LÄROVERKET AB

We welcome students to a module where processing methods of elastomeric materials are discussed. Starting off with the mixing process of raw materials and continuing to describe all the different processing methods used to produce rubber products. Everything described for cured rubber as well as for thermoplastic elastomers.

Students may very well choose to study the module separately as an introduction to rubber technology and benefit from the fact that there is included a short description of polymers used in the rubber industry. The module deals with the following processing techniques of elastomeric materials.

Main chapters:

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**Mixing**
In the mixing process an uncured compound is manufactured in order to be used for further processing into a rubber product.

**Textile treatment**
Reinforcing material has to be treated to obtain dimension stabilized products with good bonding between rubber and the reinforcing material.

**Calandering**
An important process to make flat sheeting, rubber coated fabrics as uncured products or as semi product parts.

**Spreading**
A technique for manufacturing thin rubber coated fabrics.

**Extrusion**
A technique for manufacturing long length products e g tubes or profiles which can be cured to final products or be used as parts in confectioned rubber products.
Mould curing
Main technologies for moulding rubber are compression, transfer and injection moulding and methods for post-processing of cured products.

Rubber-metal bonding
To achieve a good bonding between rubber and metal, the metal has to be degreased and treated with bonding agents before moulding or autoclave curing.

Vulcanization
All different curing methods used to cure products shaped by the processes mentioned above.

Latex processes
The processes used for manufacturing of products from liquid rubber latex in contrast to the methods presented above, where dry rubber is used.

Urethane rubber
A presentation of the special processes used for manufacturing of products from liquid urethane rubber.

Thermoplastic elastomers
The following processing methods for thermoplastic elastomers are discussed; injection moulding, extrusion and some techniques for melt calandering and blow moulding.

Facts of processing methods
The choice of different processing methods and the economical view on techniques and qualities aspects are dealt with in this chapter.

Environment and recycled rubber
Finally the student will find a chapter dealing with environment matters and the methods of recycling of rubber.

After studying this module, the student has obtained a good overview and knowledge of different processing methods used for producing all kinds of products manufactured of cured rubber or thermoplastic elastomers. The student will also be able to choose a suitable technique that will optimize costs and quality.