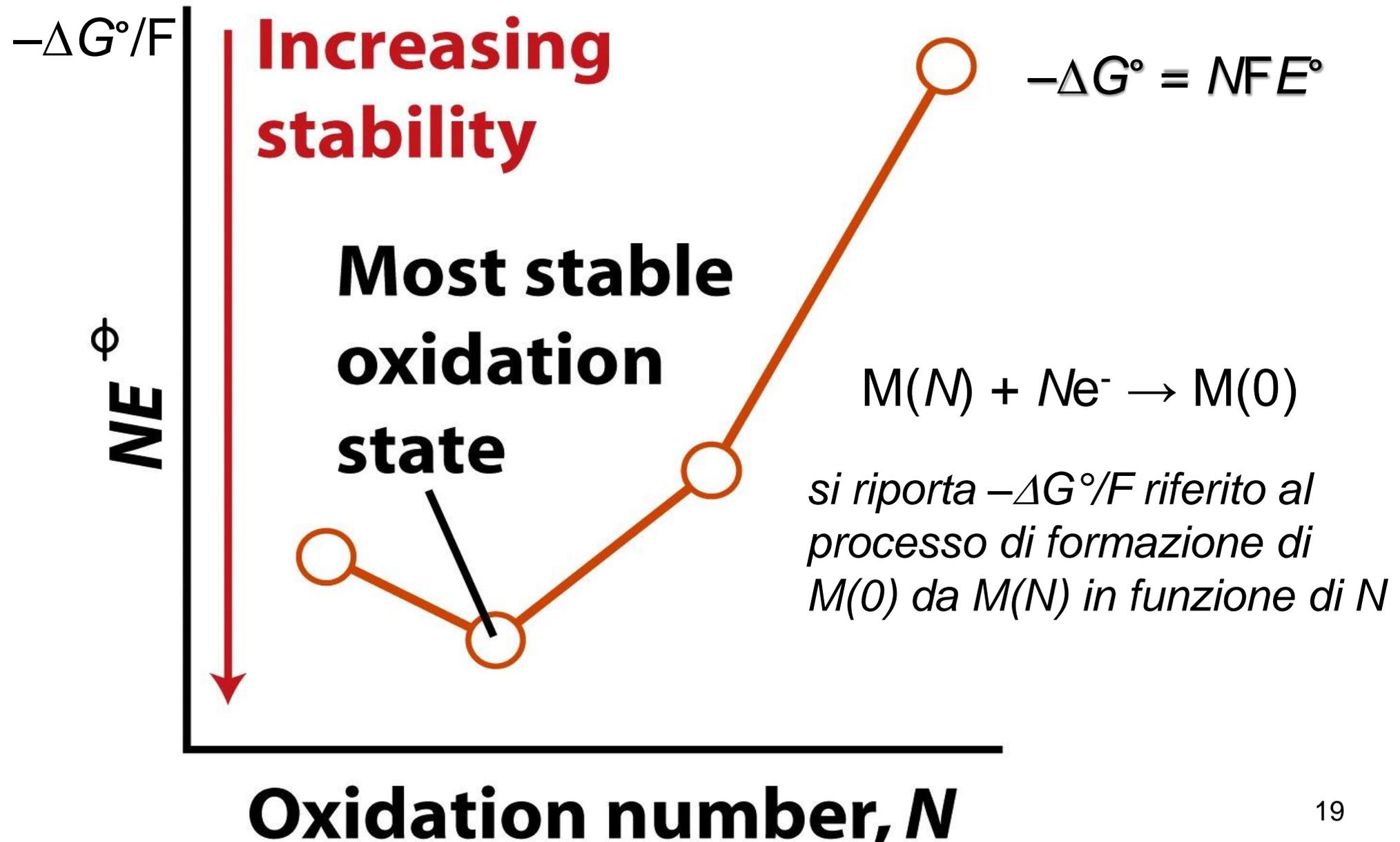
La chimica di un elemento dipende anche dal suo stato di ossidazione. Per esempio, al crescere del numero di ossidazione aumenta il carattere acido degli ossidi, che passano da prevalentemente ionici a covalenti.



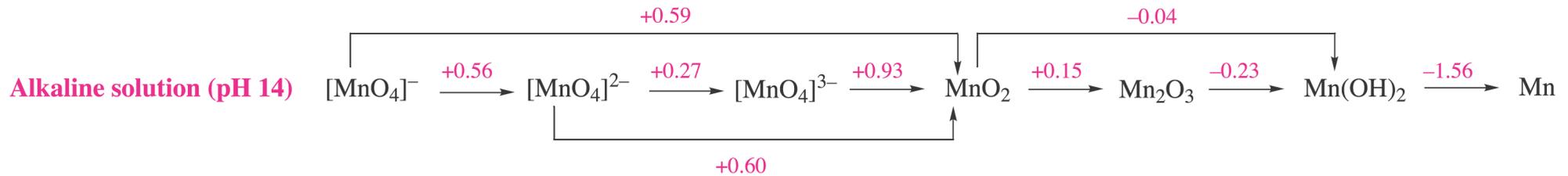
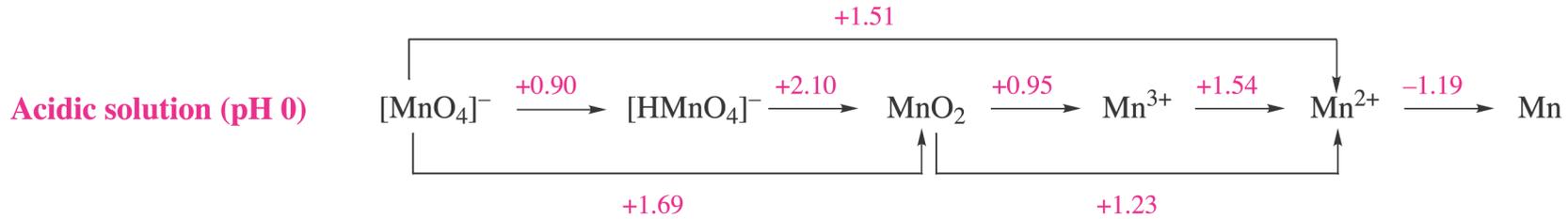
Diagrammi di Latimer

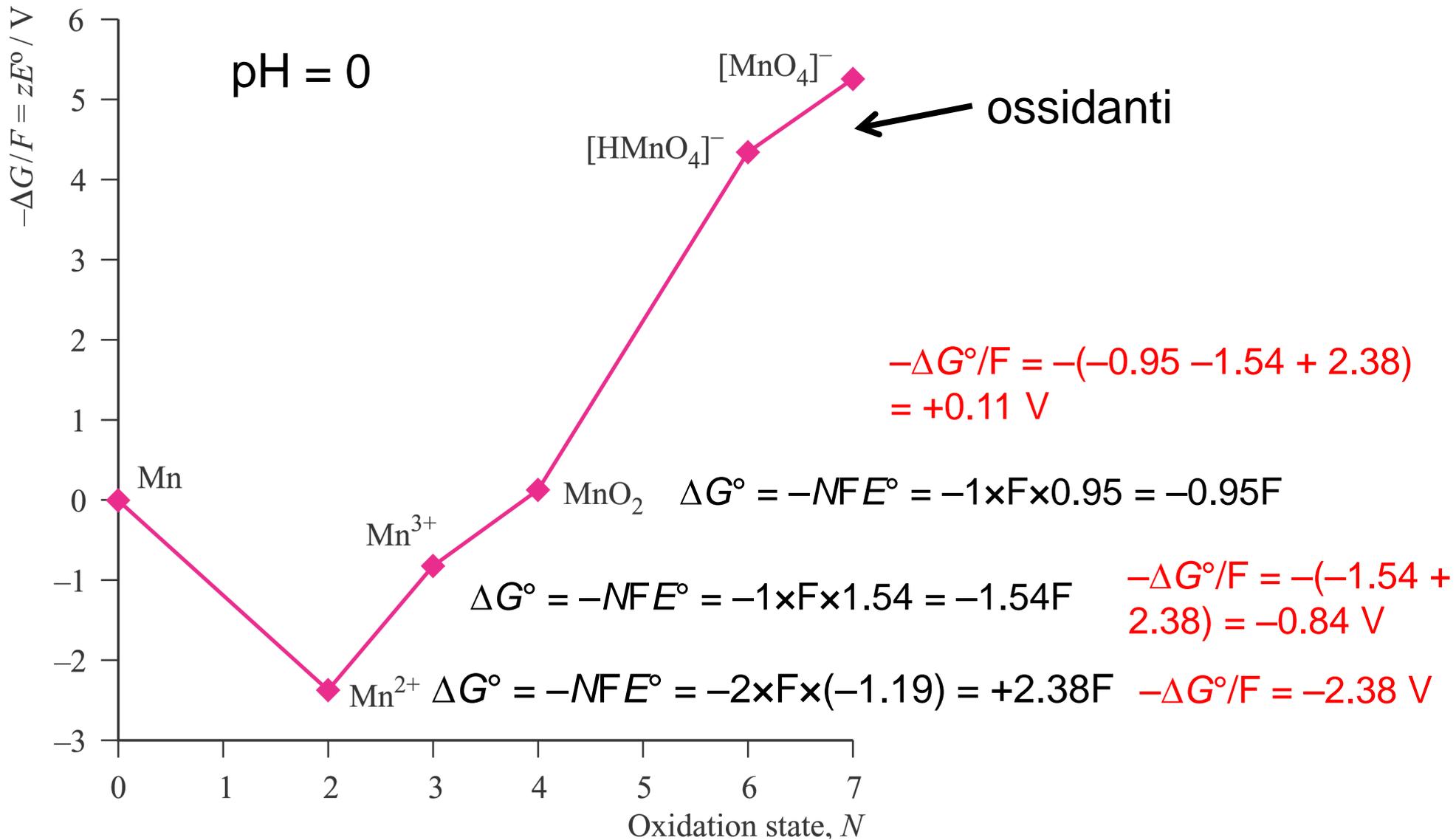


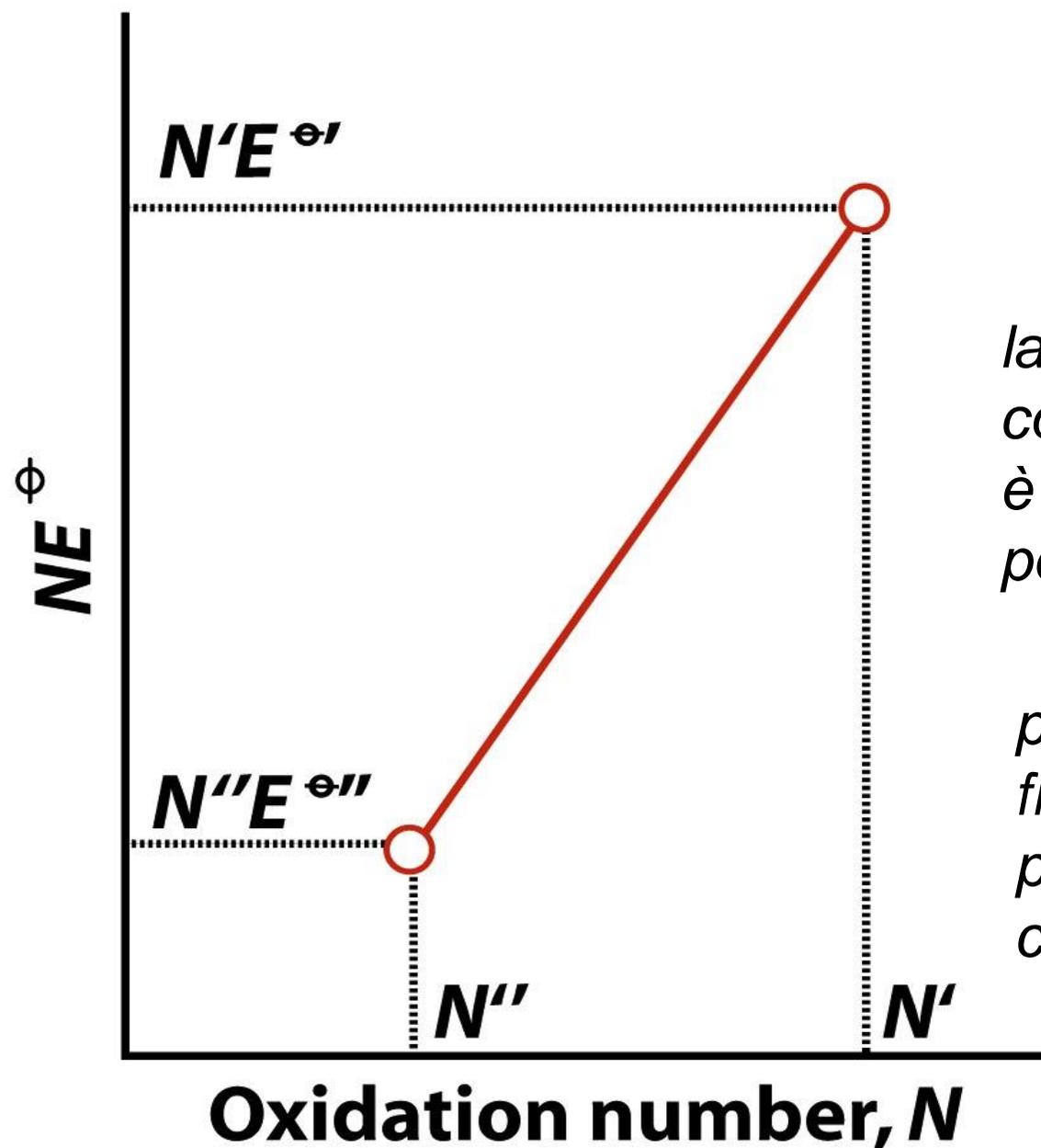
Diagrammi di Frost - Ebsworth



Diagrammi di Latimer

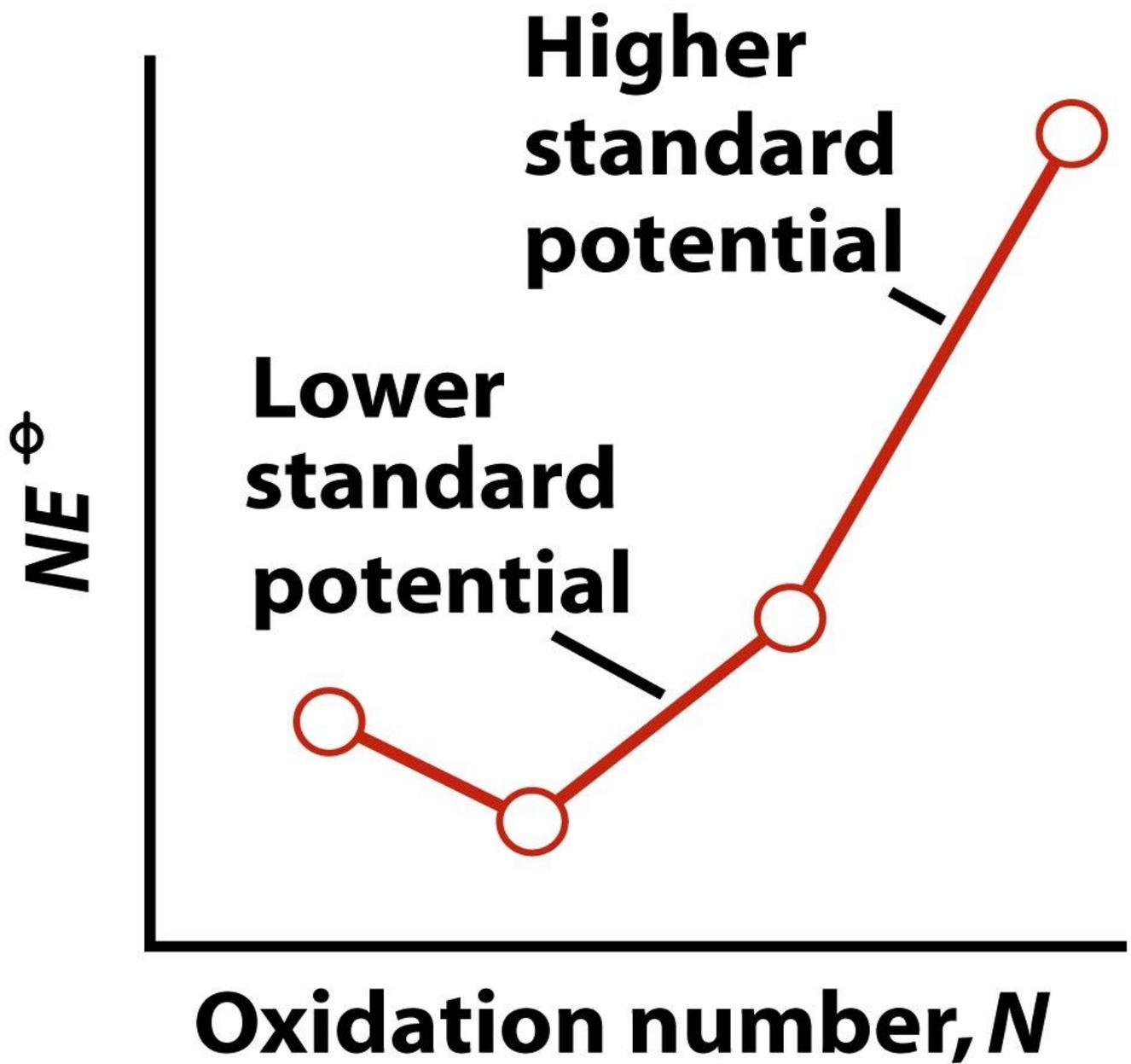


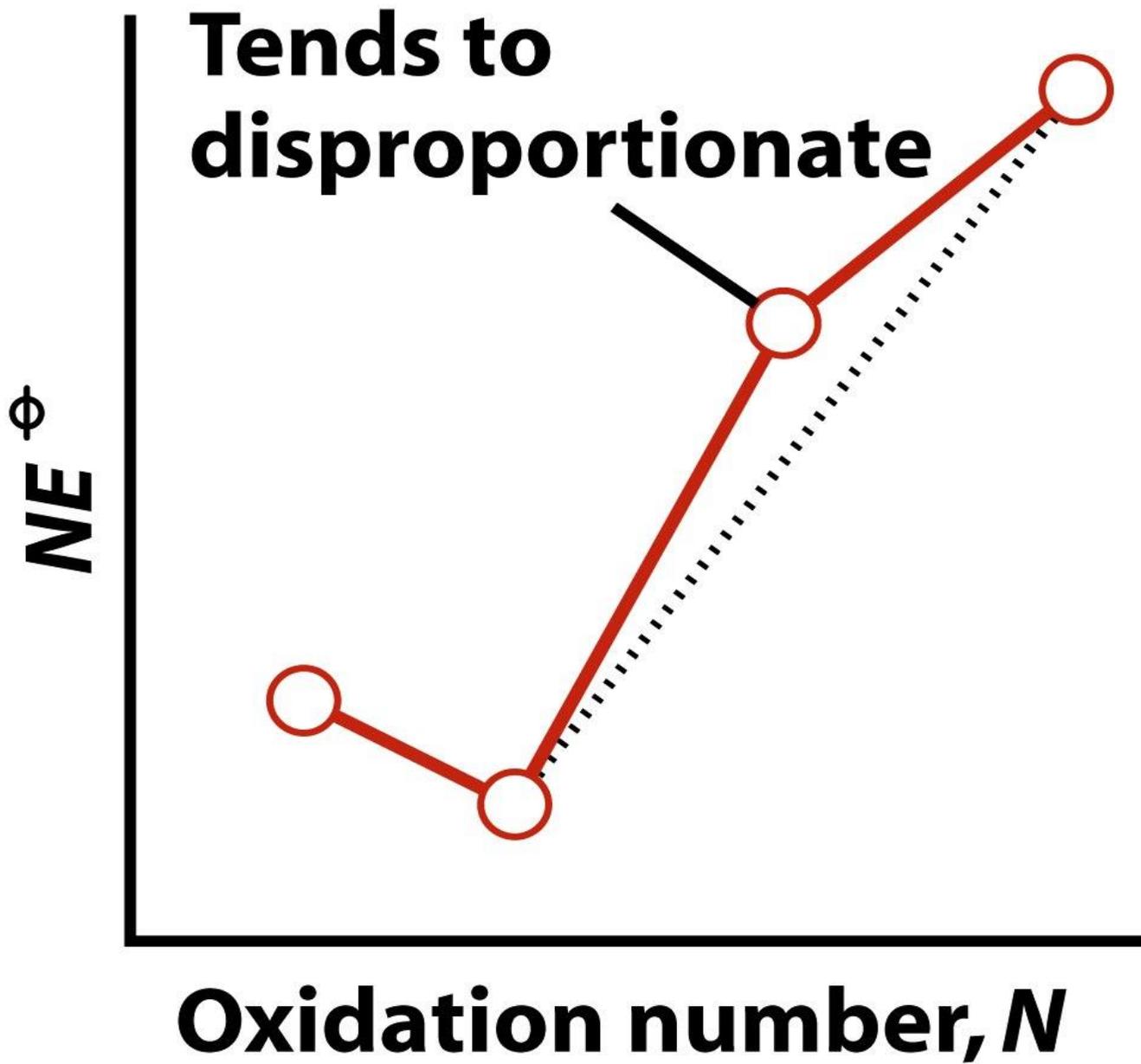


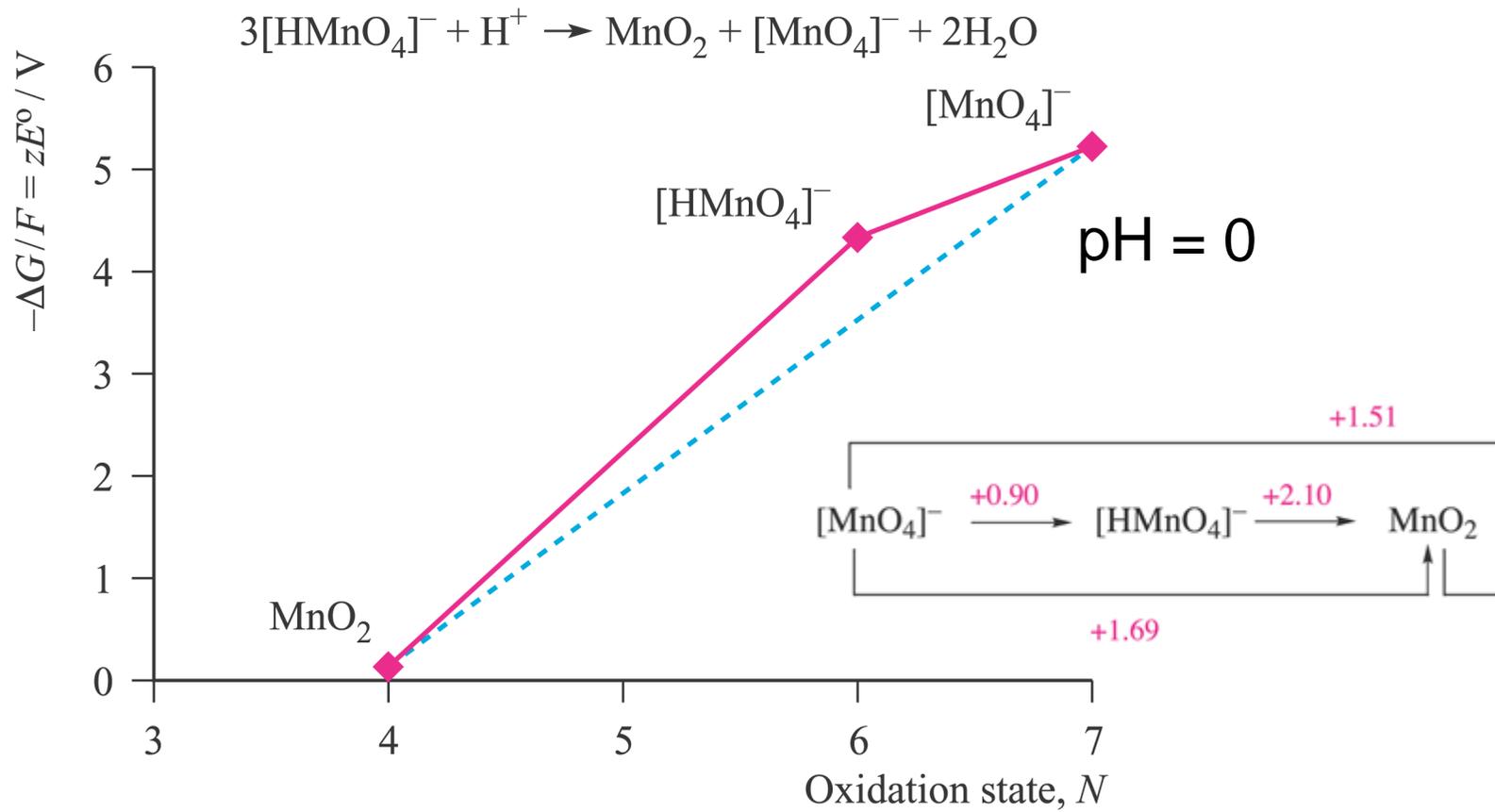


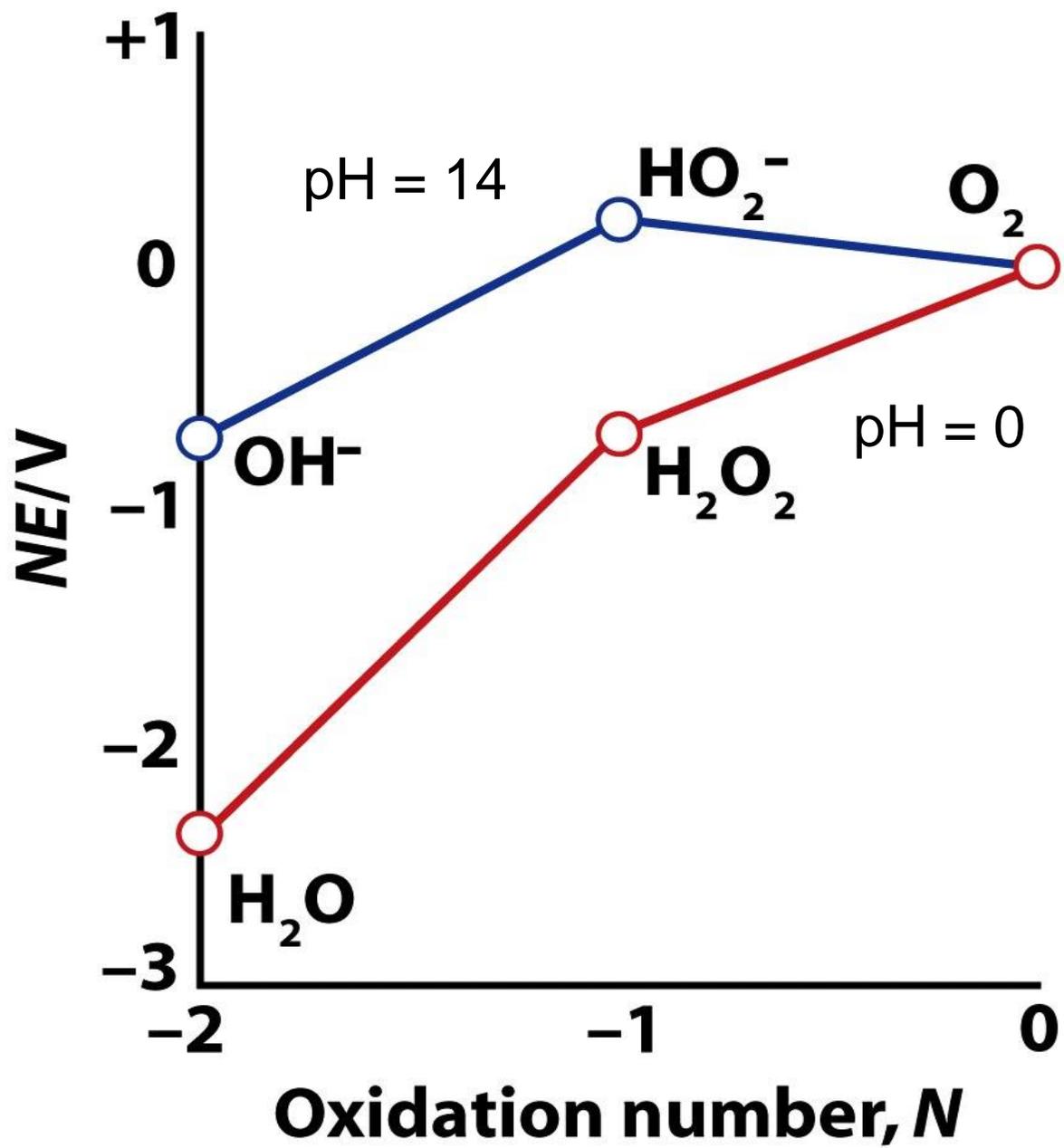
la pendenza della linea che congiunge due punti qualsiasi è uguale al potenziale standard per quella coppia

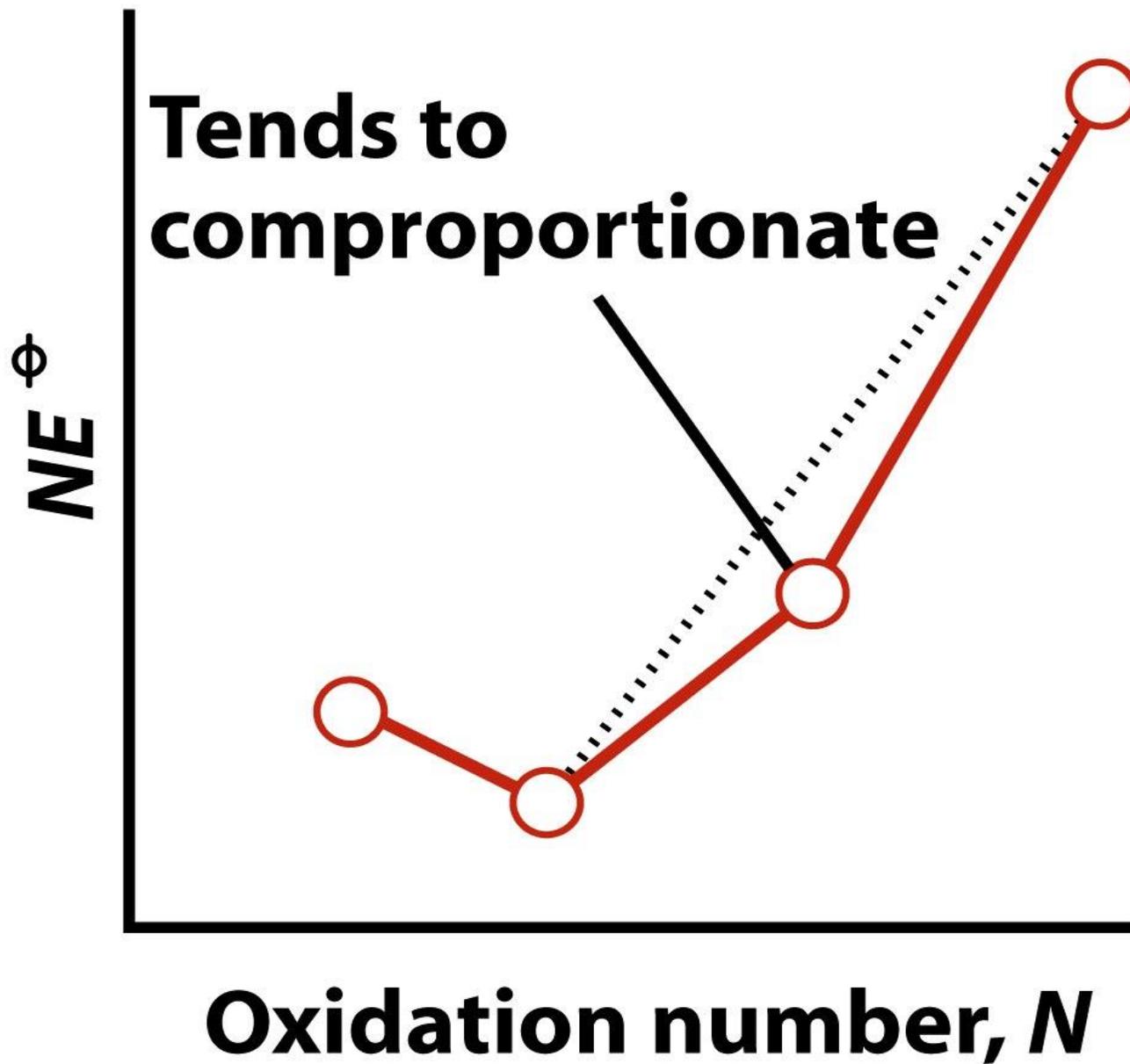
più ripida è la congiungente fra due punti nel diagramma e più alto è il potenziale della coppia corrispondente

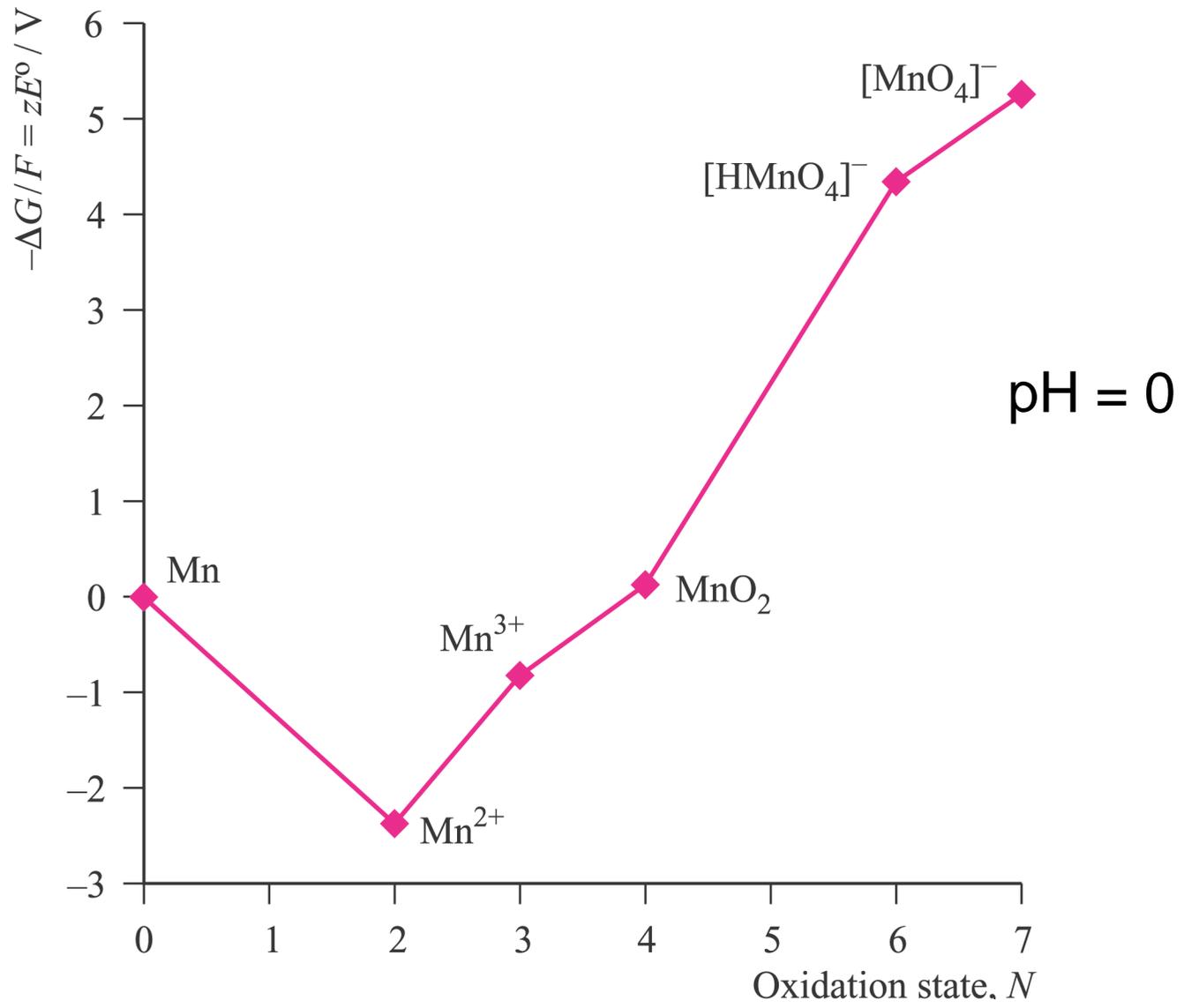


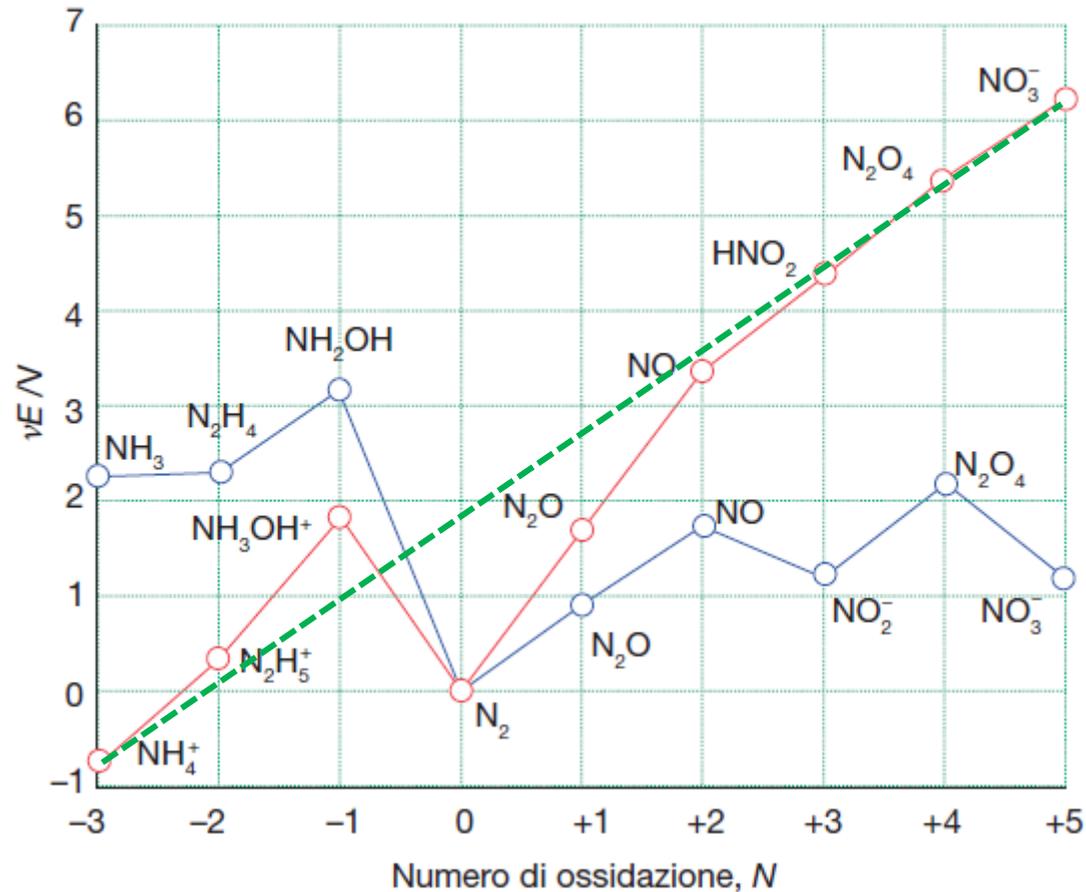












L'azoto in NH_4NO_3 ha due ioni con numeri di ossidazione -3 (NH_4^+) e $+5$ (NO_3^-). Poiché N_2O sta sotto alla retta che congiunge NH_4^+ a NO_3^- , la loro comproporzione è un processo spontaneo.

In soluzione è inibita dal punto di vista cinetico e normalmente non avviene. La corrispondente reazione allo stato solido:



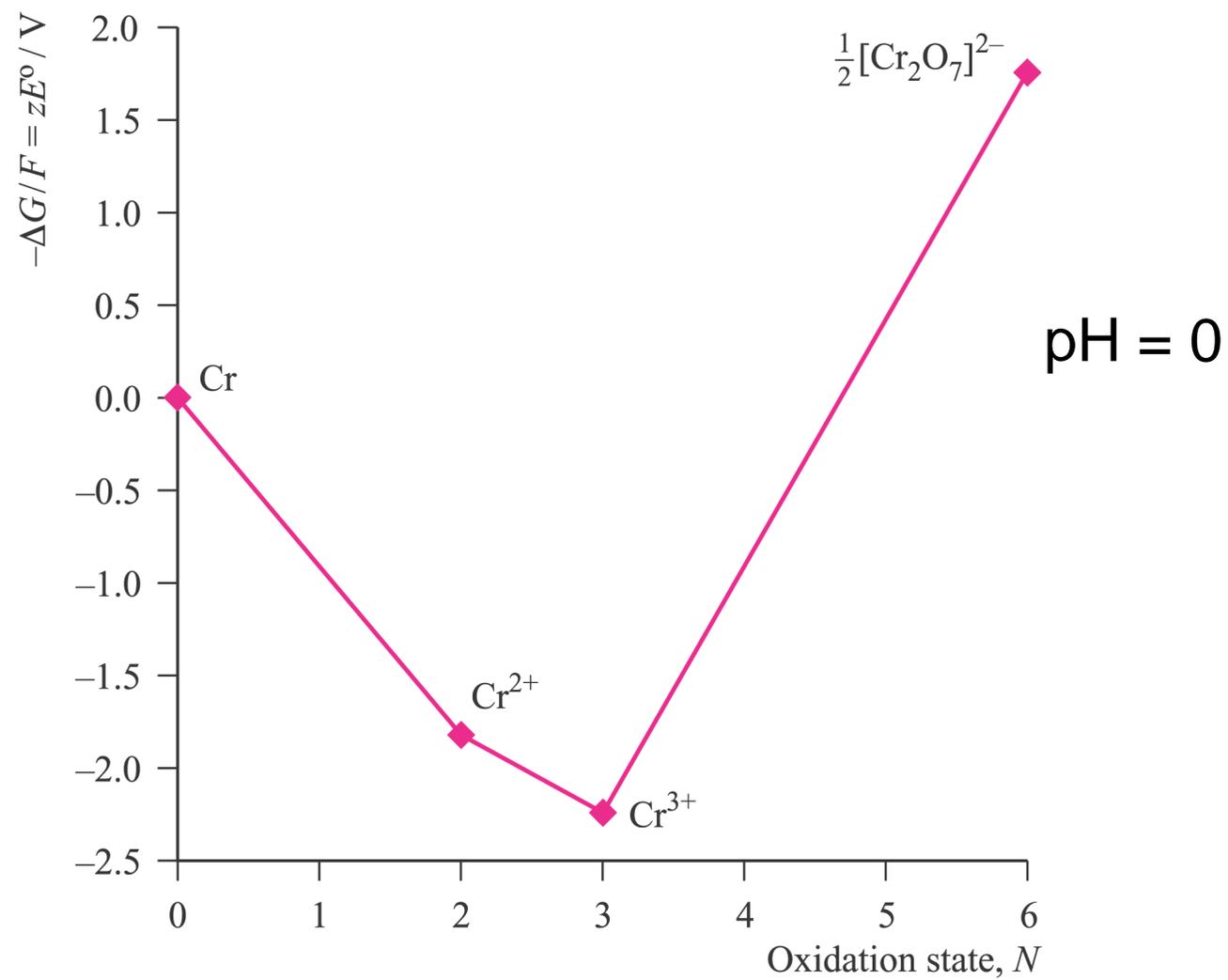
una volta innescata tramite una detonazione è tanto veloce da essere esplosiva

Beirut, 4 agosto 2020
Esplodono ca. 3000 t di NH_4NO_3



Beirut, 4 agosto 2020
Esplodono ca. 3000 t di NH_4NO_3





(a)

http://www.periodicvideos.com/videos/mv_chromium_trioxide.htm

