

# Homogenization of Hemp and Cannabis Flowers using the Bead Ruptor 96

## Protocol Snapshot

### Summary

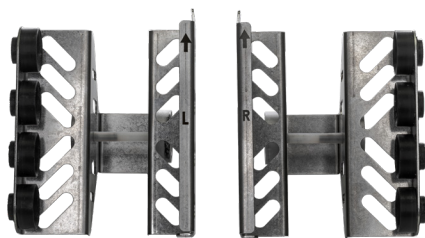
Homogenization is a critical step in many sample preparation processes which influences extraction efficiency and analysis of hemp flower and other cannabis matrices. OMNI International and AmeriCanna applied a two-step analytical approach consisting of homogenization and industry-standard organic solvent extraction to quantify 11 cannabinoids in a hemp flower sample. Extracts were analyzed on an Agilent 1220 Infinity HPLC-UV system.

The Bead Ruptor 96 is proven a reliable, high-throughput tool for homogenization of cannabis where precision and reproducibility in cannabinoid analysis is required. The below protocol was optimized for use with 1-5 g of hemp and cannabis flower samples using Active Grinding Media. Up to 8 samples can be processed simultaneously and no cleaning or maintenance procedures are required between samples. Up to 192 samples can be processed in 1 hour.

Other homogenizers which process only 1-2 samples per cycle and require cleaning of grinding balls can process a maximum of 60 samples in 1 hour. The Bead Ruptor 96 is over 3 times more efficient, and reduces hazardous organic solvent use, compared to other systems.

### Materials and Methods

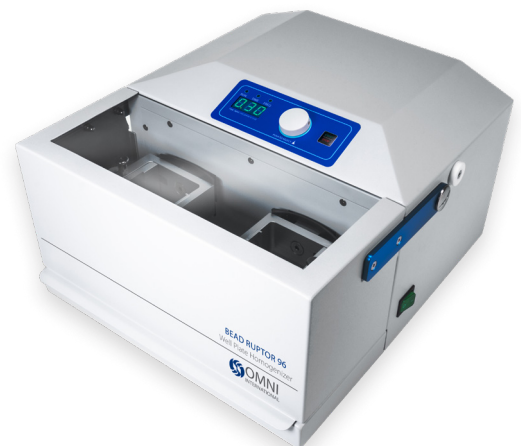
- **Hemp Matrix:** Commercially available hemp flowers were purchased
- **Bead Ruptor 96 Well Plate Homogenizer** (Catalog Number 27-0001)
- **50 mL Tube Carriage** (Catalog Number 27-1003)
- **50 mL Tube** (Catalog Number 19-6650)
- **Active Grinding Media** (Catalog Number 19-900M)



50 mL Tube Carriage



50 mL Tube



Bead Ruptor 96

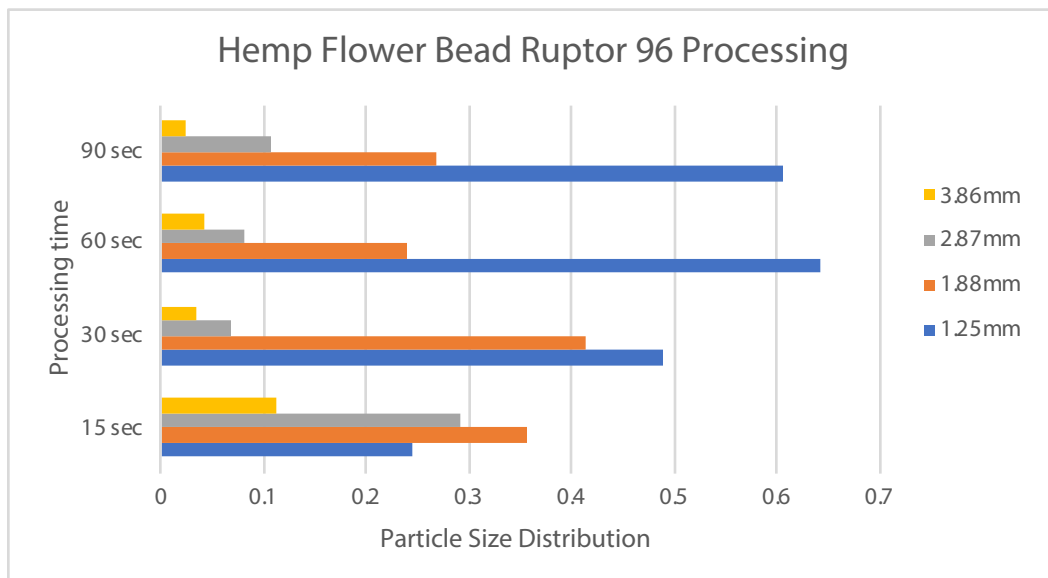
## Homogenization Method

2.0 g of hemp flower samples were placed in disposable 50 mL homogenizer tubes (P/N 19-6650) with Active Grinding Media (P/N 19-900M). Samples were processed for 90 seconds at 25 Hz using the Bead Ruptor 96 (P/N 27-0001) with 50 mL tube holders (P/N 27-1003).

After processing with the Bead Ruptor 96 with Active Grinding Media, samples are ready for dilution and extraction with any downstream sample prep or analytical method. In this work, cannabinoids were extracted with 5mL of methanol, centrifuged and then diluted with 80:20 methanol/water containing 0.1% formic acid for HPLC analysis of cannabinoid profile.



## Results



**Table 1.** The Bead Ruptor 96 efficiently processed hemp flower samples. Increased homogenization time results in smaller particle size with narrower particle size distribution.

## CONTACT INFO

### **OMNI International Inc.**

935 Cobb Place Blvd NW, Kennesaw, GA 30144 United States

(770) 421-0058

[sales@omni-inc.com](mailto:sales@omni-inc.com)

[Click Here to Contact OMNI](#)

### **AmeriCanna Laboratories, LLC.**

11757 Central Parkway, Jacksonville, Florida 32224, United States

(904) 549-5948

