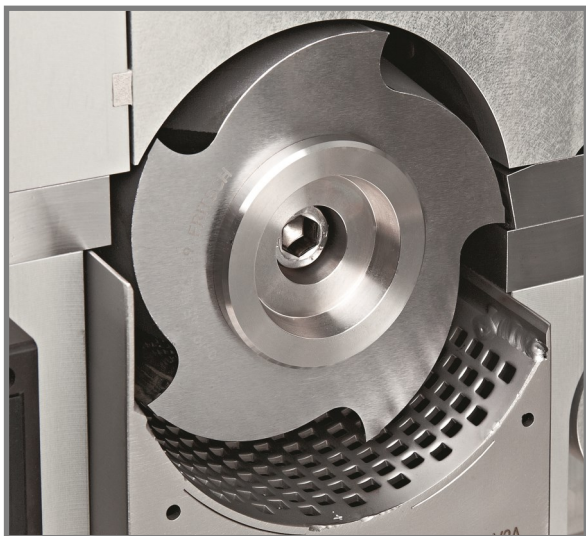


# ***FRITSCH***



**Precision Milling Systems™**



## **CANNABIS Processing & Sample Preparation**



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# CANNABIS PROCESSING



**PULVERISETTE 19 Precision Cutting Mill  
with Cyclone Sample Collection System**



**NEW**

## Applications

- ◆ Optimize particle size & distribution for CO<sup>2</sup> or EtOH extraction yield
- ◆ Create material for premium pre-rolls
- ◆ Homogenize isolates

## Performance Advantages

- ◆ Adjustable, controllable particle size output with tight particle size distribution
- ◆ Reproducible performance regardless of end user
- ◆ High-throughput, continuous processing  $\geq 1$  lb per min. avg.
- ◆ Dust-free, easy to clean - stainless steel product contact surfaces
- ◆ Cyclone sample collection system provides heat mitigation and prevents resin build up



# Sample Preparation

## Infused Samples - CryoMilling



**PULVERISETTE 11**  
Knife Mill

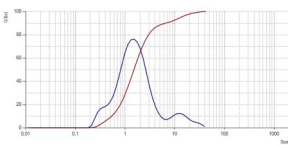


Create uniform powder from various edibles samples.  
Capacity of 300+ g per sample, depending on material.

## Particle Size Analysis



**ANALYSETTE 22 NanoTec**  
*Laser Particle Sizer*



- ◆ Formulation
- ◆ Process optimization
- ◆ R&D

Determine particle size distribution of milled Cannabis, or CBD isolate. Measuring range from 10 nanometers to 2 mm.

<b>Processing Consideration</b>	<b>Hand Grinder</b>	<b>Blender</b>	<b>Leaf Cutter</b>	<b>Hammer Mill</b>	<b>FRITSCH Cutting Mill</b>
<b>Adjustable, controllable particle size output</b>	<b>some</b>	<b>no</b>	<b>no</b>	<b>some</b>	<b>YES</b>
<b>High-throughput <math>\geq 1</math> lb/min. avg.</b>	<b>no</b>	<b>no</b>	<b>yes</b>	<b>some</b>	<b>YES</b>
<b>Reproducible results, regardless of end user</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>yes</b>	<b>YES</b>
<b>Easy to clean; prevent cross-contamination</b>	<b>no</b>	<b>yes</b>	<b>no</b>	<b>no</b>	<b>YES</b>
<b>Heat mitigation</b>	<b>yes</b>	<b>no</b>	<b>some</b>	<b>no</b>	<b>YES</b>



## HOW FAST CAN I GRIND ?

- ◆  $\geq 1$  lb. per minute dried flowers avg. Individual performance may vary based on moisture content, nature of starting material, and desired final particle size.

## ARE CANNABINOIDS & TERPENES PRESERVED?

- ◆ Yes. As a continuous milling systems (vs. a closed batch system like a blender or wire trimmer), the P-19 Cutting Mill does not exert any heat load on Cannabis material. The precision cutting mechanisms ensure rapid particle size reduction with minimum exposure to physical damage.

## IS IT EASY TO CLEAN?

- ◆ Yes — all interior product contact surfaces are stainless steel. The cutting chamber opens up completely to allow easy access to all areas. Reducing the likelihood of accidental batch cross-contamination has never been easier.

## HOW MUCH DO THEY COST?

- ◆ We strive to optimize our milling systems for any given application. System investment costs may vary depending on specific processing requirements, and we'd be happy to work with you to assess what would work best for your operation.

## HOW WOULD THESE INSTRUMENTS HELP OUR BUSINESS?

### FOR THE GROWER/PROCESSOR

- ◆ Time savings; operational cost reduction
- ◆ Greater product consistency; batch to batch reproducibility
- ◆ Improve extraction yield & quality
- ◆ Easy to clean & validate

### FOR THE ANALYTICAL TESTING LABORATORY

- ◆ Affordable, effective options for CryoMilling of infused samples
- ◆ High-throughput solvent extractions



## Community

Our Thanks to You !

# WHAT HAPPENS...

When you combine a century of engineering excellence,  
A 10,000+ year old medicinal plant,  
and a collaborative industry that is growing like a weed ?

## THE NEW STANDARD FOR CANNABIS MILLING

YOU ASKED. WE LISTENED.  
...and together we created a BEAST.  
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