Cannabis – Sample Preparation and Quality Control

RETSCH is putting to use its full product portfolio of grinders, sieve shakers and sample dividers to help process and prepare cannabis samples. The sample preparation process needs to be adjustable to the considerable complexity of the various matrices.

Typical Samples:
- Cannabis flower
- Hemp
- Tablets/capsules
- Edible forms like cookies, gummy bears etc.

www.retsch.com/cannabis
Are your cannabis products pesticide free? Do you know the potency?

With the growing use of cannabis in the medical sector, quality control has become a major issue. To ensure reliable and meaningful analysis results, sample homogenization prior to analysis is an important step. RETSCH offers a range of different laboratory mills for efficient, neutral-to-analysis sample preparation which are highly suitable for the task.

Suitable laboratory mills for cannabis and infused products

The **Ultra Centrifugal Mill ZM 200** is ideally suited for quickly pulverizing fibrous samples like cannabis or hemp flower to grind sizes below 0.5 mm. The wide range of accessories includes distance sieves which allow for processing heat-sensitive samples. The use of a cyclone has a cooling effect on the sample and allows for grinding up to 4.5 l of sample.

For pesticide analysis of oily, sticky samples like hemp, the required homogenization should be carried out in a cryogenic mill like **RETSCH’s CryoMill**. This grinder continually cools the grinding jar, and thus the sample, with liquid nitrogen and makes it break more easily. The CryoMill achieves grind sizes of <0.1 mm which facilitates the following extraction process which is frequently done with the QuEChERS method.

This method involves extraction of 10 g of hemp with 10 ml acetonitrile in the presence of a salt mixture in a 1:2 ratio to avoid ghost peaks in the chromatograms. To transfer the pesticides from the sample into the organic phase, the mixture is agitated for 1 to 3 minutes, e.g. in a laboratory mill like the **Mixer Mill MM 400**. It shakes the sample in a 50 mL Falcon tube with a frequency of up to 30 Hz, thus ensuring thorough mixing to improve subsequent pesticide extraction.

The **GRINDOMIX Knife Mills** are suitable for pulverizing cannabis plants as well as infused products like cookies. To reliably quantify active components in cannabis, a representative sample needs to be extracted from the bulk. The **GRINDOMIX GM 300** can homogenize up to 4 liter of plant material from which a small fraction is taken for analysis. Remnants of small twigs or resinous blossoms are no problem for this mill.

The smaller model **GRINDOMIX GM 200** quickly and efficiently homogenizes up to 700 ml sample material high in sugar or fat content, such as cannabis-infused cookies.
Production with GMP compliance

The high-performance Cutting Mill SM 300 is now available in a stainless steel version for milling of cannabis with GMP compliance.

This mill ensures reproducible particle size reduction without loss of cannabinoids or terpenes.

- powerful and rapid size reduction of fibrous samples down to 1 mm
- speed can be adapted to sample properties
- cyclone-suction combination ensures cooling of the sample and cutting tools
- quick and easy cleaning

With a 150 l drum of 316L stainless steel the Drum mill TM 500 is also GMP compliant.

Features include:
- grind sizes down to <15 µm
- large volumes up to 35 l
- feed hopper and optional separation unit for easy sample feeding and recovery

Application examples

If you are looking for a complete line of products for sample preparation and particle analysis look no further than RETSCH!

- Mills and grinders for all solid sample types
- Widest range of analytical sieve shakers in the market
- Fast, reproducible results every time

1. Cannabis Flower
2. Hemp
3. Gummy Bears
4. Cookies

For further information please visit our website www.retsch.com/cannabis
Put Us to the Test!

Are you looking for a suitable ball mill to meet your cannabis preparation requirements? Then send us your sample for a free-of-charge test grinding by our application specialists. You will receive a detailed test report including process parameters and recommendations for the most suitable mill and grinding tools.

For more information please visit our website www.retsch.com/testgrinding.

Sieving, Dividing and Drying

The RETSCH offering includes analytical sieve shakers for classifying the particle size distribution of bulk materials in accordance with relevant standards. A range of rotating sample dividers helps to generate representative sub-samples for further treatment. The Rapid Dryer TG 200 efficiently dries organic materials without localized overheating.

If you are looking for a complete line of products for sample preparation, particle analysis, sample division and drying - look no further than RETSCH!