

**KEY DEFINITIONS:****KEY POINTS / QUESTIONS:****DETAILS / ANSWERS:****AMORPHOUS // CRYSTALLINE POLYMER:**

A polymer with **no pattern in the arrangement of their atoms** (a random structure). // A polymer that's **atoms are bonded together in a repeated pattern.**

**MONOMER:**

The **basic unit** of a polymer

**FOAMING AGENTS:**

These are **substances which add bubbles to a polymer.** They increase the polymers bulk, making it lighter, e.g. sponges or buoyancy aids.

**FILLERS:**

These are added to a polymer to **improve its mechanical properties and decrease the amount of expensive polymer used.** e.g. chalk, cloth fibre, wood flour and glass fibre

**CATALYST:**

These **speed up or slow down a chemical reaction** and are used to initiate the polymerisation process.

**PROMOTER // INHIBITOR:**

**Encourage** certain chemical reactions. // **Prevent or slow down** certain reactions.

**PLASTICISERS:**

Added to **increase the flexibility of a polymer.** They achieve this by altering the forces of attraction between molecules.

**STABILISERS:**

These help **prevent the degradation effects of heat, UV-light and other environmental conditions** on the polymer

**GRP / GLASS + CARBON FIBRE:**

Glass reinforced plastic and carbon fibre are **polymers that are reinforced with glass or carbon fibres.** It is used to increase the strength of the plastic. e.g. boats.

**LAMINATE:**

These are **thin layers of material,** coated in resin and **bonded together using heat and pressure.** It is used to produce high strength plastics.

**NATURAL RUBBER:**

Is **the sap of the rubber tree** which is both plastic and elastic and contains weak Van der Waals forces.

**SYNTHETIC RUBBER:**

This is **produced by vulcanisation.** Natural rubber is processed with sulphur to form cross links between its chains. Stronger bond makes the rubber more durable and less flexible.

**ELASTOMER:**

A group of **polymers consisting of linear chains that are coiled and have minimal cross linking.** This allows them to be very elastic at room temperature.

**CO-POLYMER:**

This is a **polymers consisting of 2 different mers.** It allows for a diverse range of properties and is similar to alloying in metals.

**LUBRICANT:**

These **make the polymer easier to mould.**

**PIGMENT:**

These are added to **give plastics a desired colour.**

**GLASS TRANSITION TEMP:**

Describes **the temp at which a solid, glassy, amorphous polymer changes to a rubbery viscous polymer.**

**ELASTIC MEMORY:**

This is the **ability of the plastic to return to its original shape when heated.**

**VAN DER WAAL'S FORCES // CROSS LINKING:**

**Weak secondary bonds that can be overcome with heat** and are formed during addition polymerisation // **Strong ionic or covalent bonds** that link individual chains