

XRD-Mill McCrone – Rapid Particle Size Reduction for X-Ray Diffraction

The XRD-Mill McCrone was specifically developed for sample preparation to X-Ray diffraction analysis. Typical areas of application include geology, chemistry, mineralogy and materials science.

What makes this mill so effective is the unique grinding action of the cylinders producing both linear contact blows and planar shearing. This results in short grinding times with virtually no sample loss as well as exceptionally narrow particle size distributions. **The crystal lattice structure of the sample is largely preserved.**

The grinding vessel consists of a 125 ml polypropylene jar fitted with a screw-capped gasketless polyethylene closure. The jar is packed with an ordered array of forty-eight identical cylindrical grinding elements which are available in either agate, zirconium oxide or sintered corundum. For optimum micronization the mill is operated for periods of 3 to 30 minutes; the recommended sample volume is 2 to 4 ml



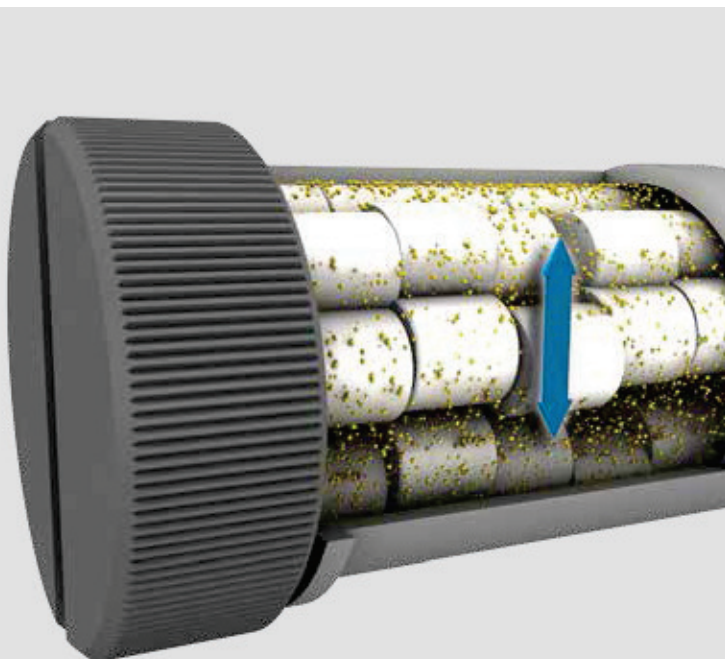
XRD-Mill McCrone

Sample Integrity
is Preserved

Benefits

- Crystal lattice structure is preserved
- Minimum sample contamination
- Narrow, reproducible particle size distribution
- Compact bench-top model
- Pouring lid for easy sample recovery
- Easy cleaning
- Timer up to 99h:59min:50s
- Grinding performance adjustable in 4 steps
- Materials: agate, zirconium oxide, sintered corundum
- Suitable for dry and wet grinding
- Quiet operation
- Virtually maintenance-free

Video on www.retsch.com/xrd-mill



XRD-Mill Technology:

In the XRD-Mill McCrone size reduction is primarily achieved through friction. 48 cylindrical grinding elements are placed into the grinding jar in 8 rows of 6 elements each. The grinding jar is gyrated around a horizontal axis. Each element within the jar moves with respect to its neighbor so as to produce linear contact blows and planar shearing. Thus the particles are pulverized to sizes in the lower micron range (typically < 10 µm).

*depending on feed material and instrument configuration

Advantages of Wet Grinding

Both dry and wet grinding are basically suitable methods for sample preparation. Wet grinding causes minimum modifications to the sample's crystal lattice structure. When grinding has finished the lid is removed from the jar and replaced with the pouring lid for sample recovery. The ground slurry is then poured out. Repeated washing with liquid helps to remove sample residues from the grinding jar.

Accessories and Options

- **Grinding jar with lid and pouring lid**
- **Agate, zirconium oxide or sintered corundum grinding elements**
- **Loading device for grinding cylinder**
- **Sample preparation kit (Stainless steel percussion mortar, 10 sintered corundum cylinders, 1 sieve 500 µm and 1 cleaning brush)**



XRD-Mill McCrone at a Glance



Application	size reduction, mixing, tritulating
Fields of application	biology, construction materials, geology / metallurgy, glass / ceramics
Feed material	medium-hard, hard, brittle, fibrous

Performance data

Feed size*	< 500 µm
Final fineness*	d ₉₀ < 1 µm
Batch size/sample volume*	2 - 4 ml
Speed setting	1,000 - 1,500 min ⁻¹ in 4 steps
Timer	00:00:10 - 99:59:50

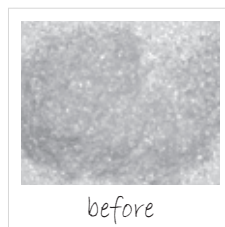
Technical data

Drive power	50 W
W x H x D	205 x 155 x 520 mm
Net weight	approx. 19 kg
More information on	www.retsch.com/xrd-mill

*depending on feed material and instrument configuration

Typical Sample Materials

The XRD-Mill McCrone provides excellent grinding results for materials such as asbestos, borides, carbides, glass, glimmer, graphite, liver and muscular tissue, nitrides, paper, pigments, saw dust, slate, silicides, straw, talcum, clay, cement etc.



Application example: Glimmer