OCR B Physics A Level

3.2.1 - Material Structures

Flashcards

What two broad categories are the structure of a material split into?

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1. Crystalline
2. Amorphous

What is the difference between a crystalline structure and an amorphous structure?

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A crystalline structure has a regular, organised structure whereas an amorphous structure has a random and disordered arrangement.

What is a polycrystalline structure?

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Polycrystalline structures are ones which have regular crystalline fragments (grains), but these are arranged in a disordered way.

What structures in a pure metal help them be malleable and ductile?

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Dislocations

What process can make metals less ductile?

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Alloying

How does alloying reduce the ductility of a metal?

How does alloying reduce the ductility of a metal?

- Alloying produces a less regular structure due to different sized atoms.
- This can pin dislocations into position and reduce the metal's ductility.

What is the difference between the bonds in ceramics and metals?

What is the difference between the bonds in ceramics and metals?

The bonds in ceramics are directional whereas the bonds in metals are non-directional.

What do polymers consist of?

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Polymers are long repeating chains of monomers.

What structure reduces the rotation and flexibility of monomer chains in a polymer?

What structure reduces the rotation and flexibility of monomer chains in a polymer?

Crosslinks