ecodyst

Accelerating the
Extraction Process™

The global leader of high-speed solvent recovery and decarboxylation equipment

Ecodyst has created a new generation of evaporators and concentrators.

For many years, rotary evaporators (rotovaps) have been the lab standard across industrial sectors, including pharmaceutical, academic, government, chemical, life sciences, food and beverage, cleantech, materials, environmental, and cannabis. Rotovaps consist of a heating fluid bath, rotating motor, evaporating flask, receiving flask, vacuum source, and condenser. The conventional rotovap condenser requires an external source of cooling material such as dry ice, liquid nitrogen, water, or glycol. Glycol requires additional recirculating equipment.

Using a proprietary and innovative self-cooling technology, Ecodyst has revolutionized the evaporator. With a smaller footprint and greater output, the Ecodyst systems increase efficiency while reducing operational costs. The modern smart technology from Ecodyst boosts productivity and minimizes downtime. Shifting paradigms and setting a new benchmark for solvent recovery without the use of glycol, dry ice, or water, our groundbreaking technology eliminates the major sources of material waste associated with conventional evaporators and concentrators.

EcoChyll High-Speed Evaporator System Recovery Rates

EcoChyll System	Recovery Rates* (Liters/Hour)
12 EcoChyll X3	5-8
22L EcoChyll X5	8-12
50L EcoChyll X7	15-25
72L EcoChyll X7	25-40
100L EcoChyll X7	45-60
200L EcoChyll X9	80-120

*Estimates are for ethanol, other solvents have different evaporation rates

Hydrogen

Up to 3L flask

All-in-one modern rotovap

EcoChyll X1

Upgrades any brand
rotovap up to 5-liter flask

EcoChyll X3

Two sizes: 12L, 20L

EcoChyll X5

Two sizes: 22L, 50L

EcoChyll X7

Four sizes: 22L, 50L, 72L, 100L

EcoChyll X9

200L

EcoChyll X3 High-Speed Evaporator

Available Sizes: 12 & 20 Liters

Engineered for high-speed solvent recovery and evaporation in small- to medium-sized laboratories, the EcoChyll® X3 is our most robust medium-size cooling system for botanical extractions. Based on the same pioneering technology as our disruptive EcoChyll® range of evaporators, the EcoChyll® X3 bridges the gap between small-footprint lab equipment and the full-scale, high-throughout alternatives. With a 12L or 20L size and compact form factor, it is the ideal supplement for rotary evaporators lab equipment.

The EcoChyll® X3 is routinely used downstream of botanical extractions via BHO, CO_2, or ethanol. With twin metallic condenser coils, the EcoChyll® X3 carries out continuous direct cooling of incoming vapors in an efficient and environmentally friendly manner. A key performance indicator of the entire range of EcoChyll® lab equipment is the ability to free up operator time due to low-intervention requirements. The EcoChyll® X3 enables scientists in smaller facilities to automate their processes, ultimately saving time and money without compromising the quality of results.

EcoChyll X3 Continuous Cooling: Key Advantages

- Best-in-class evaporation rates
- Continuous sample feed valve for uninterrupted operation
- Cost-effective by eliminating expensive rotary motor with overhead stirring
- Easy-to-use, with simple product drainage not requiring removal of large evaporation vessels
- Excellent energy efficiency

EcoChyll X5 High-Speed Evaporator

Available Sizes: 22 & 50 Liters

Designed for budget-conscious users of evaporation lab equipment, the EcoChyll® X5 is an extremely efficient alternative to existing evaporative technologies. Based on the same metallic condenser coil technology that elevates each instrument in the EcoChyll line, the EcoChyll® X5 features a single coil in a robust, space-friendly unit. With a 22L capacity and a small footprint, it is a premium compromise between cost and convenience.

This high-value evaporation unit is a turnkey solution for solvent recovery and decarboxylation. Built with pioneering smart-cooling technology, the EcoChyll® X5 automates the vapor cooling process to free up user time for other operations. This method is now the preferred solution for evaporation in a wide range of botanical extraction applications.

EcoChyll X5 Lab Equipment: Key Advantages

- Best-in-class evaporation rates
- Continuous sample feed valve for constant operation
- Cost-effective compromise for mid-volume extractions (22L)
- Easy-to-use, with simple product drainage
- Exceptional energy efficiency
- Low cost of ownership—pays for itself within three years
- Stationary glassware for guaranteed safety

EcoChyll X7 High-Speed Evaporator

Available Sizes: 22, 50, 72 & 100 Liters

Built for industrial-scale evaporation, the EcoChyll® X7 high-speed evaporator from Ecodyst combines high-loading capacities with rapid, continuous cooling for efficient and fast solvent recovery. Thanks to proprietary intelligent direct self-cooling condensers, the EcoChyll® X7 high-cooling capacity and large-surface-area condensers can reliably condense large volumes of solvents.

Our industrial-scale rotary vacuum evaporator is a turnkey solvent recovery system trusted by chemists and botanical extraction processors in both research and commercial laboratory settings. Based on innovative self-cooling technology, our smart system is both eco-friendly and efficient. The EcoChyll® X7 continuous cooling solution is guaranteed to increase productivity for high-throughput solvent recovery and decarboxylation applications, while keeping user safety and usability at the forefront of all botanical extraction applications.

EcoChyll X7 Rotary Vacuum Evaporator: Key Advantages

- Best-in-class evaporation rates
- Continuous sample feed valve for uninterrupted operation
- Cost-effective by eliminating expensive rotary motor with overhead stirring
- Easy-to-use, with simple product drainage not requiring removal of large evaporation vessels
- Excellent energy efficiency
- High-speed stirring for increased surface area and vapor generation
- System modularity for easy upgrades
- Safety guaranteed, with all glassware remaining stationary throughout operation
- Twice the loading capacity of traditional rotovaps (<100 L)
- Chemical-resistant dual condenser with over 9000 cm2 cooling surface area

EcoChyll X9 High-Speed Evaporator

200 Liters

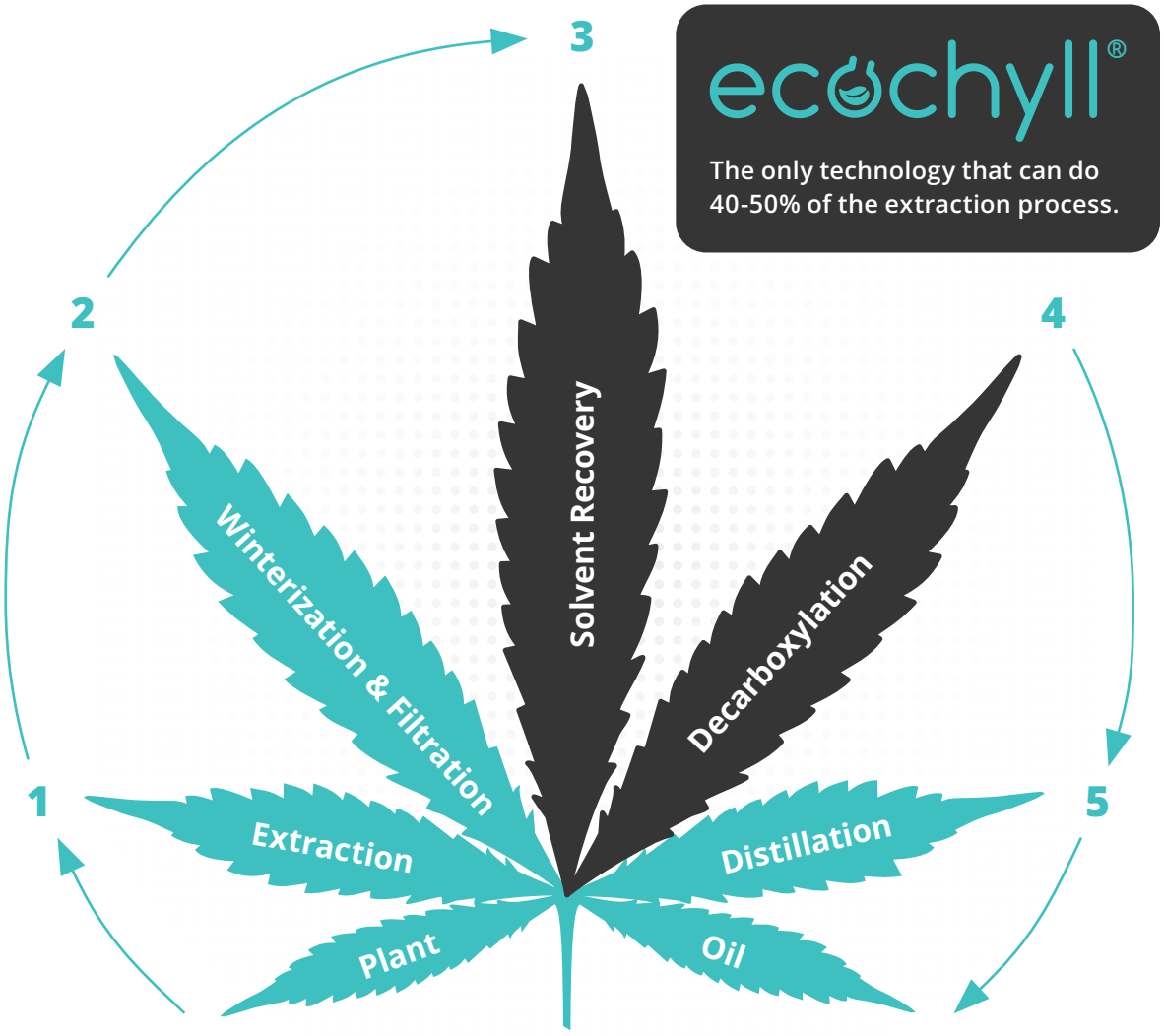
For many years, rotary evaporators (rotovaps) have been standard in chemistry labs across multiple industries requiring botanical extractions. Rotovaps consist of a heating fluid bath, rotating motor, evaporating flask, receiving flask, vacuum source, and condenser. The conventional rotovap condenser requires an external source of cooling material, such as dry ice, liquid nitrogen, water, or glycol. Glycol requires additional recirculating equipment.

The EcoChyll® X9 large capacity evaporation unit is a high-speed and ultra-efficient system for demanding botanical extractions. Based on unique triple-coil self-cooling technology, this workhorse solution is the best evaporation unit for large-scale extractions, with a greater maximum capacity than any alternative on the market. The EcoChyll® X9 evaporation unit was engineered to address the bottleneck in botanical extraction laboratories servicing the booming hemp industry. With a 16,000-watt heating mantle and high-cooling capacity, the EcoChyll® X9 comprehensively exceeds the performance of up to eight 50-liter traditional rotovaps.

EcoChyll X9: Key Advantages

- Extremely high evaporation rates at a fraction of the falling-film evaporator energy usage
- No special infrastructure modification required
- Multifunctional evaporation unit enabling both solvent recovery and decarboxylation
- One-man operation with minimal interference required
- Continuous inlet feed valve for uninterrupted operation

Ecodyst's position in the cannabis industry

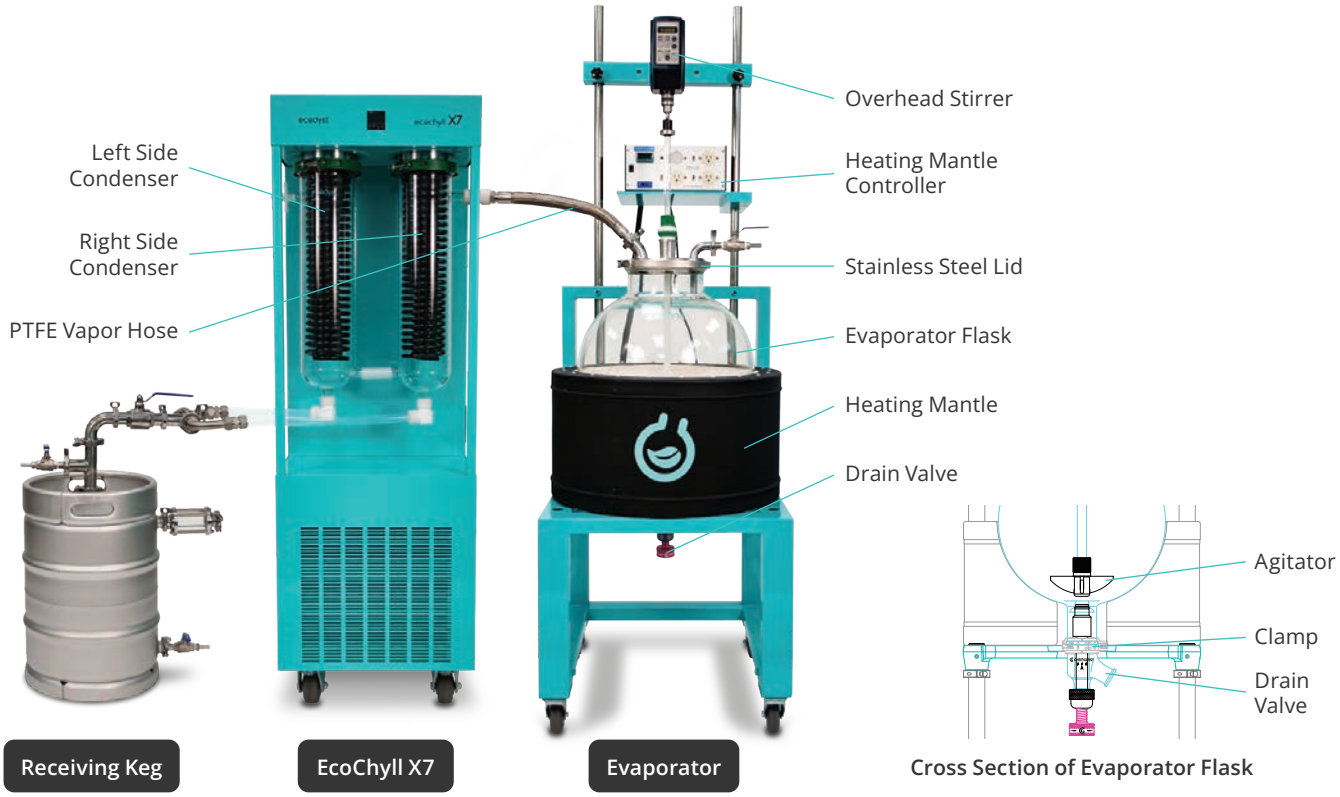


Cutting-edge in situ decarboxylation equipment

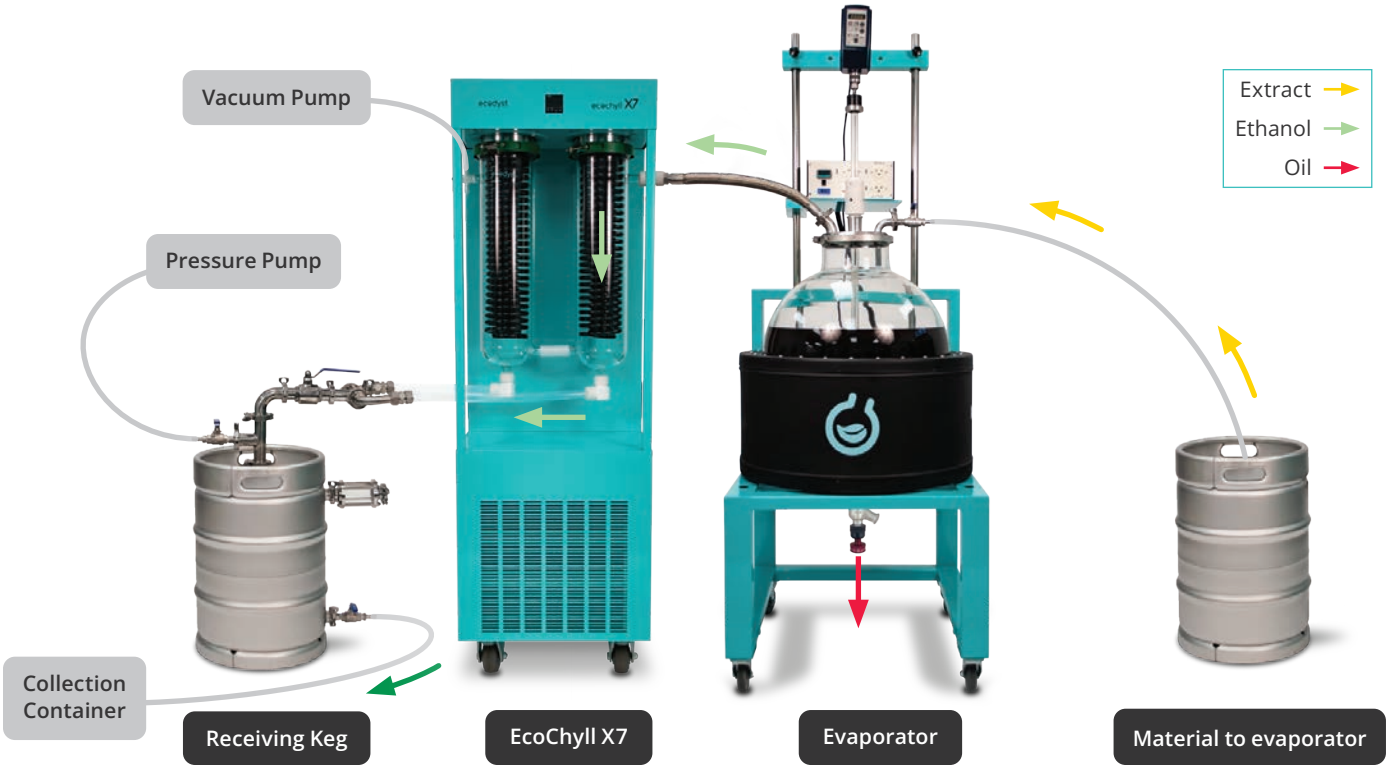
At Ecodyst®, we have leveraged our expertise in organic chemistry in the development of a unique evaporation system for solvent recovery and decarboxylation. Using pioneering direct-cooling technology and continuous feeds to maintain vacuum conditions throughout extraction processes, EcoChyll® solutions exceed traditional decarb systems on virtually every front.

Available at a lower up-front price point with consistently greater ROI, the EcoChyll® line can decarb comparable volumes of cannabis oils in just under two hours. This is possible through our efficient heating-mantle design that reaches optimal decarb temps in matter of minutes—and maintains heat. Our actual-volume evaporators and EcoChyll® intelligent self-cooling technology require just a single action to initiate continuous decarboxylation of high volumes of sample materials at unprecedented scales. From the medium-scale 12L to large-scale 200L capacity, Ecodyst provides evaporation systems suitable for every level of cannabis decarboxylation. Solvent recovery with in situ decarboxylation saves significant extraction process time and is ideal for most extraction processors.

EcoChyll X7 High-Speed Evaporator



Solvent-recovery operational diagram



Praise for Ecodyst

The rotovap is an indispensable tool in labs, however, currently marketed systems are suboptimal both with respect to the amount of time required for the system to cool down and for the need to waste dry ice or water to keep the apparatus chilled. As you know, I am a strong proponent of green chemistry, so Ecodyst's unique solution to these two problems is naturally attractive. I am excited that the Ecodyst design does not require a source of water or dry ice, eliminating the major sources of material waste associated with rotovaps.

Joseph DeSimone, PhD
Sanjiv Sam Gambhir Professor of Translational Medicine, Department of Radiology, Professor of Chemical Engineering, Stanford University, California

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My laboratory in the Department of Chemistry at UC Berkeley has been happy to acquire the EcoChyll in January 2016 and we have been thoroughly impressed with the system's performance. We have found the EcoChyll system to provide superior performance in terms of cooling. Our ability to control the temperature of the cold finger is critical. This has prevented the freezing of condensing solvents, which reduces efficiency. An aspect that we especially like is that the EcoChyll can be used during holidays/weekends when dry ice (for cooling purposes) is not delivered to our department."

Richmond Sarpong, PhD
ACS Arthur C. Cope Scholar, Executive Associate Dean, College of Chemistry, University of California, Berkeley

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We use the EcoChyll X1 to accelerate the evaporation of solvent mixtures which we often do in organic chemistry, actually we constantly do. The X1 allows us to avoid the use of dry ice. It's quicker and allows us to accelerate our research."

Dr. Vincent Lindsay
Assistant Professor, Dept. of Chemistry, North Carolina State University, North Carolina

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Replacing our dry ice/isopropanol condenser for the EcoChyll has made rotovapping much more convenient — we can leave the rotovap without having to worry about the condenser warming up.

Dr. Kevin Kou
Assistant Professor of Chemistry, University of California, Berkeley

I know I'm not the first to say this but our addition of the X7 was one of best pieces of equipment I've purchased in years. It runs circles around two 100L units from one of the leading companies in the industry and it's the 72L unit. It's refreshing to buy a piece of equipment that actually performs as advertised.

Jack Tatum
CEO of Isolera Extracts, North Carolina

We recently retrofitted one of our existing rotovaps with the Ecochyll X1 chiller unit and are very happy with its performance. A simple flip of the switch and the chiller is ready to go in minutes. It's great to be free from the hassles of dry ice – no more constant refilling of the trap during solvent collection. So far it has worked well with all typical solvents with no noticeable solvent pass through. Convenient temperature control also allows for removal of water without excessive frost buildup. Thanks to George and the team at Ecodyst for putting together a great product!

Chris MacNevin, PhD
VP of Operations, NIRvana Sciences, North Carolina

I've been using Ecodyst's 50 Liter EcoChyll unit for over 2 years now and couldn't imagine life in the lab without it. The advantages it offers over traditional rotary evaporators is truly something special. The condenser coils reach temperature (and hold!) in only 30 seconds cutting down warm up times by about an hour, and the discharge valve not only saves time and energy by not having to pour out of a 50-liter flask, but also allows for Clean In Place (CIP) processes saving even more time and energy that is usually attributed to non-production overhead. We have 2 100 Liter units on the way and I'm never going back to the rotovaps of old.

Drew Ford
Chief Scientific Officer, Starling Brands and Kase Manufacturing, Canada

Some of Our Valued Clients

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