

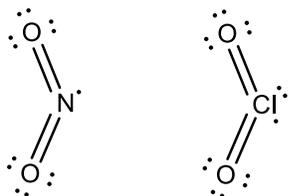
Answer on Question #53444 – Chemistry – Inorganic Chemistry

Question:

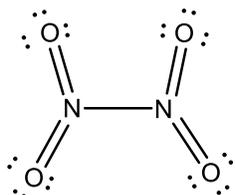
NO_2 readily form dimer but ClO_2 do not. Why?

Answer:

For an explanation let's consider the Lewis structures of the molecules:



Both molecules have an unpaired electron which provides the formation of dimer.



However, in case of ClO_2 it occurs not easy as for NO_2 . This is caused by structural features of ClO_2 , in particular, the availability of the unpaired electron to form intermolecular bond. That electron is delocalized strongly over all structure of ClO_2 that is provided by the presence of completed 3d-sublevel and a lone pair at the chlorine atom. Therefore ClO_2 has much lower ability to undergo dimerization than that mentioned for NO_2 .