



Catalytic polymerisation

NORNER is a leading independent technology centre with high expertise and state of the art instruments for bench scale polymerisation

Industrial Impact

Polymers involve a broad range of properties and requirements, which must be followed, analysed and fine tuned in production and product development.

Bench scale polymerisation will both reduce costs and increase the speed of production optimisation and product development. It gives high flexibility in experimental design for a broad range of parameters and is valuable in studies of reactor performance and shut downs.

Norner has the competence, equipment and resources to study polymerisation of olefins for most relevant conditions and industrial processes.

Our scientific laboratory will characterise the polymers according to international standards and we can test them by film blowing or moulding trials.

Norner Services

Polymerisation

A cornerstone of our capabilities is our advanced polymerisation reactor laboratory.

We can develop or study; catalysts, any olefin polymerisation, new monomers, process conditions and set ups.

A new strategic area is polymers made from CO₂, where Norner is leading a major research project.

Product development

When we combine our resources in polymerisation, structure property relationships, additivation, processing and analytics we can cover full characterisation of the polymers for product development.

Process development

Reactor Setups

Training

Norner Confidence

Our broad approach allows us to influence plastics development starting from catalyst and monomers via polymer type and design to manufacturing and end use applications.

Our main target is to fulfil our customer's needs, and we continuously strive to achieve a close cooperation with our customers.

Norner's three business areas reflect our value chain approach:

Scientific Laboratory
Applied Research
Plastic Solutions

Norner is approved according to ISO 9001:2008.



Our Insight

Laboratory expertise

Our experts in the polymerisation laboratory have a long experience in petrochemical industry, especially with olefin polymerisation.

Our reactor laboratory is well equipped for working with high purity, under extreme conditions by using hazardous chemicals.

We have installed an advanced gas feeding and inert handling system together with EX-proofed area. This also fulfils our safety commitments.

We are continuously updating our reactors according to the latest technology. We can also do reactor modifications according to customer needs.

CO₂ polymerisations

A new strategic area for Norner is polymers made from CO₂, where Norner is leading a major research project.

Our Facilities

High Pressure Polymerization Reactors

- 13 large scale metal reactors of 1 to 17 liters.
- Several small scale metal reactors of 60-200 ml.
- Olefin polymerisation with yields up to 5 kg/batch.
- Pressure up to 350 bar.
- Temperature up to 340°C.

Polymerisation capabilities

- Use of Ziegler Natta, Single Site or Chromium catalysts.
- Catalyst synthesis facilities.
- Uni- or multimodal polymerisations.
- Prepolymerisation.
- Polymerisations in slurry, bulk, gas phase and solution.
- PE homo-/co-/terpolymers.
- PP homopolymers, random copolymers, heterophasic copolymers and advanced copolymers.
- Batch or semi-batch reactors, depending on need.
- Continuous feed of monomers, comonomers & hydrogen.
- Experience from ethylene to decene, VCH, branched olefins (e.g. 4-methyl-1-pentene) and polar comonomers.
- Reactor modifications and set-up according to need.
- We also design, build and start-up bench scale olefin polymerisation reactor setups. The reactor sizes can vary from small scale to Pilot size reactors.
- Design and rebuild of old, existing reactor systems for improved safety and control.
- Training is also part of our services.
- CO₂ based polymers - development of novel plastic materials based on CO₂ as a raw material.

