

REVISION CARDS - POLYURETHANE AND FOAM RUBBER

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DISCOVERY OF POLYURETHANE



In 1937, Otto Bayer mixed two chemicals, polyol (an alcohol) and isocyanate (sometimes called isonitrile or carbamate).

The two chemicals formed a solid plastic. The resulting plastic was polyurethane (PUR), a new plastic.

PROPERTIES OF POLYURETHANE: Can be either thermoplastics or thermosetting. Can be cast and injection moulded. Long lasting. Performs well in high temperatures, but can be damaged / attacked by most solvents. Has low heat transfer / conductivity, consequently a good insulator. Has high resistance to abrasion. It can be manufactured in a range of colours.

FOAM RUBBER

When mixing two chemicals, polyol (an alcohol) and isocyanate (sometimes called isonitrile or carbamate) with the addition of a small amount of water, the solution 'fizzes', forming foam rubber.

PROPERTIES OF FOAM RUBBER: Lightweight and flexible. Ideal for cushions or as a dense rigid material ideal for the trays. Resists impacts and is often used as protective packaging inserts. An excellent acoustic insulator, as it absorbs sound. Resists high temperatures (200°C) and consequently can be used to reduce sound from car engines. Performs well in high temperatures. Can be damaged / attacked by most solvents. It has low heat transfer / conductivity, consequently a good insulator.

POLYURETHANE PRODUCTS



POLYURETHANE COATED GLOVES



WELLINGTONS



WHEELS



OTHER

FOAM RUBBER PRODUCTS



PILLOWS AND CUSHIONS

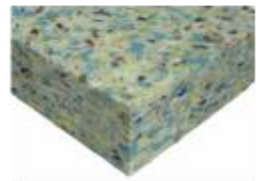


PROTECTIVE PACKAGING INSERT

SOFT TOYS



OFFCUTS OF FOAM



READY FOR USE

QUESTIONS

1. Name the two materials discovered / invented in 1937 by Otto Bayer? *2 marks*

2. List three products manufactured from Polyurethane and three manufactured from Foam Rubber. *6 marks*

3. Describe three physical properties possessed by Foam Rubber. *3 marks*
