

# Expanded Plastics, Polyurethane, Polyamide and Polyester Fibres (Polyepoxides and Epoxy Resins, Polyamides and Polyimides, Polyesters, Polyolefins, Polycondensation, Fiber Production, Prepolymer Production, Polyether Polyols with Epoxy Resins, Polyimides,

## Description:

Expanded plastics are also known as foamed plastics or cellular plastics. Expanded plastics can be flexible, semi flexible, semi rigid or rigid. They can also be thermoplastic or thermosetting and can exist as open celled or closed celled materials. Expanded plastics may be prepared from most synthetic and many natural polymers. Most of the industrially important ones are made from polystyrene, polyvinyl chloride, polyurethanes and polyethylene, as well as from resins that derive from phenol, epoxy, etc. Polyurethane (PUR and PU) is polymer composed of a chain of organic units joined by carbamate (urethane) links. Polyurethane polymers are formed by combining two bi or higher functional monomers. One contains two or more isocyanate functional groups and the other contains two or more hydroxyl groups. More complicated monomers are also used.

Polyurethane (PUR and PU) is a polymer composed of organic units joined by carbamate (urethane) links. While most polyurethanes are thermosetting polymers that do not melt when heated, thermoplastic polyurethanes are also available.

Polyurethane polymers are traditionally and most commonly formed by reacting a di- or poly-isocyanate with a polyol. Both the isocyanates and polyols used to make polyurethanes contain, on average, two or more functional groups per molecule.

A polyamide is a macromolecule with repeating units linked by amide bonds.

Polyamides occur both naturally and artificially. Examples of naturally occurring polyamides are proteins, such as wool and silk. Artificially made polyamides can be made through step-growth polymerization or solid-phase synthesis yielding materials such as nylons, aramids, and sodium poly (aspartate). Synthetic polyamides are commonly used in textiles, automotive applications, carpets and sportswear due to their high durability and strength. The transportation manufacturing industry is the major consumer, accounting for 35% of polyamide (PA) consumption.

Polyester is a category of polymers that contain the ester functional group in their main chain. As a specific material, it most commonly refers to a type called polyethylene terephthalate (PET). Polyesters include naturally occurring chemicals, such as in the cutin of plant cuticles, as well as synthetics through step-growth polymerization such as polybutyrate. Natural polyesters and a few synthetic ones are biodegradable, but most synthetic polyesters are not. This material is used very widely in clothing.

**For more details download PDF file.**

**Keywords:** Polyurethane Foam Business, Polyurethane Industry, Polyamide Business, Polyamide Industry, Polyester Fiber Business, Polyepoxides and Epoxy Resins, Polyether Polyols With Epoxy Resins, Polyamides and Polyimides, Producing Expanded and Cured Polyester Resin, Foamed Unsaturated Polyester Resins With Gel Coat, Unsaturated Polyester Compositions With High Impact Strength, Polyolefins Processing, Flexible Polyurethane Foam, Stabilization of Flame Retardant Premix, Flame and Smoke Retardant Non-Shrink

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