



Supercritical

Supercritical CO₂ is rapidly becoming the preferred method of extraction for all consumable natural products. The reason is simple: **safety, purity and scalability.**

When the oil you are ingesting, whether it's cannabis oil or grape seed oil, is made with supercritical CO₂, you know that there are no toxic solvent residues to cause concern. Another benefit of CO₂ is it is a natural disinfectant that can kill harmful bacteria and is widely utilized in sterilization processes medically.

CO₂, or carbon dioxide is a naturally occurring gas that exists in our atmosphere at about 400 parts per million. It's what plants breathe in and what we breathe out after we inhale the oxygen that plants made for us from the CO₂ we exhale. This symbiotic relationship of gas exchange between plants and animals has helped sustain life on Earth for millions of years.

When used as an extraction agent, CO₂ is a non polar solvent that is ideal for pulling oils out of botanicals. This is accomplished by compressing the gas with high pressure pumps until it goes into a dense liquid state and then pumping it through a pressure vessel filled with dried, ground up plant material. After the pressurized CO₂ penetrates the plant material, oils are released into the CO₂ and the stream of oil laden CO₂ passes through a regulator valve and into a separation chamber where the pressure drop causes the CO₂ to go back to its natural vapor state. The extracted oils then drop out into the bottom of the separator for collection.

In its supercritical state, CO₂ is a dense fog that can easily permeate the cell walls of plants and absorb their oils. By adjusting temperature and pressure, supercritical CO₂ can be "tunable" for precise extraction of natural compounds. This "tuneability" is key in producing a multitude of high quality products.

Eden Labs

is a recognized leader in the extraction industry and has provided equipment to the flavoring, perfume, nutraceutical, biofuel and cannabis industry for 21 years.

The company was started in 1994 with the introduction of the Coldfinger extractors. These were the first herbal extractors available to the general public. In 1995, Eden started marketing CO2 extractors. The early units were linear, meaning the CO2 was not recovered and reused. CO2 was simply vented out every run. In 2003, Eden introduced the first closed loop unit allowing for multiple runs reusing the CO2 and creating a safer workplace.

The early Eden extractors used a gas booster pump meaning it pumped CO2 vapor. The vapor was compressed into liquid before passing through the extractor vessel. The extract laden CO2 then depressurized into the separator where the CO2 flashed to vapor and the oil fell out to the bottom of the vessel. The vapor then flowed to the inlet of the gas booster pump where the cycle was repeated until the extraction was done.

These systems solved the problem of recycling and reusing the gas, but the extraction time was slow and the pumps broke often due to residual oil carrying over, carbonizing and destroying the pump.

In 2012, Eden solved all of these issues with the introduction of its Hi-Flo CO2 extractors. The Hi-Flo was revolutionary in that it was the first CO2 extractor on the market that was affordable, extremely efficient and virtually maintenance free. The new design was four times as fast, doubled the yield, eliminated pump damage and saved energy. How was this accomplished? Fundamentally, the Hi-Flo system pumps liquid CO2 instead of gaseous CO2 which significantly improves the flow rate of the CO2 while utilizing only 1/3 the energy input. Maintenance issues and pump damage were resolved by new design elements including eliminating oil entrained in gaseous CO2 from reaching the pump.

Eden has launched a radical evolution in CO2 extraction ...





Presenting the new

Eden has launched a radical evolution in co2 extraction...the **Hi-Flo FX2**.

This SCFE technology is a historical leap forward in production, yield and efficiencies. It is the Hi-Flo, but optimized in every way for unprecedented high production and performance. Most CO2 extractors generate 15-20 gm per hour of oil. The first Hi-Flo's did 30-40 gm. The new Hi-Flo FX2 extractor yields can range from 130 to 180 grams an hour!

What does this engineering feat mean for Processors? It propels your production capacity far, far beyond the out put of your competition and vastly reduces overhead. The ability to fractionate the oil also helps in developing unique profiles for product differentiation. Your bottom line is completely dependent on your production and efficiencies. This system is the most important tool you can acquire in creating cash flow that is dependable and cost effective.

What makes the FX2 the most technologically advanced production system? Twenty one years of extraction experience and engineering leadership funneled into optimizing extraction systems for extreme throughput and flexibility in temperature, pressure and operational parameters. This kind of dedication to superior performance and advanced technology can only be derived from a company with one thing in mind...building an industry. To this end, Eden can scale its customers up to 6000L. Eden is and always has been ahead of the curve not only in extraction technology, but also by being thought leaders in customer service and corporate responsibility.

#Edenforthewin

**Eden doesn't just build
systems, Eden builds
Industry.**



*"Are you
ready to
process Five
Tons a Day?"*

– AC Braddock, CEO



Puffin Farm
Ellensburg, WA



Extraction & Distillation Systems

Eden Labs is the industry's pioneer and leader, offering both Ethanol and CO2 extraction systems.

Choose Eden and get the most proven systems plus a team of industry experts

who can help you with product design, equipment specifications, and guidance to the most direct path to profitability.

We'd love to get to know you and your dream for a better botanical world.
Call us today to learn more at 888.626.3271 or 206.673.2184 • www.edenlabs.com