Task:

Application field: Glass / Ceramics

Material: SiO$_2$ (quartz)

Feed size: 0-125 mm (95 % < 125 µm)

Feed quantity: 100 g (per batch + 50 ml isopropane alcohol)

Material specification(s): hard brittle

Customer requirement(s): < 1 µm

Subsequent analysis: Laser Particle Size Analysis

Solution:

Selected instrument(s): PM 400 Planetary Ball Mill

Configuration(s): Grinding jar 250 ml, Type "C", zirconia; 150 ml (= 500 g) grinding balls zirconia, ø3 mm

Parameter(s): Revolution speed 350 rpm, reverse mode

Time: 4 h

Achieved result(s):
- after 2 hours: d$_{50} = 0.85$ µm
  
- after 4 hours: d$_{50} = 0.72$ µm
  
- d$_{90} = 1.69$ µm
  
- d$_{90} = 1.13$ µm

Remark(s): -

Recommendation: For fine grinding, colloidal grinding, the Planetary Ball Mill PM 400 is suitable under the above mentioned conditions

The application report is based solely on the processing of the available sample material in the indicated amount. No legal claims shall be derived from this test report. Subject to technical modification and errors.

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Pictures of the sample

Fig. 1: Grinding jar with closure device

Fig. 2: Quartz sample after colloidal grinding

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