

Cryogenic grinding

Conventional and innovative

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Our expertise ranges from trial grinding and product analysis to feasibility studies and the construction of customer tailored grinding plants.”

Customized powdery solids

The market for tailor-made powdered solids with defined particle size distributions is growing steadily. However, temperature-sensitive, viscoelastic and fibrous materials can only be grinded with considerable energy and cost expenditure.

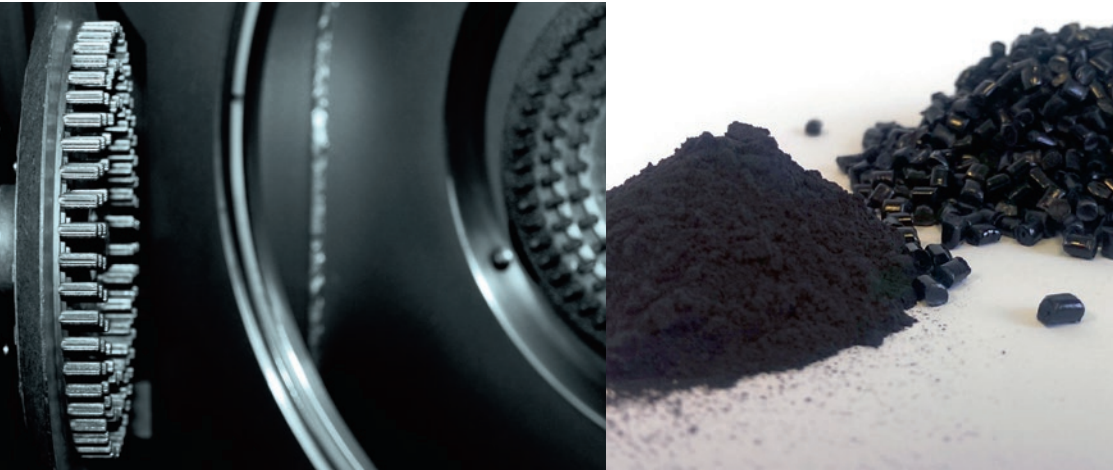
Innovative refrigeration technology offers the right solution here.

Cryogenic grinding is supplemented by a particle pilot plant, which includes an SLS test rig for cost-effective investigation of the suitability of powders for selective laser sintering (SLS).

Open cryogenic screw conveyor

Industrial sectors

- Plastics processing industry
- Chemical industry
- Recycling industry
- Food industry



left:
Counter rotating pin disc mill

right:
Powder and pellets

Technological specifications

- Material cooling down to -196 °C
- Throughput up to 200 kg/h
- Size reduction machines:
 - Eddy current mills
 - Pin mills
 - Ball mill (laboratory scale)
 - Centrifugal mill (laboratory scale)
- Pre-shredding: Cutting mills
- Refrigeration:
 - Liquid nitrogen cooler (500 kg LN_2/h)
 - 6 t nitrogen tank
- Classification technology: vibrating screen, tumbler screen, air jet screen, vibrating screen (laboratory scale)
- Confectioning: mixer, pellet mill, extruder
- Measurement: Bulk density, tapped density, abrasion, pellet hardness, specific surface area according to BET, thermal analysis and gravimetry, particle size analysis
- Further processing: compounding, laser sintering

Our service

- Trial grinding and sample production of batches up to 3 t
- Sample preparation
- Product analysis
- Classification
- Feasibility and economic studies for cryogenic grinding (incl. process development)
- Development, planning, construction and optimization of customer tailored grinding plants
- Extensive chemical analysis
- Further processing of produced powders

Your benefit

- Feasibility studies
- Economical sample production
- Simplified market introduction
- Planning reliability

Further information

Competence of the Department Product Development

www.umsicht.fraunhofer.de/
product-development

Keywords

- LN_2 -cryogenic grinding
- Feasibility tests
- Pilot production
- Process development

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