

Polyurethane description

Polyurethanes are products of chemical reaction between Polyols and Diisocyanates which in their final state have, in a broad zone of temperature qualities of flexibility characteristic of rubbers. Following raw materials are used for the manufacture of polyurethanes:

1. **polyol**
2. **diisocyanate**
3. **cross linking agent**
4. **accelerator of reaction**
5. **other additives**

The polyols

Basic raw material. Two types of polyol are used. Those are today manufactured almost exclusively synthetically:

a) Polyesterpolyol

The majority of polyurethanes are manufactured with polyesterpolyol. Those bring to the finished product, thermal and mechanical resistance, exceptional behaviour with abrasion, chemical resistance to mineral oils and the hydraulic fluids.

b) Polyetherpolyol

They are used because they bring to the polyurethane, a good stability with the hydrolysis (on the contrary of polyester polyols), good behaviour at low temperature and a more important flexibility.

The diisocyanates

They influence hardness, module and mechanical resistance but they don't have any influence on cold flexibility and resistance to the hydrolysis. The most important diisocyanates for PU fabrication are: MDI, NDI and TDI.

The cross linking agents

By reticulating agent and extension cable of chains, one hears additives such as they cause the final consolidation of the product.

The accelerators

Also called catalysts, they are used for a better control of the reaction.

The additives

They can be several types: anti-hydrolysis (ex: the stabaxol), anti-ageing, antimicrobials.

The dyes

The dyes can without any problem being added during the manufacture of the polyurethane.