

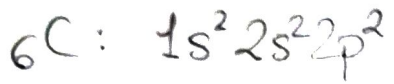
EXP CRISTL

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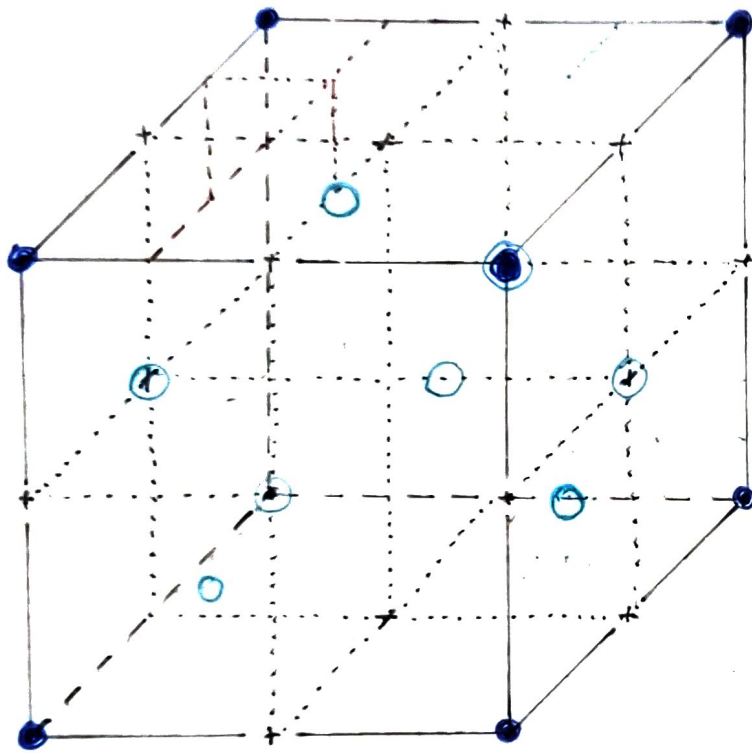
Un corps pur peut exister sous différentes formes cristallines

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$$\#p = \#e^- = 6$$



1/3



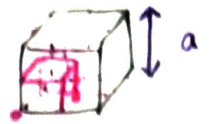
Atomes / maille:

Coordination: 4 (en prenant \circ c'est plus facile)

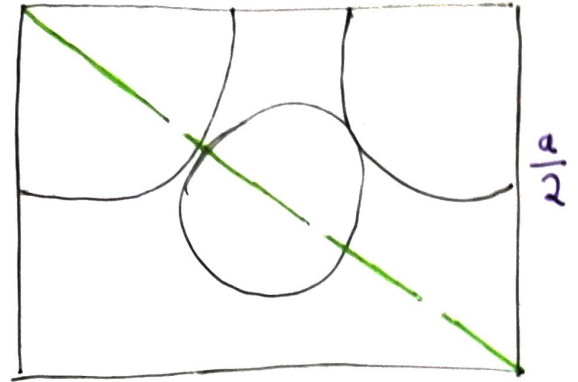
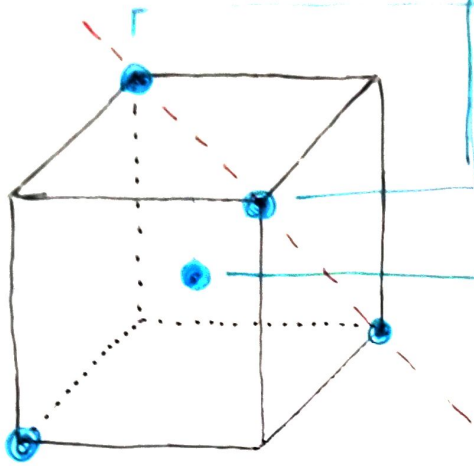
Forme géométrique: tétraèdre

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Un $\frac{1}{8}$ ième du cube devant, bas, gauche



$\frac{a}{2}$



$$\sqrt{2} \frac{a}{2} = \frac{a}{\sqrt{2}}$$

$$d = \sqrt{\left(\frac{a}{2}\right)^2 + \left(\frac{a}{\sqrt{2}}\right)^2}$$

$$= \sqrt{\frac{a^2}{4} + \frac{2a^2}{4}}$$

$$= \frac{\sqrt{3}}{2} a$$

$$= 2d_{c-c}$$

$$\text{ie } a = \frac{4}{\sqrt{3}} d_{c-c} = 8,56 \cdot 10^{-10} \text{ nm} = 356 \text{ pm}$$

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$$C = \frac{N \cdot \frac{4}{3} \pi r^3}{V_{\text{maille}}}$$

On a $r = \frac{d_{c-c}}{2}$:

et $N=8$

donc $C = 0,34 = 34\%$

1/6

- Très bon isolant électrique
- Très grande dureté

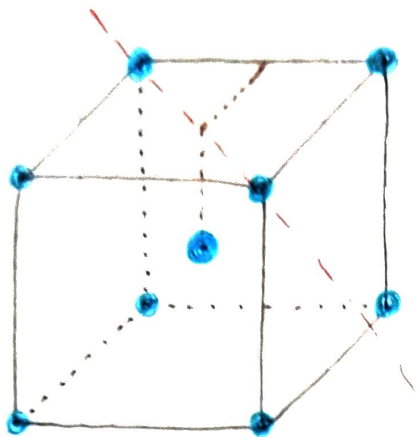
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Liaisons délocalisées (ie \rightarrow covalentes)

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- Se brise en plans, friable
- Conducteur
- Mou

5/1



5/2

$$8 \times \frac{1}{8} + 1 = 2$$

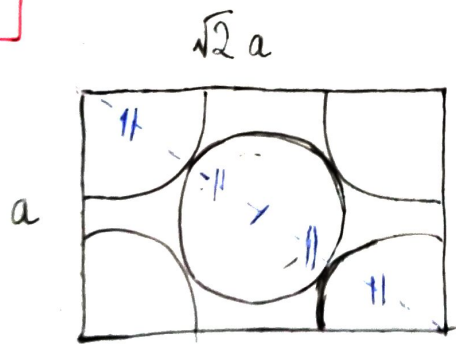
5/3

$$\rho = \frac{NM}{N_A V_{\text{maille}}} = \frac{2 \cdot 92,9 \cdot 10^{-3}}{6,02 \cdot 10^{23} (330 \cdot 10^{-12})^3} = 8588 \text{ kg} \cdot \text{m}^{-3}$$
$$\approx 8570 \text{ kg} \cdot \text{m}^{-3}$$

5/4

$$d = \frac{\rho}{\rho_{\text{eau}}} = \frac{8588}{1000} = 8,6$$

5/5



$$4r = \text{diagonale}$$
$$= \sqrt{a^2 + 2a^2} = \sqrt{3} a$$
$$\text{d'où } r = \frac{\sqrt{3}}{4} a = 142 \text{ pm}$$

5/5

$$C = \frac{N \frac{4}{3} \pi r^3}{V_{\text{maille}}} = 68\%$$

La OFC est plus compacte

7/1

