

**TABLE 11.1**  
**Structures based on close packing of X atoms**

Formula	Fraction of holes occupied by M atoms		Type of close packing for X atoms		Coordination number	
	Tetrahedral	Octahedral	hcp	ccp	M	X
M <sub>2</sub> X	1	0		F <sub>2</sub> Ca (fluorite)	4	8
M <sub>3</sub> X <sub>2</sub>	$\frac{3}{4}$	0		Zn <sub>3</sub> P <sub>2</sub> O <sub>3</sub> Mn <sub>2</sub>	4	6
MX	0	1	NiAs	NaCl	6	6
	$\frac{1}{2}$	0	ZnS (wurtzite)	ZnS (zinc blende)	4	4
M <sub>2</sub> X <sub>3</sub>	0	$\frac{2}{3}$	$\alpha$ -Al <sub>2</sub> O <sub>3</sub> (corundum)		6	4
	$\frac{1}{3}$	0	$\beta$ -Ga <sub>2</sub> S <sub>3</sub>	$\gamma$ -Ga <sub>2</sub> S <sub>3</sub>	4	
MX <sub>2</sub>	0	$\frac{1}{2}$	CdI <sub>2</sub> TiO <sub>2</sub> (rutile)	CdCl <sub>2</sub> TiO <sub>2</sub> (anatase)	6	3
	$\frac{1}{4}$	0	$\beta$ -ZnCl <sub>2</sub>	HgI <sub>2</sub> $\gamma$ -ZnCl <sub>2</sub> SiS <sub>2</sub> OCu <sub>2</sub> $\alpha$ -ZnCl <sub>2</sub>	4	2
MX <sub>3</sub>	0	$\frac{1}{3}$	BiI <sub>3</sub>	CrCl <sub>3</sub>	6	2
	$\frac{1}{6}$	0	Al <sub>2</sub> Br <sub>6</sub>		4	2
MX <sub>4</sub>	$\frac{1}{8}$	0	SnI <sub>4</sub>		4	1
MX <sub>6</sub>	0	$\frac{1}{6}$		$\alpha$ -WCl <sub>6</sub> UCl <sub>6</sub>	6	1