

R&D Center for Elastomers - Ravenna and Ferrara

The **R&D Center for Elastomers of Ravenna and Ferrara** is structured in different areas of expertise:

Synthesis laboratories

- Polymerization in anionic solution (SBS-S-SBR, BR) or catalyzed solution (BR)
- Polymerization in radical emulsion for SBR and latex production
- Polymerization in catalyst suspension (EPDM)
- Synthesis of new elastomer polymers for improving product portfolio

Pilot Plants

- Development of new process technologies
- Scale up from laboratory scale / micro-pilot to pilot scale
- Production of macro-samples for application evaluation

Physico-chemical characterization

- Support to the development of products and processes through advanced analytical techniques (classical chromatography or combined with mass spectroscopy, spectroscopy, chemi-luminescence, magnetic resonance imaging, characterization of the properties of polymers in solution)



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Polymers Physics

- Correlations property/structure using highly sophisticated instrumentation such as atomic force microscopy, analysis of temperature modulated calorimetry, high pressure dilatometry, dynamic-mechanical analysis
- Rheology in presence and absence of fillers (filler)

Polymer processing and compounding

- Processing and compounding of elastomer polymers such as EP(D)M, polybutadiene, styrene-butadiene copolymers (SBR), special elastomers based on butadiene and acrylonitrile and their blend, thermoplastic elastomers, styrene-butadiene-styrene (SBS)
- Evaluation of bitumen, adhesives, latex
- Evaluation of resistance to UV and aging

Process Technology (elastomers)

- Preparation of PDP for new installations or for revamping of existing ones
- Evaluation and development of new process technologies
- Assistance to contractors in the various phases of construction of new facilities
- Optimization of operating conditions of industrial plants
- Assistance to licensing activities



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The main topics developed in the Center are:

- Anionic polymerization to produce polybutadiene (BR), statistical styrene-butadiene copolymers (S-SBR) and styrene-butadiene-styrene (SBS) block copolymers
- Hydrogenation of SBS copolymers to give SEBS
- Polymerization of butadiene with organometallic catalysts
- Synthesis of new ethylene-propylene copolymers and ethylene-propylene-diene terpolymer (EPDM) with Ziegler-Natta catalysts
- Kinetics and modeling of the polymerization in solution to give homo-and copolymers
- Correlations between polymerization parameters and structure of obtained elastomeric polymers
- Thermal stability of elastomeric polymers.



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