

ESSENTIAL GUIDE

TO THE

CANNABIS EXTRACTION INDUSTRY

Business, Profits & Opportunity in the Fastest-Growing Marijuana Niche

PRESENTED BY:

Precision
Extraction solutions

A LETTER FROM THE PRESIDENT

It is with deep appreciation to our valued customers that Precision® Extraction Solutions has grown to be the industry leader in cannabis extraction equipment, training and consulting.

We pride ourselves on our ability to deliver the highest quality products and services in the industry. Our team's innovative spirit, coupled with our company-wide commitment to customer success, has propelled Precision forward. Performance is driven by people, and I truly believe that the Precision team of professionals is made up of the best people you will find.

Precision extraction systems are world-renowned for quality, safety and precise operation. Costing half of comparable CO₂ systems with nine times more efficient processing, more award-winning concentrates are made with Precision than any other brand.

Precision patent-pending equipment is certified for use in all regulated U.S. jurisdictions and fully compliant for Class 1, Division 1 environments. With unparalleled tech support and customer service, Precision is the world's only provider of turn-key extraction labs. From site-planning to build-out and equipping your lab, we make the regulatory process easy to navigate.

Precision engineers strive to stay ahead of the curve, continually innovating and experimenting with new design methods whilst predicting future essentials within the industry. As industrial production expands, so does the mind-set of our development team, which is focused on overcoming physical and technological obstacles for our customers.

Recently introduced, the 3000 KPD and extractor Model X10 are stellar examples of Precision's state-of-the-art capabilities that surpass all industry standards. Industrial production for our customers is no longer out of reach.

It has been our pleasure to provide you with the very best in quality products, customer service and technical support. We look forward to continually challenging ourselves to deliver even more to our customers.

Our professional extraction experts are ready to assist you toward your boundless success in the cannabis extraction industry.



NICHOLAS TENNANT
PRESIDENT, PRECISION® EXTRACTION SOLUTIONS



THE EXTRACTION INDUSTRY IS HOT

Extraction is one of the fastest-growing segments of the legal cannabis industry. In more developed markets, up to 70% of all retail sales come from some form of extract-derived product. Extraction labs are experiencing 30-40% annual growth, and billions of investment dollars are flowing into the industry.

Business is so good that many municipalities in need of jobs and tax revenue are actively courting extraction lab businesses. Even a medium-sized lab can generate up to \$10 million in annual gross revenues and employ up to 50 people. With new construction, employment, taxes and licensing fees, the local impact is substantial.

Read on to learn all about the extraction business, from what it is to what it does to how to profit from it—it's all here.

THE BASICS

WHAT IS EXTRACTION?

Extraction, or "botanical extraction" as is the most proper term, is the process in which the essential oils are removed, or "extracted," from plant material. With regard to cannabis, a primary extraction strips the plant of all its essential oils, including THC, CBD, terpenes, vitamins, antioxidants and other good things, creating a highly potent oil.

WHAT PRODUCTS ARE MADE WITH CANNABIS EXTRACTS?

Every cannabis product that is not dried flower utilizes some form of extract. A short list includes vape pens, edibles, beverages, tinctures and sublinguals, topical solutions, capsules and all concentrates (dabs, oil, wax, shatter and more). Extraction is essential to achieve consistent dosage and products.

WHAT ARE THE METHODS OF EXTRACTION?

The primary commercial methods of extraction are CO₂ supercritical extraction and hydrocarbon extraction, also known as BHO. BHO refers to "butane hash oil," a cannabis or hemp extract made with hydrocarbon solvents such as butane, propane or a mix of both.



HYDROCARBON VS. CO₂

BHO Is Time- and Cost-Efficient

- BHO extraction cycle: < 1 hour (*CO₂ supercritical extraction cycle: 8 to 10 hours*)
- BHO extraction system average cost: \$65,000 (*CO₂ supercritical extraction system average cost: \$200,000*)

Certified BHO Extraction Is Safe to Operate

- BHO systems require low pressure, never more than 150 PSI (*CO₂ systems require pressure in excess of 1,500 PSI; and certain systems are capable of running at 8,700 PSI*)
- When used properly, risk of combustion is eliminated
- Certified BHO systems meeting ASME, NRTL and NFPA 58 requirements are compliant in all regulated U.S. jurisdictions

Certified BHO Extraction Is Safe for Consumers

- Butane and propane solvents are reclaimed during the closed-loop process and not re-leased into the atmosphere.
- Hydrocarbon is an FDA-approved extraction method used in oil extraction of soybeans, sunflower, flax and more.

The Truth About BHO Extraction

When done properly with professional equipment and trained operators, BHO is:

- Efficient
- Cost-effective
- Safe to operate and consume
- Great-tasting
- Not harmful to the environment

BUILDING BETTER BRANDS: THE SCIENCE OF DISTILLATION

Imagine if your favorite beer tasted and smelled different every time you drank it. Or the alcohol content was wildly different with every batch. Faced with such unpredictability, it wouldn't be your favorite for long.

Product consistency is fundamental to building and maintaining any successful brand.

The cannabis plant, by nature, possesses inconsistent and unpredictable qualities. Depending on strains and evolution within strains—taste, smell and THC/CBD potency may vary greatly. These inconsistencies will flow into any end product, thereby causing undesirable variations.

In order to produce a consistent product, the THC and CBD components must be isolated and separated from other cannabis components and then infused into the product. Through distillation, this is possible.

WHAT IS CANNABIS DISTILLATION?

Cannabis distillation is a post-processing extraction technique done subsequent to an initial solvent-based extraction.

In practice, and by way of example, the raw oil (sometimes referred to as "crude" oil) from the cannabis plant will first be extracted via the use of an X10 system. Depending on a number of factors, that crude oil will have a THC/CBD concentration of 60 to 80%.

What is not THC and CBD in the crude oil will be a blend of flavors and smells, known as terpenes, and a variety of other plant-based components from vitamins, antioxidants and additional consumable substances.

In order to further purify the oil, it will be distilled with a specialized commercial unit such as the CDU 1000. The distillation process isolates specific compounds, such as THC and CBD, thereby producing a refined oil (or "distillate") of more than 90% purity.

The remaining terpenes and other non-THC/CBD compounds will have an insignificant effect on the flavor and smell of the product. By targeting THC and CBD, for example, one can see how flavor, smell and potency may not be controlled by the producer.

THE SCIENCE: HOW DOES CANNABIS DISTILLATION WORK?

In its most basic form, distillation is accomplished by using an apparatus that heats a solution to a specific temperature to vaporize a specific compound of a solution without destroying it, then condensing the vaporized compound back into a liquid.

A simple example of this is the process of purifying water. Heating water to 100°C (212°F) will vaporize H₂O molecules, leaving behind any undesirable compounds. Rapidly cooling this water vapor causes it to condense into distilled, purified water.

The same principle used in water distillation can be applied to cannabis. A short-path distillation unit is one of the most common apparatuses used in cannabis distillation.

Short-path distillation units have three major components: a boiling flask, a condensing head and a collection flask. The cannabis compound being distilled is heated in the boiling flask. The vapor then passes through the condensing head (turning the vapor to a liquid) and collects in the collection flask, thereby isolating the THC and CBD components.

THE TAKEAWAY: SO WHY IS THIS RELEVANT TO MY BUSINESS?

Via distillation, isolating THC and CBD as a cannabinoid group can be done from any source cannabis plant material, regardless of quality or origin. Distillation allows the processor to buy large volumes of trim and otherwise low-quality biomass, and convert it to a consistent, high-quality and high-potency liquid.*

The isolated THC and CBD distillate can then be infused into a variety of products such as vape pens, edibles, pills, topical solutions and everything non-leaf. Flavors may be separately infused in a controlled manner thereby creating a predictable, replicable and consumable product, from taste to potency, for the end user.

SEE PAGE S11 TO LEARN MORE ABOUT THE CDU 1000, THE ULTIMATE DISTILLATION SOLUTION.

**Note that quality of input will always affect quality of output and proper preparation of the crude material will ensure uniformity of potency.*

A DEEP DIVE INTO INVESTING IN AN EXTRACTION LAB BUSINESS

EXTRACTION IS A BOOMING BUSINESS. In more developed markets, up to 70 percent of all retail sales come from some form of extract-derived product. It's no wonder why entrepreneurs and growers are rushing into the business. But what are the real costs and prospective returns on investment for an extraction lab?

STARTUP COSTS

According to Nick Tennant, founding partner of Precision® Extraction Solutions, “The vast majority of the lab startups that we consult fall in the \$400,000 to \$800,000 budget range, which includes the cost of leasing a property.”

While some may have initial sticker shock with the costs of an extraction lab startup, the prospective upside is massive. Also, according to Tennant, “There is simply no shortcut for building a safe, compliant and efficient lab. The prudent entrepreneur is well aware of the competition, and proper planning and investment is the best way to lower risk.”

See the case study below for a breakdown on costs and a prospective ROI for a startup extraction business.

RETURN ON INVESTMENT

Now with a state-of-the-art extraction lab at your fingertips, how do you make money? How long before your business reaches its breakeven point? Working with a compliant and equipped 2,000-square-foot lab and costs identified below, the ROI can be swift.

As you can see, with the processing power of 27,240 grams of input material per day, even a medium-sized system like the X10 is able to produce large profits from the basic production of non-refined crude oil. Depending on the quality of the input material (based in 3 tiers below) daily operational profits range from \$10,817 to \$239,475.

X10 SYSTEM: PROCESING CAPABILITIES/ROI ON WHOLESALE OIL

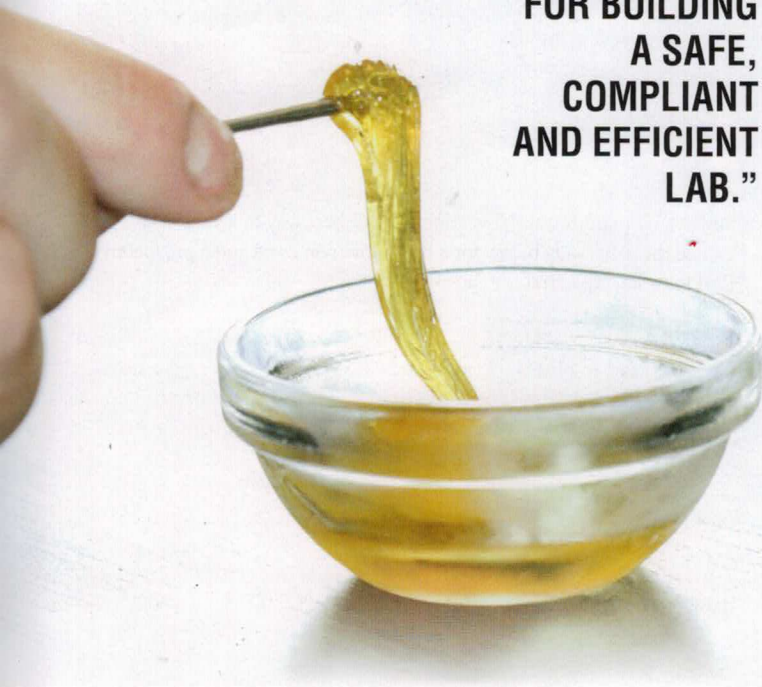
RETURN ON INVESTMENT - Wholesale Raw Oil (No Post Processing)								
Precision Extraction Equipment	Product to Be Produced	Quality of Input Material	Price per Pound of Input Maerial	Daily Yield (g/ day)	Gross Revenue (\$/day)	Less Material & Solvent Cost	Net Revenue (\$/Day)	ROI (Days)
Precision X10	Crude Oil	Low	\$100	3,269	\$22,883	\$6,600	\$16,283	42.87
	Crude Oil	Medium	\$350	4,631	\$32,417	\$21,600	\$10,817	64.53
	Distillate	Medium	\$350	3,241	\$38,892	\$21,600	\$17,292	40.36
	HTE*/Live Resin	High	\$1,500	7,335	\$330,075	\$90,600	\$239,475	2.91

*High Terpene Extraction, i.e., “sauce.”

Note on Operating at Maximum Efficiency: The above model assumes that the lab is operating at 100% efficiency and capacity with trained and experienced operators. Per Tennant, “In most cases we have seen, it does take some time to hit stride in production, and you can figure to initially operate in the 25-40% efficiency range.”

Note of Caution: The exceptionally prudent businessperson will add at least an additional 20-30% to the costs of the startup for packaging materials, peripheral lab items, initial employee salaries, marketing, travel and other unforeseen expenses. It is always best to be overcapitalized than undercapitalized. Always assume your existing and would-be competitors are well-financed.

“
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**REFINED EXTRACTS:
POST-PROCESSING PRODUCTION CAPABILITIES/ROI**

The “crude oil” produced may be further refined with the post-processing equipment included in the costs. Such post-processing into a more refined and desirable product, such as shatter, full-spectrum high-terpene extraction, or THC distillate, can compound the lab’s profitability.

For the model, the assumed yield loss from post-processing is 30%. Removal of impurities results in less overall weight. This will vary, but it is a conservative estimate for loss due to refinement.

The gross revenue after post-processing and refinement is increased from \$96,120 per day with crude oil to as high as \$201,840 with 99% THC distillate. Most other products fall in the range of an average increase in revenue between 20-70% with the introduction of post-processing. (See the chart on page S4.)

Depending on the cost of input material and operational experience, the entire cost of the lab can be paid within a matter of days or weeks. For larger, higher-volume extraction labs, the return on investment is equally as impressive. In any event, the return on investment is based entirely on the startup expenses, cost of input material, marketability of the end product produced and operator experience.

THE TAKEAWAY

The rapid return on investment and early break-even point of extraction labs have made this industry niche incredibly attractive to entrepreneurs and investors alike. When preparing your extraction lab business plan, keep in mind the items and cautionary notes presented in this article and you’ll be well on your way to cashing in on the very lucrative and fast-growing extraction industry.

CASE STUDY: A TYPICAL 2,000-SQUARE-FOOT LAB

This example assumes startup costs and ROI of a typical 2,000-square-foot lab utilizing Precision® Extraction equipment (with nine times the processing efficiency at half the cost of comparable CO₂ systems).

1 SECURING A PROPERTY/LEASE: The first major expense will be the cost of a building. A prefabricated steel “butler”-style building will cost approximately \$50 per square foot. Occupying an existing building, or part of a building, by lease rather than ownership, will generally cost much less and free up capital to use elsewhere in the extraction startup venture. As investment into building ownership can vary greatly, this analysis will be assumed that the building is leased rather than owned. Hence, assume \$22,500 in initial lease costs. **PLAN TO SPEND: \$22,500**

2 PLANNING PHASE/PROFESSIONAL TEAM: Once the property is secured, the planning phase will include a designer, architect, mechanical engineer, electrical engineer, equipment supplier and consultant. This can run in the range of 8-20% of the total cost of the project. Assuming the median for a 2,000-square-foot lab, a reasonable estimation of cost is \$75,000 for a professional team of experts to see the project through. **PLAN TO SPEND: \$75,000**

3 CONSTRUCTION/BUILDOUT: Once the design is complete, the next major expense is incurred through the construction of the actual lab. Generally, this can run between \$60-\$100 per square foot built to code. For budgeting purposes, it is always best to err on the side of caution. So, on the high side, you may spend \$200,000 on the buildout. **PLAN TO SPEND: \$200,000**

4 EQUIPMENT/TRAINING: Precision Extraction Solutions’ complete lab equipment and training package is as follows:

- Q1 X10 Extraction System
- Q1 Precision GC 5000 Recovery Pump
- Q1 Distillation Mach, 4” Wiped Film
- Q1 Heidolph HBX Package: Hei-Vap Industrial 20L
- Q1 Decarboxylation Vessel
- Q2 Vac Oven Elite 4.4 UL Certifications
- Q2 Vacuum Ovens: AI 4.4 Elite – 200V
- Q2 Vacuum Pumps – Edwards, NXDS10i 7.7cfm
- Professional Services: Wiped Film Evaporator Training
- Professional Services: Install/Basic Training

PLAN TO SPEND: \$375,490

5 FINAL INSPECTIONS: The last significant expenses to be incurred are final engineering inspections and final fire safety reviews. These costs are generally in the range of \$15,000 to \$25,000. So, to be conservative, **PLAN TO SPEND: \$25,000**

TOTAL COST

As provided above, the total 2,000-sq.-ft. lab cost per our example is as follows:

COST OF INITIAL LEASE: \$22,500	COST OF EQUIPMENT/TRAINING: \$375,490
COST OF PLANNING: \$75,000	
COST OF CONSTRUCTION: \$200,000	FINAL INSPECTIONS/REVIEWS: \$25,000

**TOTAL STARTUP COSTS:
\$697,990**

10 STEPS

TO STARTING AN EXTRACTION BUSINESS



MORE THAN 50 PERCENT of today's legal marijuana sales are concentrates and infused products, and extracts constitute the fastest-growing segment of the market.

With that kind of demand, you can bet that entrepreneurs, investors and cannabis businesses are flocking to get a part of the red hot market niche. However, compared to many other cannabis-based businesses, starting an extraction operation is a rather complex proposition.

Although, with the proper guidance, you can be producing extracts in record time. In this article, we will discuss the ins and outs of starting a commercial extracts lab in 10 easy-to-digest steps.

1 UNDERSTAND YOUR BUSINESS CONCEPT.

A well-thought-out business concept is vital to developing a successful extraction operation.

What is your niche? What is your product? Who is your customer? What is your material source? How much material do you intend on processing per month? These, and many other inquiries, are all important considerations

that should be addressed prior to moving forward with any planning.

According to Nick Tennant, co-founder of Precision® Extraction Solutions, "These are often the first questions we ask of new customers. I would say that eight out of 10 don't know the exact answers and need guidance; we are happy to help with that."

Your plan will dictate how

large your extraction lab will be, what kind of equipment you choose, the size and layout of the lab, from primary extraction to post processing and packaging rooms.

2 IDENTIFY THE IDEAL LOCATION OF YOUR BUSINESS.

Once you have a thorough grasp of your business plan, it's time to start looking for a legal state and municipality. Different

states have different extraction laws, licensing processes and regulations. Also, some municipalities are extraction-friendly, others are not.

Pick a locale that has reasonable access to raw material to process and is geographically convenient for properly executing your business plan.

3 PREPARE YOUR LICENSE APPLICATIONS.

Once you identify your preferred locale, you're ready to make your pitch to the local municipality for what may well be a very lucrative license. The process is usually pretty straight forward. The municipality may want to see that business plan we discussed before, so it's good to have it prepared in advance. In any event, it's good to be precise and buttoned up with the

application process.

At this stage of the process, you will have to be flexible with what your municipality is requesting. From an applicant's standpoint, it is always better to have more information so you are well prepared for any questions that might come up. This can come in the form of code standards, engineering documents and/or references. Some municipalities may not have a solid grasp of extraction regulations, and it may well be up to you to educate them.

You may consider retaining an experienced local attorney to help facilitate the licensing process.

4 FIND YOUR REAL ESTATE, CAUTIOUSLY.

The single biggest pitfall for



aspiring extraction businesses is committing to real estate before thoroughly investigating local zoning and regulations. It is absolutely essential that your property be properly zoned and you have the blessing of your target municipality before financially committing to a property. Whether leasing or buying, consider making your lease or purchase agreement contingent upon obtaining licensing.

5 BUILD YOUR TEAM.

You will need a diverse team of experts to guide you in making your vision a reality. This includes a designer, an architect, multiple engineers, a certified extraction equipment manufacturer and a project manager.

This is not a light decision to make. The extraction indus-

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50
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of today's legal marijuana sales are concentrates and infused products. Extracts constitute the fastest-growing segment of the marketplace.

try is so new and specialized that most of these professionals, including architects and engineers, have no clue about the vital intricacies of building a lab that is not only compliant, but also meets the unique needs of your business.

Choosing the wrong team, or a wrong team member, can be very costly, in terms of both time and money. Even a two-month delay can mean millions in lost revenue and strategic advantage. A lab that has poor

work flow or missing key ingredients can be disastrous to your ongoing business.

This is where a professional extraction services company comes into play. Precision® Extraction Solutions is the only one-stop-shop for all key team members, streamlining an otherwise confusing process.

6 PREPARE FOR CONSTRUCTION, HIRE A CONTRACTOR.

By the time you are ready to build,

you should have a full list of equipment and production processes laid out. It is your team's job to make this vision into a final construction print. Once you have a set of stamped architectural drawings, you will be ready to hire a contractor, obtain final municipal approval and start construction.

With the solid guidance from your professional team, finding a contractor should be one of the easier parts of the process.

7 ORDER YOUR EQUIPMENT.

With the assistance of your team, you should already know all the equipment to purchase for your lab. During the lab construction, you should start ordering your equipment. Work with your equipment manufacturer to target lead times, delivery and installation times.

8 INSTALLATION, INSPECTION AND FIELD VERIFICATION.

Prior to final municipal inspections, your equipment will need to be installed. Upon installation, a state-licensed engineer qualified to provide a field verification of your equipment and the installation will make a personal inspection. This is a usual municipal requirement, and your equipment manufacturer can arrange for the field verification.

9 FINAL INSPECTIONS.

Commonly referred to as Authority Having Jurisdiction (AHJ) and depending on your locality, the AHJ may be the local fire marshal or another city inspector. Your AHJ will use your engineer's field verification of all extraction equipment installations to certify that your lab is safe and regulatory compliant. The AHJ relies on such field verification, as well as its own

inspection, for the final sign-off on your lab.

10 TRAINING AND WORKFLOW.

You're now ready to go. Training of your extraction staff on basic and advanced extraction methods, workflow, efficiencies and how to produce the highest-quality extract destined for your unique product is of paramount importance. An inefficient, unknowledgeable or sloppy operator can cost you a lot of money. It's best to get things correct, right out of the gate.

Extract and extract-infused products are anticipated to ultimately be 90% of all marijuana sales. If you're ready to take the plunge, follow these steps and you'll be on the way to a lucrative future in the cannabis extraction business.

Precision extraction equipment utilizes hydrocarbon solvents, the most efficient method to commercially extract essential oil from hemp and cannabis plants, including CBD, THC and terpene compounds, for medical and other applications. Hydrocarbon extraction is a U.S. Food and Drug Administration (FDA) approved method of extracting botanical oils.

Our extraction systems are certified for use in all regulated jurisdictions for safe, effective operation and the production of superior concentrates. More concentrate awards have been made with Precision than any other brand.

Precision extraction systems are 3A food processing compliant, and all our extraction processing equipment is manufactured with the end consumer in mind, built to the highest standards in the industry, with sanitary, food-grade stainless steel. Insist on safe, quality oil and extracts ... made with Precision®.



Q&A: MUNICIPAL GUIDE TO THE CANNABIS EXTRACTION INDUSTRY

WHY SHOULD YOUR MUNICIPALITY WELCOME EXTRACTION BUSINESSES?

The fast-paced extraction industry is a perfect fit for cities and townships interested in creating jobs and generating significant tax revenue at the local level.

1. JOBS: The average extraction/manufacturing facility employs 30-50 full-time workers. With generous licensing, a municipality may easily add hundreds or thousands of jobs to its local employment rosters, thereby contributing to a robust local economy.

2. INVESTMENT: The general cost to build a commercial extraction and manufacturing facility ranges between \$500,000 and \$10 million, prospectively generating tens, if not, hundreds of millions of dollars in local investment.



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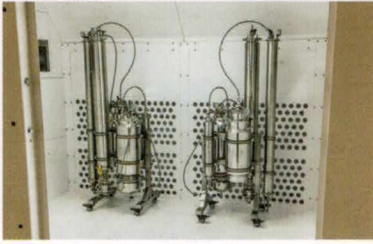
3. APPLICATION, LICENSING AND OTHER FEES:

- Initial Application Fee: \$5,000–\$7,500
- License Fee Upon Approval: \$5,000–\$7,500
- Building Permit Fees: % of construction costs
- Annual License Renewal Fee: \$5,000–\$7,500

4. TAX REVENUE: Generally, state legislation allows municipalities to tax cannabis-based businesses at their own discretion subject to certain caps. Gross annual revenue for a single extraction business range as follows:

- Small: \$1 million–\$5 million
- Medium: \$5 million–\$10 million
- Large: \$10 million–\$30 million

It should be noted that well-operated extraction businesses are also currently experiencing a 30-40% annual growth rate. Typical municipal tax rates range from 2-5%.



EXP1 TURN-KEY WALK-IN ENCLOSURE

With the EXP1 Turn-Key Walk-In Enclosure, your Class 1, Division 1 Room will be set up with ease and speed. The EXP1 enclosure can be set up in less than a day. The EXP1 can house two X10 extraction systems, cutting down on setup costs and making your extraction lab the most efficient in the industry. The EXP1 enclosure

is engineer peer-reviewed, stamped and certified for use in all regulated jurisdictions.

- 10' x 13' overall foot print
- OSHA workplace safety standards conforming
- Compliant in all regulated jurisdictions

HOW FAST CAN YOUR MUNICIPALITY ENTER THE EXTRACTION BUSINESS?

Extraction-friendly municipalities have seen a surge in license applications. Generally, 30-100 facilities can be licensed in a three-year period.

METHODS OF COMMERCIAL EXTRACTION/SAFETY CONCERNS

There are three main commercial extraction methods: Light Hydrocarbon, CO₂ Supercritical and Ethanol extraction.

Light hydrocarbon, which utilizes butane, propane or a mix of the two, is by far the most efficient, cost-effective means of commercial extraction. The light hydrocarbon method provides for nine times faster processing times (at half the cost of CO₂ equipment). Ethanol assists in the further refinement of raw cannabis oil and may be a supplementary extraction method to light hydrocarbon.

There are safety concerns with every method of extraction. Light hydrocarbon and ethanol extraction utilize volatile solvents and require the use of fumigated hoods and spark proof environments (i.e., Class 1, Division 1 Rooms). Compare that to CO₂ extractors, which often require pressure in excess of 1,500 PSI and certain systems capable of running at 8,700 PSI.

In addition to the above, operators must be well-trained and certified by the manufacturer of the equipment used in the extraction process. All equipment must meet established safety standards, including ASME certification. With proper regulation and compliance, extraction operations are extremely safe.

No matter what method of extraction is used, or a combination of methods, regulation isn't that difficult. Our model draft ordinances are inclusive of all commercial extraction methods.

HOW PRECISION CAN HELP

Precision® Extractions Solutions works with municipalities in all regulated jurisdictions in the development of ordinances and regulations for the proper governance of extraction labs.

Once the municipality issues extraction licenses, we work closely with the new businesses and established governing authorities in site planning, lab design, code compliance, factory acceptance training and third-party engineer inspections.

From concept to completion, we work to make the process as smooth as possible while maintaining the highest safety standards in the industry.

NEXT STEPS: WHERE TO GO FROM HERE

If you're interested in learning more about opportunities in the extraction industry for your municipality, and also obtaining a state-specific draft ordinance with model regulations, please do not hesitate to reach out to us directly. We're here to assist you.



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HOW SHOULD YOUR MUNICIPALITY REGULATE EXTRACTION BUSINESSES?

Regulating extraction businesses has become standardized over time, with specific guidance from a variety of sources to ensure safe and regulatory compliant operations.



RIGHT TO REGULATE/OVERSIGHT

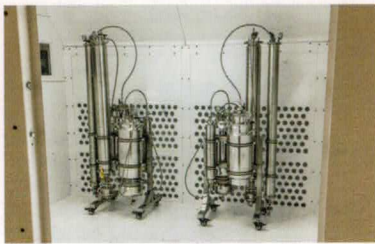
Per state legislation via local ordinance, your municipality has the right and duty to administer the zoning, licensing, inspection and compliance of extraction businesses—providing your municipality ultimate control of your burgeoning industry. Your municipality has the right to adopt an oversight board, perform random inspections and ensure licensee compliance per established ordinance.

ORDINANCE DRAFTING

Local ordinances have been tested in numerous municipalities throughout the legalized cannabis states. To make the process easier for your municipality, we have compiled state-specific ordinances from other municipalities and model regulations that meet the highest safety standards in the industry, available upon request.

USE OF THIRD PARTIES

Via a well-crafted municipal ordinance, your municipality need not hire a local, industry-specific inspector. Third party, pre-approved, qualified engineering firms may be utilized on a case-by-case basis, with the costs borne by the licensee via inspection and licensing fees.



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There are safety concerns with every method of extraction. Light hydrocarbon and ethanol extraction utilize volatile solvents and require the use of fumigated hoods and spark proof environments (i.e., Class 1, Division 1 Rooms). Compare that to CO₂ extractors, which often require pressure in excess of 1,500 PSI and certain systems capable of running at 8,700 PSI.

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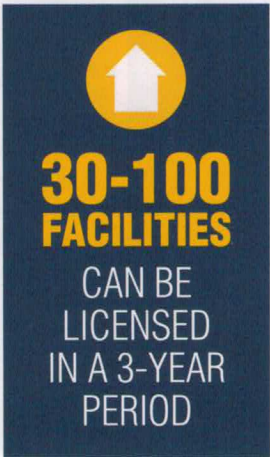
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Regulating extraction businesses has become standardized over time, with specific guidance from a variety of sources to ensure safe and regulatory compliant operations.



RIGHT TO REGULATE/OVERSIGHT

Per state legislation via local ordinance, your municipality has the right and duty to administer the zoning, licensing, inspection and compliance of extraction businesses—providing your municipality ultimate control of your burgeoning industry. Your municipality has the right to adopt an oversight board, perform random inspections and ensure licensee compliance per established ordinance.

ORDINANCE DRAFTING

Local ordinances have been tested in numerous municipalities throughout the legalized cannabis states. To make the process easier for your municipality, we have compiled state-specific ordinances from other municipalities and model regulations that meet the highest safety standards in the industry, available upon request.

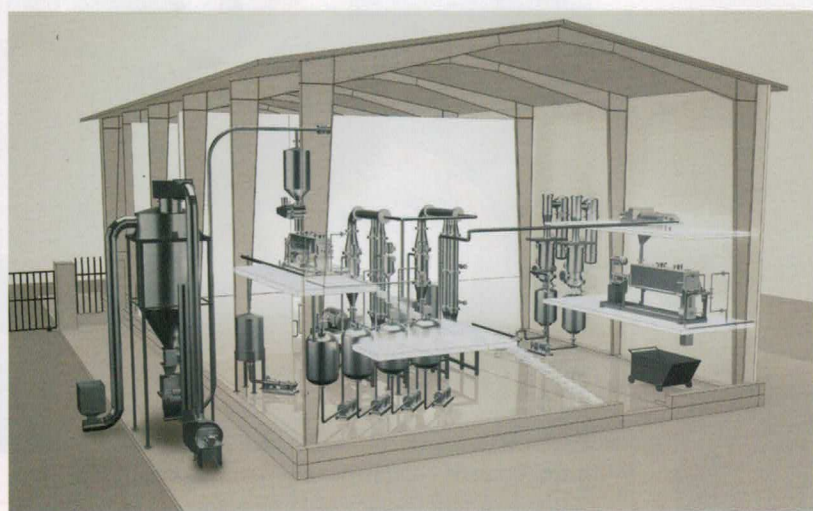
USE OF THIRD PARTIES

Via a well-crafted municipal ordinance, your municipality need not hire a local, industry-specific inspector. Third party, pre-approved, qualified engineering firms may be utilized on a case-by-case basis, with the costs borne by the licensee via inspection and licensing fees.

INDUSTRIAL PROCESSING IN THE CANNABIS INDUSTRY

As the cannabis industry continues to mature, producers and processors are struggling to meet an ever-growing demand for high-quality extracts while maximizing internal efficiencies.

Existing commercial-batch processing (a method which involves manually loading and unloading the extraction equipment) has processing limitations of approximately 700 kilograms of raw cannabis per day. Scaling production up means adding equipment and personnel on a one-for-one basis in order to increase processing volumes. While this may be a semi-effective short-term solution, in the long-term, it creates increased and unnecessary labor cost, equipment maintenance and a largely inefficient process overall.



Hence, a need has developed for industrial processing capacities with efficient, continuous feed extraction and post-processing technologies.

While some continuous feed technologies do exist today, none are specifically tailored for cannabis input to THC/CBD distillate.

Enter the 3000 KPD.

Precision® Extraction Solutions' latest development is the 3000 KPD, the industrial solution for high-volume cannabis extraction processing. Utilizing ethanol as a solvent, the 3000 KPD processes up to 3,000 kilograms (more than 6,600 lbs.) of raw cannabis material per day. It is a true continuous feed system—meaning raw cannabis is placed into a hopper on one end and it comes out as THC or CBD distillate on the other.

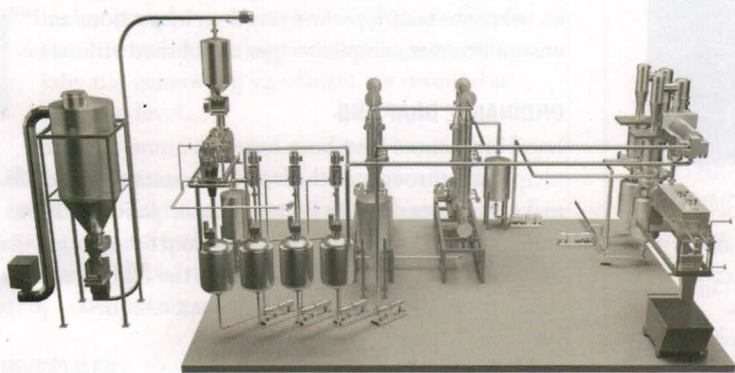
Everything on the 3000 KPD is automated and continuous, which contributes to its massive through-put capabilities. The core system requires only four technicians to operate the machinery.

Over a year in the making, the Precision engineering team and its third-party engineering partners designed the 3000 KPD, a revolutionary technology in the cannabis industry. The patent-pending systems contained within the 3000 KPD, such as the counter-current ethanol-based extraction and proprietary micro-filtration, are scaled technologies that exclusively exist within the 3000 KPD.

The 3000 KPD was also designed with scalability in mind. The same technologies may be incorporated into larger systems of almost any size. Hence, the big brother of the 3000 KPD is naturally the 6000 KPD, offering 6,000 kilograms (more than 13,000 lbs.) of raw cannabis processing per day.

Precision's engineering team specifically designed the 3000 KPD with large-scale industrial processors in mind. Overcoming the physical and technological obstacles of scaled production is what the 3000 KPD does best.

The 3000 KPD is the solution for industrial processors and the next step of evolution in the extraction industry.



The X10, affectionately referred to as "The Judge," is the company's flagship extraction system. The X10 processes more than 10 lbs. of material per run with an average 55-minute recovery time, making it ideal for mid-level commercial production and craft applications. With patent-pending jacketed vessels, the X10 comes equipped with on-demand heating and chilling, providing the system with maximum control and ease of operation.



X10
THE JUDGE



GC 5000 GAS COMPRESSOR

Cut your recovery time with the GC 5000 Gas Compressor, the most powerful recovery solution for your hydrocarbon extractor. With oil-less pistons and PTFE seals, the GC 5000 is engineer peer-reviewed and compliant in all regulated jurisdictions. The GC 5000 is ATEX, UL and CSA certified for use in Class 1, Division 1 environments. When the X10 is paired with a GC 5000, it processes 5 lbs. of material in less than 30 minutes.



Precision® Distillation with the CDU 1000!

With the CDU 1000, you're working with the pinnacle of cannabis distillation equipment. The automated capabilities, continuous operation and unique features of the CDU 1000 exponentially increase the efficiency of the distillation process.

Crude oil is fed into the distillation column via an automatic dosing pump. The dosing pump is fully programmable based on the operator's desired throughput. The crude oil is pumped into a column, where it is evenly distributed over the evaporative surface by several PTFE "rollers." This thin film technique allows higher efficiency and lower temperatures to be utilized during the distillation process.

The CDU 1000 maximizes the efficiency of your lab with no batch-size limitations and no flask swaps. Continuous operation with minimal downtime.

- No batch-size limitations
- No swapping flasks
- Continuous operation
- Compliant in all regulated jurisdictions
- Installation and training included



PX40
THE EXECUTIONER

The PX40 processes up to 90 lbs. per run. It takes the finer points of our other extraction systems, and makes them bigger. The PX40 is well-suited for our large commercial producer clients.

COLUMBIA CONCENTRATES™

Inspired by Perfection

"Being in the most regulated jurisdiction in the nation, we relied on Precision heavily for buildout guidance and compliant equipment during the seed stages of our business development. With Precision's guidance, we were able to navigate all the regulatory pitfalls that new extraction business startups encounter, and saved hundreds of thousands by avoiding missteps we otherwise would've run into."

— Justin Barnhill,
Columbia Concentrates



"As one of the largest cannabis brands in the nation, we performed an extreme amount of due diligence before planning and engineering our new extraction lab facility. With over 12,000 sq. ft. to design, this was no small task. Based on their stellar reputation in the extraction community, it was a no-brainer to choose Precision for their site planning and equipment services. Precision exceeded our expectations in every respect."

— Jared Delello,
Jungle Boys



"In the early stages of our business, consistent quality and throughput of product was a constant challenge for us. About 2½ years ago we found Precision and introduced PX extraction equipment into our labs. Since then, our product base has developed a quality and consistency we can truly rely upon, and throughput increased dramatically! An amazing turnaround to say the least, thanks to Team Precision."

— Bryant Pierce, Melting Point
Extracts (MPX)



"Precision was instrumental in assisting Moxie in increasing our extraction production capacity and refining our workflow process. The Precision technical team was extremely knowledgeable and responsive, and set us on the right path in no time. And once we added the GC 5000 pump to the mix, we cut our recovery time in half. Thank you Precision!"

— Jordan Lams,
Moxie Seed & Extracts



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