

XRD-Mill McCrone

General Information

The XRD-Mill McCrone was specially developed for the preparation of samples for subsequent X-ray diffraction (XRD). The mill is used for applications in geology, chemistry, mineralogy and materials science, quality control as well as R&D.

Because of its unique grinding motion, the XRD-Mill McCrone is particularly effective for this analytical method: The 48 cylindrical grinding elements grind the samples gently via friction. The result is a short grinding time with almost no sample loss and an exceptionally narrow particle size distribution.

The crystal lattice is almost entirely preserved during grinding operation, a premise for meaningful X-ray diffraction.

The grinding vessel consists of a 125 ml capacity polypropylene jar fitted with a screw capped gasketless polyethylene closure. The jar is filled with an ordered array of 48 identical cylindrical grinding elements, available in agate, zirconium oxide or corundum. The grinding time for optimum micronization is between 3 and 30 minutes. A typical sample volume is between 2 and 4 ml.



Application Examples

bones, borides, carbides, cement, ceramics, clay, construction materials, glass, metals, mica, minerals, nitrides, plant materials, slate

Product Advantages

- crystal lattice preserved during grinding operation
- very narrow and reproducible particle size distribution
- minimal cross contamination
- compact, bench-top sized model
- adjustable grinding power (4 steps)
- suitable for dry and wet grinding
- easy to clean
- almost maintenance-free
- quiet operation

Features

Applications	grinding, mixing and triturating, dry and wet
Field of application	X-ray diffraction
Feed material	medium-hard, hard, brittle, fibrous
Material feed size*	< 0.5 mm
Final fineness*	< 1 μ m
Speed at 50 Hz (60 Hz)	1,000 - 1,500 min^{-1} in 4 steps
No. of grinding stations	1
Typical mean grinding time	3 - 30 min
Dry grinding	yes

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Wet grinding	yes
Cryogenic grinding	-
Material of grinding tools	agate, zirconium oxide, corundum
Grinding jar sizes	125 ml
Setting of grinding time	digital, 00:00:10 to 99:59:50
Drive	DC-Motor
Drive power	50W
Electrical supply data	220-240 V, 50/60 Hz
Power connection	1-phase
Protection code	IP 30
Power consumption	100W
W x H x D closed	205 x 155 x 520 mm
Net weight	~19 kg
Standards	CE

Please note:

*depending on feed material and instrument configuration/settings

Videolink

<http://www.retsch.com/xrd-millmccrone>

Function Principle

The XRD-Mill McCrone carries out size reduction mainly by friction. 48 cylindrical grinding elements are placed into the grinding jar in eight rows of six elements each. During operation, the jar's circular motion causes the elements to grind the sample from < 0.5 mm to the low μm -range (typically < 10 μm). Thanks to the very gentle size reduction process, the crystal lattice of the sample is preserved. This makes the XRD-Mill McCrone the instrument of choice for the sample preparation for subsequent X-ray diffraction analysis.



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