CaCO₃ Grinding Systems

Applications and Properties

Calcium carbonate is gained by mining and quarrying and appears as three different rocks:

**Chalk**
is a soft, white porous sedimentary rock, consisting mainly of the mineral calcite. It was formed under maritime conditions from the accumulation of the fossils from seashells. It is widely used as filler in paints, esp. in matte emulsion paints. 30% of the paint is either chalk or marble.

**Marble**
is a metamorphic rock resulting from the metamorphism of limestone, composed mostly of calcite. High temperatures and pressures were necessary to form marble and usually destroyed any fossils and sedimentary structures of the original rocks.

**Limestone**
is a sedimentary rock composed largely of the mineral calcite, resulting from fossils of seashells and snails. Limestone often contains silica, clay silt and sand as disseminations or layers. It is widely used in desulphurization processes in furnaces and power plants.

**NEA Benefits**

**Experience**
- **since 1979** in CaCO₃ grinding

**Fineness**
- mean particle size adjustable from \( d_{50} = 2.8 \) to 10 µm
- top cut is adjustable from \( d_{97} = 8.0 \) to 100 µm
- highest classifying performance with sharp top cuts by SDR Radial Classifier
- five pendulums to achieve finest grinds in Pendulum Roller Mill

**Hard Running**
- thin material bed in grinding zone causes hardest grinding operation and leads to cracks and damages in pendulum mills of standard design
- upper mill housing with vibration isolator
- lower mill housing in one-piece cast design
- mill foundation using spring dampers
- rotor assembly in reinforced CaCO₃ design
- critical mill parts made of high quality steel
Measured with laser diffraction

Discharge rates are valid for limestone with hardness of 57° Hardgrove and feed moisture < 0.1% H₂O.

* not validated

**NEUMAN & ESSER** Process Technology GmbH  
Werkstrasse, 52531 Übach-Palenberg, Germany  
Phone: +49 2451 481-03 • neagmbh@neuman-esser.de • neuman-esser.com