**Chemistry 2.4 AS 91164** Demonstrate understanding of bonding, structure, properties and energy changes

Writing Excellence answers to **Solids – Conductivity (Ductility)** questions



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| **Solids – Conductivity (Ductility) QUESTION** | |
| **Question:**  Using your knowledge of structure and bonding, explain why, although both graphite and copper are good **conductors** of electricity, copper is suitable for **electrical wires**, but graphite is not. (note two properties to discuss)  (you will need to fill in the chart below correctly as part of the question and use the terms in your answer)   |  |  |  |  | | --- | --- | --- | --- | | Substance | Type of substance | Type of particle | Attractive forces between particles | | C(s)  Graphite | Covalent network | Atom | Covalent ( and weak intermolecular forces) | | Cu(s) copper | metal | Atom / cations and electrons | Metallic bonds / electrostatic attraction | | |
| **ANSWER** | |
| 1. For the first substance (name) state the **type of solid** that it is |  |
| 2. describe the **structure** of this type of substance using the *terms* above in the table |  |
| 3. explain how the **bonding** relates to the present of free moving charged particles to conduct electricity in your substance (property 1) |  |
| 4. link to the **observation** (conductivity) in your question for the first substance |  |
| 5. explain how the **bonding** relates to ductility in your substance (property 2) |  |
| 6. link to the **observation** (forming wires) in your question for the first substance |  |
| 7. For the second substance (name) state the **type of solid** that it is |  |
| 8. describe the **structure** of this type of substance using the *terms* above in the table |  |
| 9. explain how the **bonding** relates to the present of free moving charged particles to conduct electricity in your substance (property 1) |  |
| 10. link to the **observation** (conductivity) in your question for the second substance |  |
| 11. explain how the **bonding** relates to ductility in your substance (property 2) |  |
| 12. link to the **observation** (forming wires) in your question for the second substance |  |

NOTE: The white column is how your answer would appear on your test paper so make sure you **write out complete sentences**. The grey area is just to help you structure your answer and would not appear in the question.