XRD-MILL MCCRONE

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. Consequently, the signals in the X-ray diffraction pattern are peak-shaped, with small half-widths, allowing for very good phase analysis.

The crystal lattice structure is largely preserved, with almost no defects, a prerequisite for meaningful X-ray diffraction patterns.

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.

For the preparation of organic samples for a subsequent XRD examination we also offer a hand mortar and pestle made of agate.

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

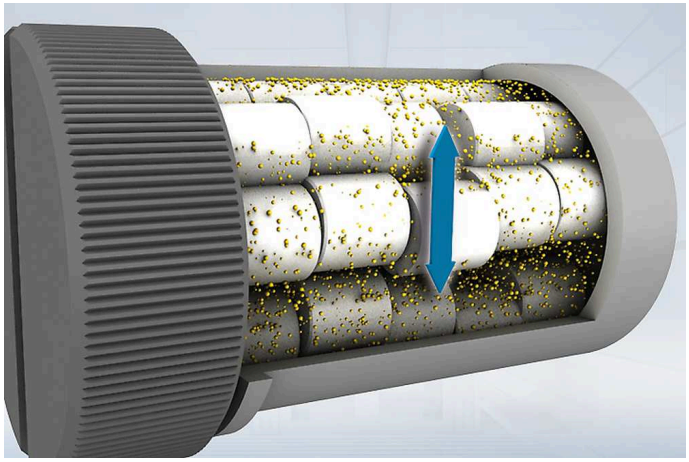
APPLICATION EXAMPLES

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

To find the best solution for your sample preparation task, visit our application database.

FUNCTIONAL 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.



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 µm
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
Wet grinding	yes
Cryogenic grinding	no
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	50 W
Electrical supply data	100-240 V, 50/60 Hz
Power connection	1-phase
Protection code	IP 30
Power consumption	33 VA
W x H x D closed	205 x 155 x 520 mm
Net weight	~8.9 kg
Standards	CE

*depending on feed material and instrument configuration/settings

www.retsch.com/xrd-mill

ORDER DATA

XRD-MILL MCCRONE

XRD-Mill McCrone with 2 grinding jars with screw top lid of PP, 1 pouring lid, 1 loading device
(Please order grinding elements separately)

20.770.0001		XRD-Mill McCrone, 220-240 V, 50/60 Hz

XRD-MILL MCCRONE COMPLETE PACKAGE

XRD-Mill McCrone complete package incl. 2 agate grinding sets (50 grinding elements each), 2 grinding jars with screw top lid of PP, 1 pouring lid, 1 loading device

20.770.1001		XRD-Mill McCrone, 220-240 V, 50/60 Hz complete package

SETS OF GRINDING ELEMENTS

02.368.0123		Agate	1 set (50 grinding elements)
02.368.0122		Corundum	1 set (48 grinding elements)
02.368.0126		Zirconium oxide, 1 set (48 grinding elements)	

ACCESSORIES XRD-MILL MCCRONE

22.460.0001		Sample preparation set (stainless steel percussion mortar, 10 corundum grinding elements, 1 sieve 500 µm and 1 brush)
02.368.0124		Grinding elements, tungsten carbide, 2 pieces

ADDITIONAL ITEMS XRD-MILL MCCRONE

01.462.0356		Grinding jar with screw top lid
03.462.0359		Screw top lid

03.462.0357		Pouring lid
03.486.0007		Loading device
22.111.0005		Gasket for grinding jar, 5 pcs.