

c.

d. & f. block.

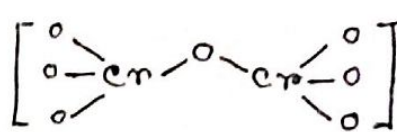
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h. Catalytic properties: Show catalytic properties due to variable oxidation states & to form complexes.

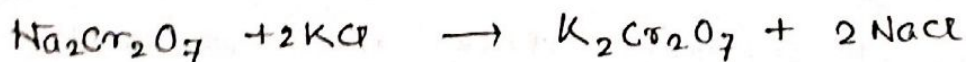
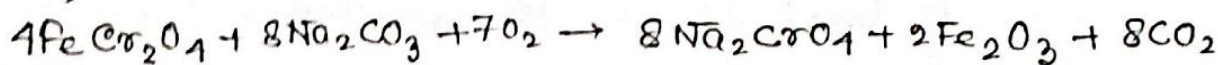
i. Formation of interstitial compounds: Due to empty spaces in their lattices, small atoms can be easily accommodated. (eg. $\text{VH}_{0.56}$, $\text{TiH}_{1.7}$)

j. Alloy formation: Because of similar atomic radii & other characteristics of transition metals, alloys are readily formed by these metals.

* Some Important Compounds:

g) Potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$):  $\left[\begin{array}{c} \text{O} \diagdown \text{Cr} \diagup \text{O} \\ \text{O} \diagup \text{Cr} \diagdown \text{O} \\ \text{O} \diagdown \text{Cr} \diagup \text{O} \\ \text{O} \diagup \text{Cr} \diagdown \text{O} \end{array} \right]^{2-}$
dichromate ion.

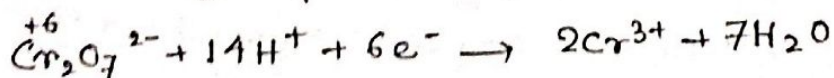
i) Preparation:



ii) Properties: Orange-red crystalline solid, oxidising agent having m.p.

398°C.

oxidising agent in acidic medium-



oxidises I^- to I_2 , Sn^{2+} to Sn^{4+} , Fe^{2+} to Fe^{3+} .

iii) Uses: In dyeing, photography, leather industry.

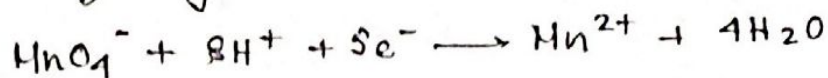
b) Potassium permanganate (KMnO_4): $\left[\begin{array}{c} \text{O} \\ || \\ \text{O}=\text{Mn}-\text{O}^- \\ || \\ \text{O} \end{array} \right]$

i) Preparation: From Potassium manganate (obtained from pyrolusite)



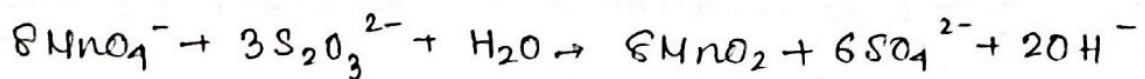
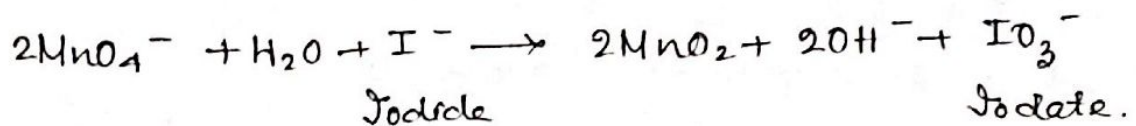
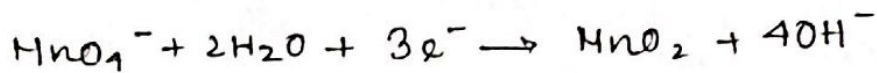
ii) Properties: Deep purple, crystalline solid, oxidising agent, having m. pt 210°C .

Oxidising agent in acidic medium:



oxidises I^- to I_2 , Fe^{2+} to Fe^{3+} , S^{2-} to S .

oxidising agent in alkaline or neutral medium



iii) Uses: As a disinfectant, germicide & Bayer's reagent (alkaline KMnO_4).

• Permanganate titrations in presence of HCl are unsatisfactory since HCl is oxidised to Cl_2 .

* Inner Transition Elements:

• Lanthanoids: The elements with atomic numbers 58 to 71, i.e. Cerium to Lutetium (which come immediately after lanthanum) are called lanthanoids.