

Sample Preparation at -196 °C

Dr. Tanja Butt, RETSCH GmbH, Haan, Germany

Cryogenic grinding and homogenization of elastic and heat-sensitive sample materials

Temperature can be a decisive factor when it comes to size reduction and homogenization of solid sample materials. Tough, elastic, and sticky samples usually tend to clump together when processed at room temperature. If the sample is heat-sensitive and contains volatile substances, there is always the danger of expelling the volatiles by the frictional heat that is generated during the grinding process. For such cases, cryogenic grinding is the optimum solution. This method involves embrittling the sample with dry ice or liquid nitrogen to considerably improve the breaking properties of the material and reduce heat build-up.

RETSCH's portfolio comprises a range of laboratory mills that are suitable for cryogenic grinding. In this lecture, a number of application examples and videos are used to demonstrate the cryogenic process and many valuable user tips are given.