

Efficient, Fast, Safe Ethanol Extraction of Cannabis Oil



FMS
Fluid Management Systems

High Throughput, Automated Pressurized Liquid Extraction

PLE[®]

Automated Ethanol Extraction

Integrated Ethanol Extraction, Cleanup and Oil Concentration Ready for Production

- *One Extraction Method for all Solvents*
- *High Speed, Extract in Minutes Not Hours*
- *Modular, Expandable and Scalable from 1 to 8 Extractors*
- *Process 2 oz. to 1 lb. in 10 min*
- *Extraction Cell Sizes 5 to 200 ml*
- *Real Time Plot of Temperature and Pressure*
- *Dramatically Reduces Solvent*
- *Works Efficiently*
- *Environmentally Safe Process*
- *Lower Energy Consumption*
- *Supercooled Solvent for Cleanup*
- *Optional Automated Evaporation*
- *Easy to Use Touch Screen*



A single module PLE sending oil from 2 ounces of flower extracted directly to a SuperVap® Concentrator. Capable of processing 4 lbs. in 8 hrs.



The PLE is modular and expandable. An example of a PLE 4 module system for extracting 4 modules simultaneously. Capable of processing 16 lbs. in 8 hrs. The PLE can be expanded up to 8 modules for extracting up to 8 modules in parallel. Capable of processing 32 lbs. in 8 hrs.

Fast, Safe, Clean, High Yield Extractions

The PLE system is a high-speed pressurized liquid extraction system designed to perform extraction of multiple compounds in the extraction of oil from cannabis simultaneously. The PLE system delivers high recoveries and yields with excellent precision of all cannabinoids in minutes instead of hours. Inexpensive stainless steel extraction cells with end cap filtration keep operational costs at a minimum. Reusable end cap filtration increases productivity and saves valuable time. Combining supercooling for cleanup eliminates extra manual cleanup steps required by other techniques increasing throughput while reducing human interaction.

HIGH SPEED EXTRactions

- Most Efficient > 90%
- Highest Yield up to 30%
- 10 Minute Extraction
- Supercooled Cleanup
- From 4 Lbs. to 32 Lbs. in 8 Hrs.

Modular, Scalable and Affordable from 1 to 8 modules

The modular design of the PLE system allows you to purchase a one, two up to eight processing modules to fit your budget. The system can be expanded from a one to eight module system as your workload grows.

Reduce Solvent

The PLE system reduces solvent consumption by using solvents more efficiently. Cut solvent consumption by two-thirds.

Increase Productivity

The entire extraction and cleanup is performed in minutes. Traditional processes can take several hours.

Reduce Operating Costs

Rapid extraction and clean up, along with reduced solvent use and waste, reduces operating costs by

as much as 70 percent. The PLE uses a fraction of the power required for CO₂ and Butane extraction.

5 to 200 mL Extraction Cell Sizes

The PLE system offers 5-200 mL low cost stainless steel extraction cells with Teflon endcap filtration. This wide range of extraction cell volumes allows the use of the same unit for all cell sizes, even in the same run.

Ease of Use

The touch screen control and modular design makes for simple, low solvent use cleaning.

Sample Extraction and Cleanup in one step

The PLE uses supercooled ethanol cleanup and performs the entire extraction and cleanup in one step with increased speed and reduced cost. Eliminating additional manual cleanup steps. The extract is ready to use.

Automatic Operation and Documentation

Real-time software allows eight channels of pressure data to be plotted simultaneously. Allows automatic documentation of all extraction data.

One Extraction Method for All Steps

A single extraction method is used for extraction of all cannabinoids and terpenes. A single extraction, cleanup and concentration method is used for extractions of all types. Eliminating the need to develop and validate several process protocols.

Workflow and Configurations

ETHANOL EXTRACTION WORKFLOW



3 MINUTES

Weigh the Product



3 MINUTES

Load the Product into the Extraction Cell



4 MINUTES

Oil Extraction

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10 MINUTES

Processing Total Time Ready for Concentration

ETHANOL EXTRACTION SYSTEMS THAT MEET YOUR NEEDS:

Modular and Expandable

PLE/1

- Processes 1/2 lb. per hr. and 4 lbs. in 8 hrs.
- Good for Home/Small Samples, Research and Product Development
- Low Cost Entry level
- Fully Automated
- Smallest footprint (fits on a counter-top)
- Runs on 110V 20 amp circuit
- Dimensions: 17" W X 26" H X 18" D

PLE/2

- Processes 1 lb. per hr. and 8 lbs. in 8 hrs.
- Good for Home/Small Samples, Research and Product Development
- Low Cost Entry level
- Fully Automated
- Smallest footprint (fits on a counter-top)
- Runs on 110V 20 amp circuit
- Dimensions: 25" W X 26" H X 18" D

PLE/3

- Processes 1 1/2 lbs. per hr. and 12 lbs. in 8 hrs.
- Good for Small Operations or mobile
- Low Cost Business level
- Ideal for home operations/small samples, product development and R&D
- Fully Automated
- Smallest footprint (fits on a counter-top)
- Runs on 110V 20 amp circuit
- Dimensions: 33" W X 26" H X 18" D

PLE/4

- Processes 2 lbs. per hr. and 16 lbs. in 8 hrs.
- Good for Small/Intermediate Operations or mobile applications

- Low Cost Business level
- Fully Automated
- Smallest footprint (fits on a counter-top)
- Runs on 110V 20 amp circuit
- Dimensions: 41" W X 26" H X 18" D

PLE/5

- Processes 2 1/2 lbs. per hr. and 20 lbs. in 8 hrs.
- Good for Intermediate Operations or mobile applications
- Economic Cost Business level
- Fully Automated
- Smallest footprint (fits on a counter-top)
- Runs on 110V 20 amp circuit
- Dimensions: 49" W X 26" H X 18" D

PLE/6

- Processes 3 lbs. per hr. and 24 lbs. in 8 hrs.
- Good for Intermediate Operations or mobile applications
- Economic Cost Business level
- Fully Automated
- Smallest footprint (fits on a counter-top)
- Runs on 110V 20 amp circuit
- Dimensions: 57" W X 26" H X 18" D

PLE/7

- Processes 3 1/2 lbs. per hr. and 28 lbs. in 8 hrs.
- Good for Larger Operations
- Economic Cost Business level
- Fully Automated
- Moderate footprint (fits on a portable cart)
- Runs on 110V 20 amp circuit
- Dimensions: 65" W X 26" H X 18" D

PLE/8

- Processes 4 lb. per hr. and 32 lbs. in 8 hrs.
- Good for Larger Operations
- Economic Cost Business level
- Fully Automated
- Moderate footprint (fits on a portable cart)
- Runs on 110V 20 amp circuit
- Dimensions: 73" W X 26" H X 18" D

200 ML EXTRACTION CELL



ECONOMICAL EXTRACTION CELLS



5ml to 200ml

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