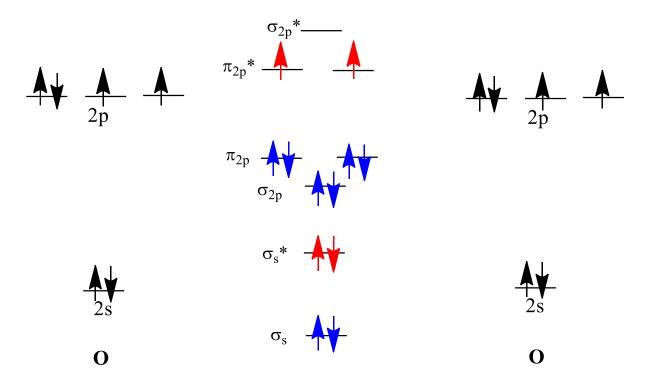# Answer on Question #55183 – Chemistry – General chemistry

Question:

How many electrons must be added to O_2 to reduce the bond order to zero? If this number of electrons is added, what product(s) will be formed?
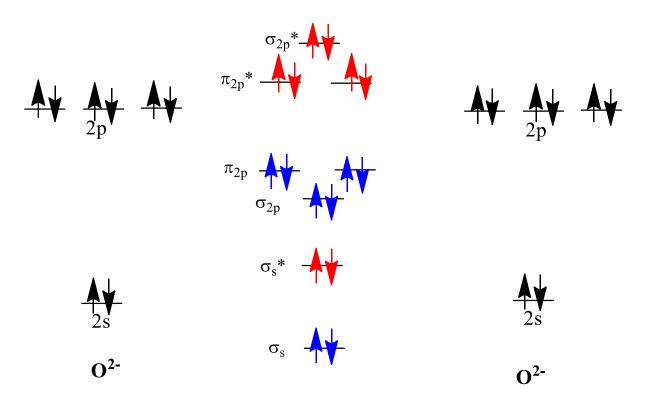
Answer:

For O_2 MO diagram is represented:

The bond order is defined by the number of bonding and antibonding electrons:

B.O. = (**8** – **4**)/2 = 2

To reduce bond order, it is clear that 4 electrons should be added to antibonding orbitals:

σ$_{2p}$*

π$_{2p}$*

2p

2p

π$_{2p}$

σ$_{2p}$

σ$_s$*

2s

2s

σ$_s$

O^{2-}

O^{2-}

This electronic configuration is corresponded to:

O_2^{-4} which dissociates to two anions O^{-2}.