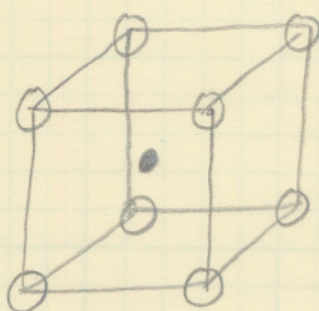


ADVANCED CHEMISTRY - 2008

INORGANIC CHEMISTRY - SPRING - ONA WEEK ③

Chapter 7

- ③ CsCl is formed by Cl^- ions forming the cube with the Cs^+ fitting into the center of the cube (or vice versa)



• = Cs^+
○ = Cl^-

For the Cs^+ coordination # = 8

For the Cl^- coordination # = 8

CaF_2 F^- ions in a simple cubic array with Ca^{2+} filling into alternate body centers.

Ca^{2+} coordination number = 8

F^- coordination number = 4

④ structure ①

anions	one on each ^{corner} edge	= $8 \times \frac{1}{8} = 1$
<u>cations</u>	one on each face	= $6 \times \frac{1}{2} = 3$
(M)		total <u>4</u>

cations again

(X)	one in the middle	= 1
	one on each edge	= $12 \times \frac{1}{4} = 3$
		<u>4 total</u>

MX

Structure (2)

$$\text{anions} \quad \text{one on each } \overset{\text{corner}}{\text{edge}} = 8 \times \frac{1}{8} = 1$$

$$\text{cations} \quad \text{one in the middle} = 1$$

$$\underline{\underline{MX}}$$

Structure (3)

$$\text{anion (x)} \quad \text{one on each } \overset{\text{corner}}{\text{edge}} = 8 \times \frac{1}{8} = 1$$

$$\text{one on each edge} = \overset{12}{8} \times \frac{1}{4} = 3$$

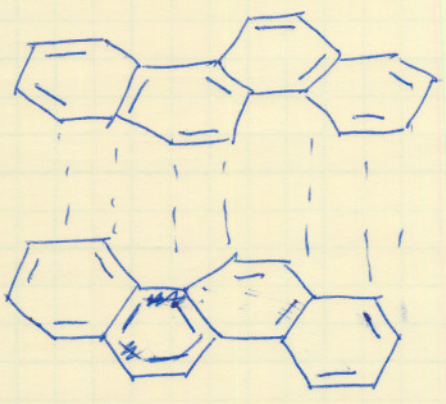
$$\text{one on each face} = 6 \times \frac{1}{2} = 3$$

$$\text{one in the middle} = \frac{1}{8}$$

$$(M) \text{ cation} \quad 4 \text{ in the middle} = \underline{\underline{4}}$$

$$\underline{\underline{MX_2}}$$

(7)



in graphite, electrons can move along the benzene layers (hence can conduct) but cannot move between layers. The π electrons can move loosely along the layers.

In graphite each C atom is bonded to another 4 C atoms. There are no π electrons available for conduction (hence an insulator).