

Inorganic Chemistry 1

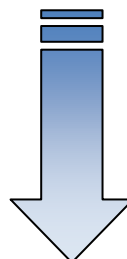
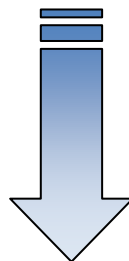
CHEMICAL BONDING

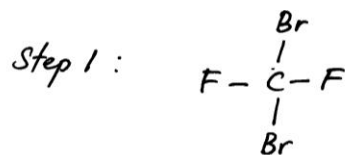
LEWIS STRUCTURES (One Central Atom)

Problem-solving Examples 9 (One Central Atom)

Write a Lewis structure for CBr_2F_2 (responsible for the depletion of ozone layer in the atmosphere).

Solution





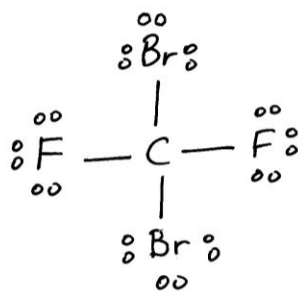
C is central atom because
 - lowest group number: 14
 - lowest electronegativity

$$[\text{C} = 2.5, \text{Br} = 2.8, \text{F} = 4.0]$$

Step 2: No. of valence e's = $[1 \times \text{C}(4e)] + [2 \times \text{Br}(7e)] + [2 \times \text{F}(7e)]$
 $= (4 + 14 + 14)e^-$
 $= 32e^-$

Step 3: Balance $e^- = 32 - (4 \times 2e) = 32 - 8 = 24e^-$
 (four single bond) (remaining electrons)

Step 4: Distribute the remaining electrons in pairs, beginning with the terminal atoms (surrounding atoms, i.e. F and Br atoms)



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