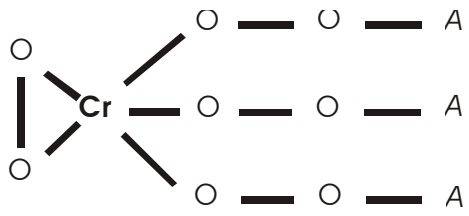
1.1. Literature survey and properties

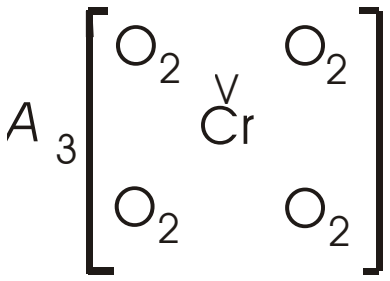
The investigation of peroxo compounds has been an interesting subject since 1900 and later on new methods for preparing them have been developed.

The red peroxochromates were first discovered by E. H. Riesenfeld in 1905 [8] and have since then been the subject of many investigations, mainly concerning the unusual oxidation state +V of the chromium. Early the formula how the atoms are arranged in tetra peroxo chromates $A_3[Cr(O_2)_4]$ was shown as follows:



where *A*: $(NH_4)^+$, K^+, Rb^+ or Cs^+

But this formula is not correct, as it indicates that each ion A^+ should be connected only with one double oxygen ion. As the structural investigation of the potassium peroxo chromate by Wilson [3] and later by Stomberg and Brosset [4] revealed, each A^+ ion is in contact with not less than eight such ions and all peroxo – groups are side – on bonded to the chromium atom. So according to these investigations the following formula has been given as a correct notation of the compound.



where *A*: $(NH_4)^+$, K^+, Rb^+ or Cs^+