



GENE POOL  
TECHNOLOGIES

INNOVATION

# BUILDING CANNABIS TECH

**Gene Pool Technologies**

At The Forefront Of Technological  
Innovation For The Cannabis Industry

# GREETINGS

Since 2018, Gene Pool Technologies has been sourcing and acquiring the most promising and widely adopted innovations in hemp and cannabis extraction. These technologies can provide your company with unparalleled efficiency, safety, and consistency of product, and—in some cases—enable the creation of new product lines that might otherwise be inaccessible.

In this brochure, you will find the most up-to-date, thorough information on the state of the patent landscape in cannabis and hemp extraction. This brochure includes information on GPT's patent portfolio, articles from each of our founders to help operators better understand the patenting activity in this space, as well as template contracts for your own licensing activity.

Please contact us at [info@genepool.io](mailto:info@genepool.io) for further details on how your company may acquire access to industry leading IP and possible financial benefits that are unique to 280E companies.

Sincerely,



The Gene Pool Technologies Team

## GENE POOL TECHNOLOGIES

a technology aggregation, development, and licensing company focused on cannabis and hemp extraction technologies and formulations, invites you to peruse its patent and patent-pending IP portfolio that's available for licensing. This booklet also details the state of patenting activity within the cannabis industry.

# CONTENTS

*	4	WHO WE ARE
*	6	PATENT PORTFOLIO
*	10	PATENTS FOR LICENSING
*	17	TRADE SECRETS FOR LICENSING
*	18	INFORMATIONAL ARTICLES
*	28	LICENSING RATES
*	30	IP HOLDERS' INFORMATION
*	APPENDIX	MUTUAL NDA



GENE POOL  
TECHNOLOGIES

[genepooltechnologies.com](http://genepooltechnologies.com)  
[info@genepool.io](mailto:info@genepool.io)

# WHO WE ARE

GENE POOL TECHNOLOGIES

SOURCING AND ACQUIRING THE MOST PROMISING AND  
WIDELY ADOPTED INNOVATIONS IN HEMP AND CANNABIS  
EXTRACTION SINCE 2018



**JAY YONAMINE**

CHIEF OPERATING OFFICER

Jay has deep expertise in machine learning and data science. Previously a project manager at RPX, a patent monetization firm, Jay is now Head of Data Science Global Patents at Google. Jay brings his patent monetization knowledge and experienced to the table as he assists Gene Pool Technologies in business development and fundraising.



**STEPHEN MARTIN**

CHIEF EXECUTIVE OFFICER

Stephen is a seasoned entrepreneur with a background in cannabis and intellectual property. Originating from a background in patent consulting, Stephen is one of the foremost experts in cannabis sustainability, taking home the prize for the Arcview 2017 pitch competition as the highest scoring presenter in the organization's history. Steve draws upon his deep understanding of the cannabis and hemp industries, as well as his business development and IP experience, in shaping and executing Gene Pool Technologies' business model.



**SAM BERGSTROM**

CHIEF IP OFFICER

Sam has extensive IP experience in European and US jurisdictions and draws upon his deep understanding of patent law and procedure when evaluating patent portfolios, negotiating licenses, and growing and managing an international patent portfolio. He has served as IP counsel for Huawei Technologies' German Research Center in Munich, KARL STORZ Imaging, and OneWeb Satellites, a joint venture between Airbus and OneWeb.

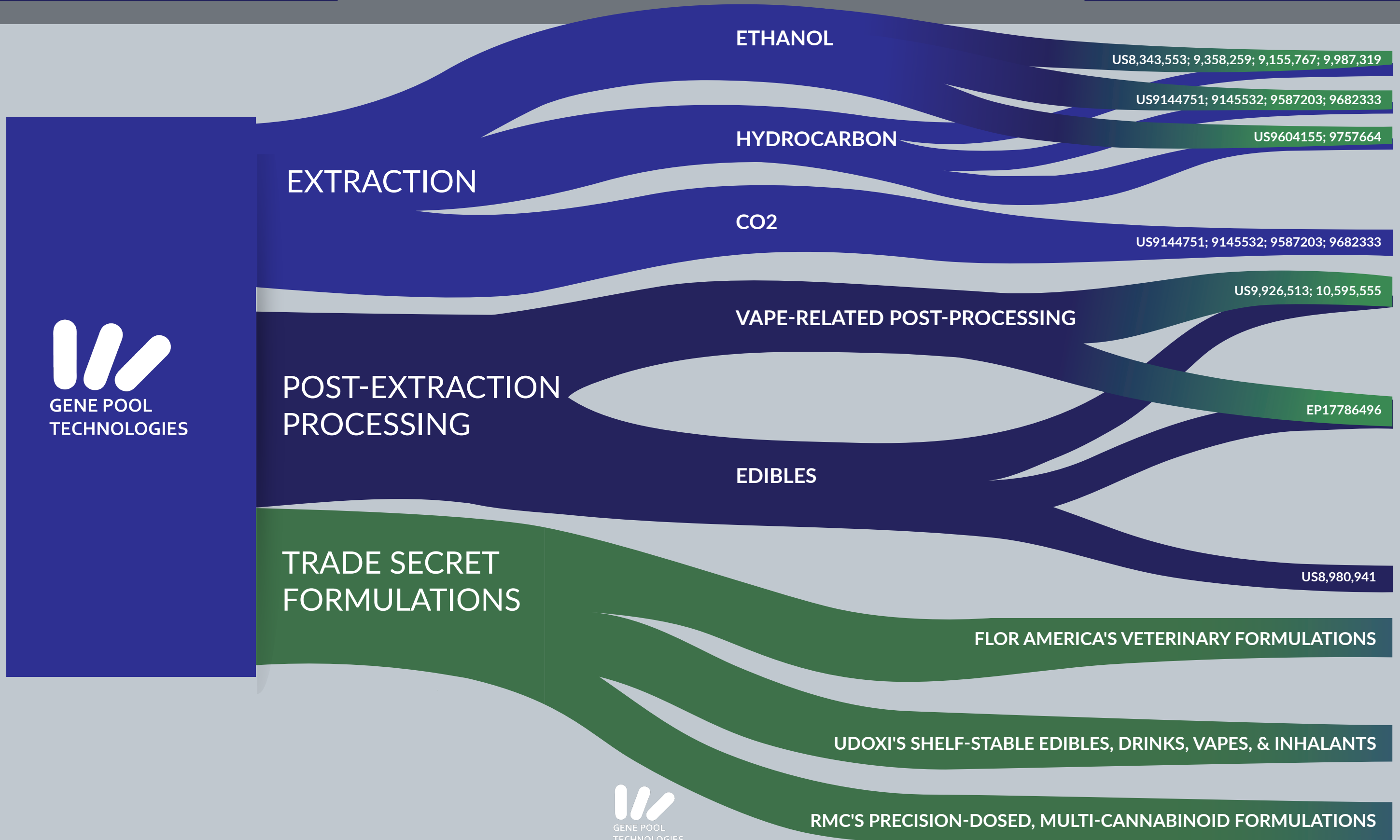


## COMMITTED TO THE SUCCESS AND ONGOING INNOVATION OF THE CANNABIS INDUSTRY

At Gene Pool Technologies, we believe in industry solutions that recognize inventors, incentivize ongoing R&D, and provide operating companies with seamless access to technologies that are critical to the long-term success of the cannabis industry.

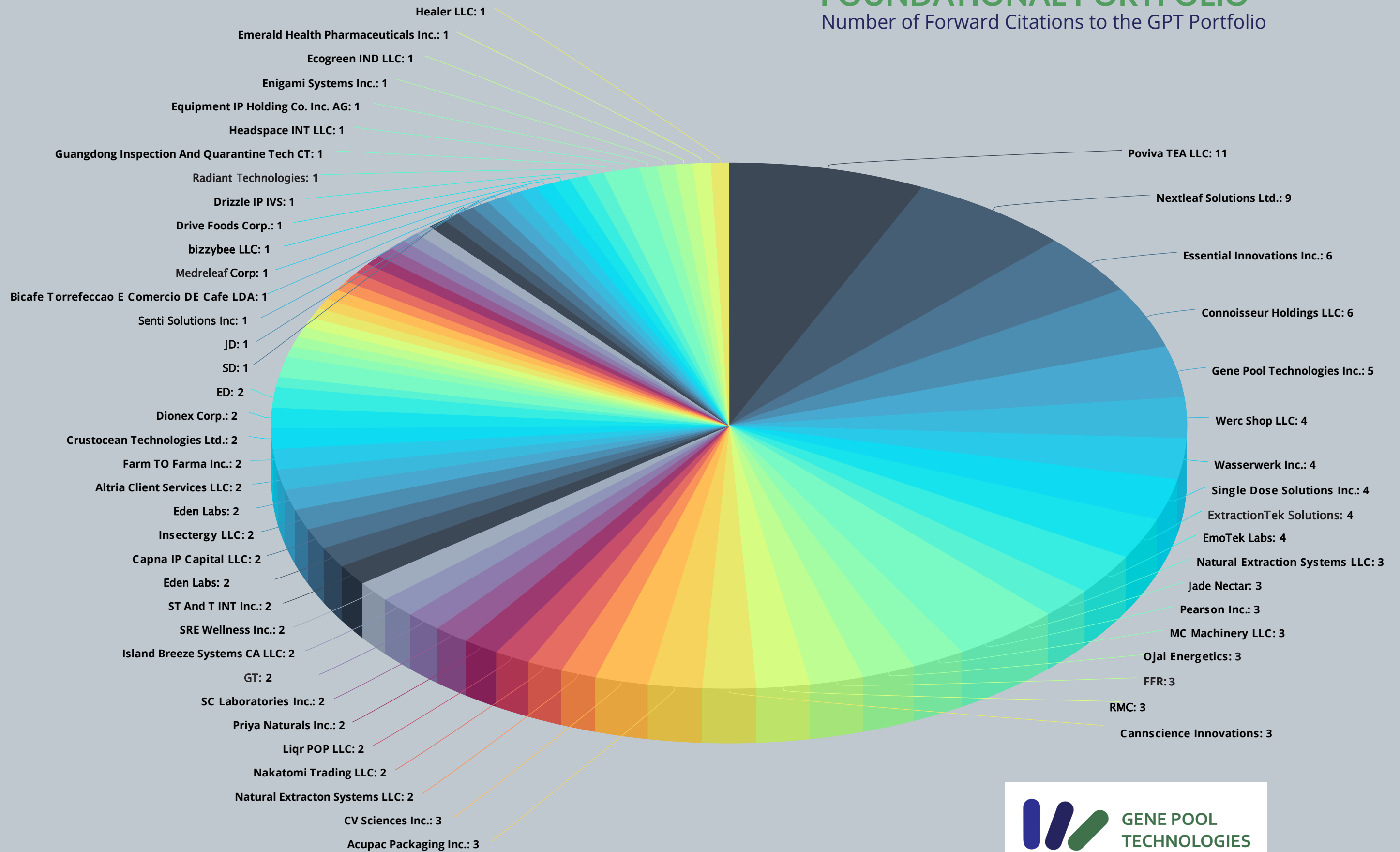
Our team brings decades of experience across cannabis and intellectual property and is deeply committed to the success of the industry and the attendant innovation that will continue to drive quality, safety, and efficiency.

# PATENT PORTFOLIO BREAKDOWN



# FOUNDATIONAL PORTFOLIO\*

Number of Forward Citations to the GPT Portfolio



PATENT CITATIONS



\*THIS CHART IS NOT A LIST OF LICENSABLE ASSETS OR GENE POOL CLIENTS

**PATENTED & PATENT-PENDING  
EXTRACTION TECHNOLOGY**





# TAMISIUM EXTRACTORS' ENERGY-EFFICIENT, "PUMP-OPTIONAL", MULTI-SOLVENT EXTRACTION

# 01

Invented in 2009 by Colorado native David McGhee, Tamisium's patented techniques for recovering and thermally driving solvent and solvent blends have become widely adopted in hydrocarbon extraction. Tamisium's technologies allow for pump-optional movement of solvent and mixtures thereof throughout closed-loop systems that range from table-top units to a ton-a-day (or more) extraction facilities, as shown below. David's innovations are proven to be both a safe and efficient alternative to pump-operated systems, particularly with hydrocarbon solvents such as butane, propane, and mixtures thereof.

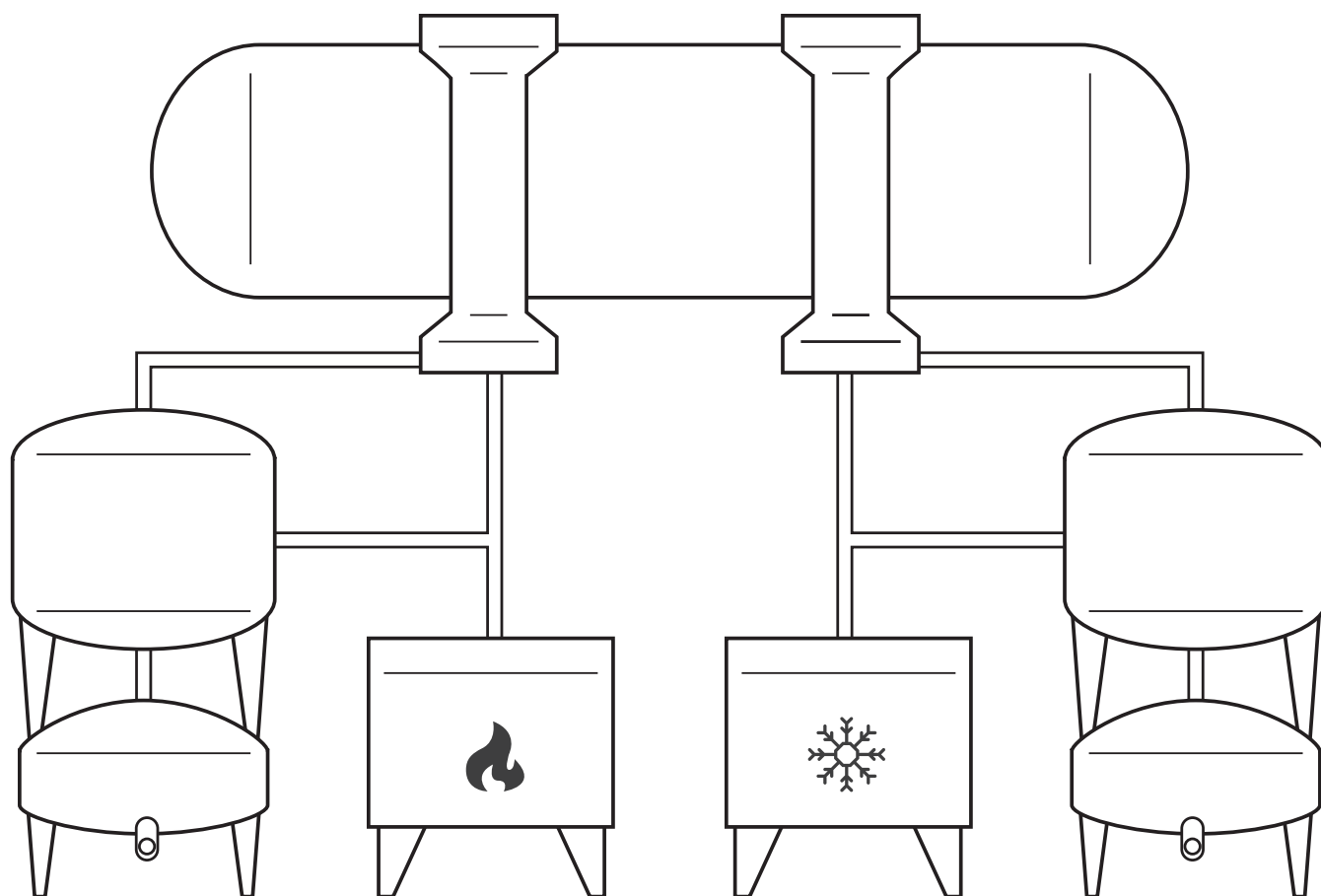
US Patent Nos.: 9604155; 9757664;  
10,835,838

Application Serial Nos.: 16/946,203;  
15/929,263; 15/666,396; 17/008,988;  
16/948,815

Sectors: Hydrocarbon Extraction, with  
Co2 and Ethanol applications

## TAMISIUM EXTRACTORS

Energy-Efficient, "Pump-Optional", Multi-Solvent Extraction



**PATENTED & PATENT-PENDING  
EXTRACTION TECHNOLOGY**

# UDOXI SCIENTIFIC'S MULTI-CANISTER, SOLVENT-CHARGING EXTRACTION

02

Since 2013, Oregon hemp pioneers Udoxi Scientific have been innovating multi-column extraction rig designs and solvent-charging sub-systems to allow for proven scaling and throughput capabilities in closed-loop extraction. Udoxi's designs and methodologies provide solvents under precise temperature and pressure conditions at each step of the extraction process. The final solvent purging step can happen in a tank connected to the closed loop, thus dispensing with the need of vacuum ovens. The portfolio includes further technologies that are increasingly being adopted by the extraction industry.

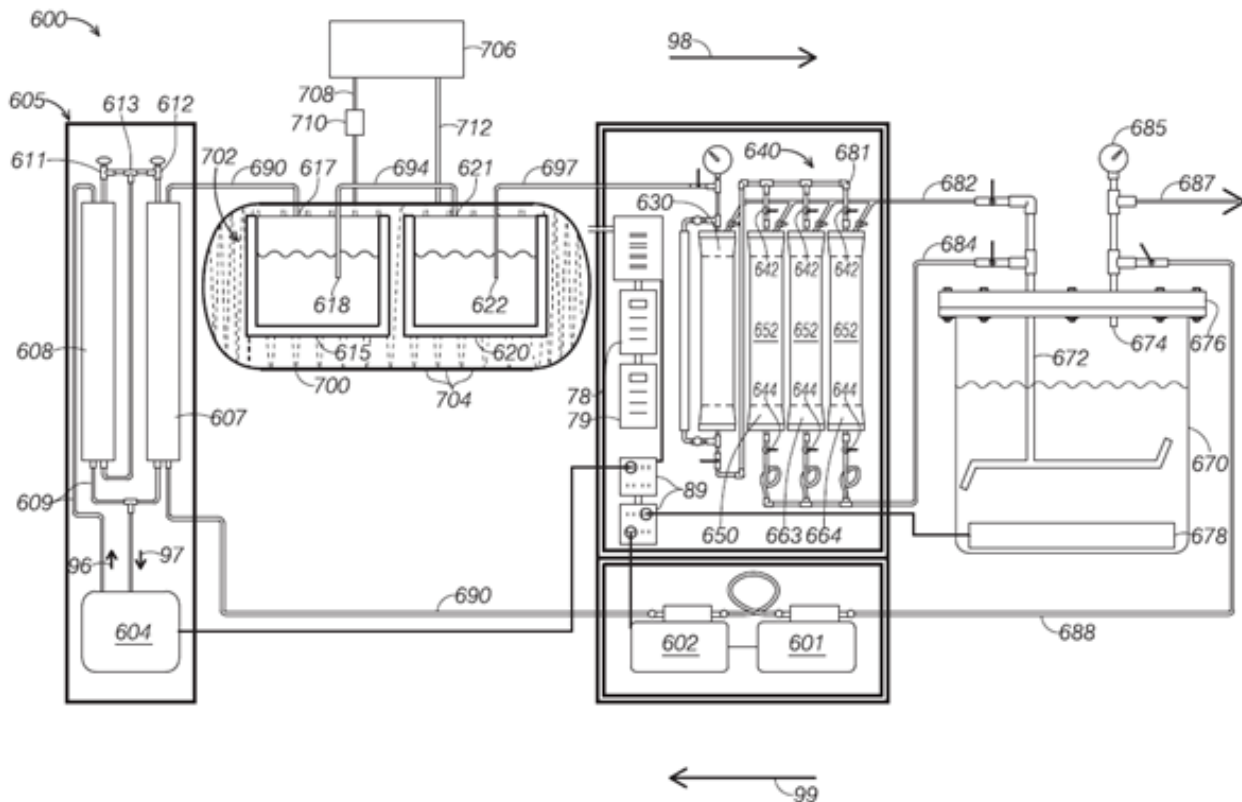
US Patents Nos.: 9144751; 9145532;  
9587203; 9682333

Application Serial Nos.: 16/726,057;  
16/548,663; 16/947,979

Sectors: Hydrocarbon, Ethanol, and  
Co2 Extraction

## UDOXI SCIENTIFIC

### Multi-Canister, Solvent-Charging Extraction



## RMC'S AUTOMATED, MOBILE EXTRACTION SYSTEMS AND WIPED-FILM SOLVENT RECYCLING

03

RMC's IP portfolio stems from the inventors' wish to make clean, effective cannabis-based medicine for their relatives. The patent assets include automation of extraction systems according to various parameters such as level sensor readings in various tanks and concentration of a particular cannabinoid in an eluate, with proven adoption by mobile, ethanol, and hydrocarbon extraction systems. Innovative extraction systems include, among other things, a wiped-film evaporator utilized as the primary/initial solvent separator.

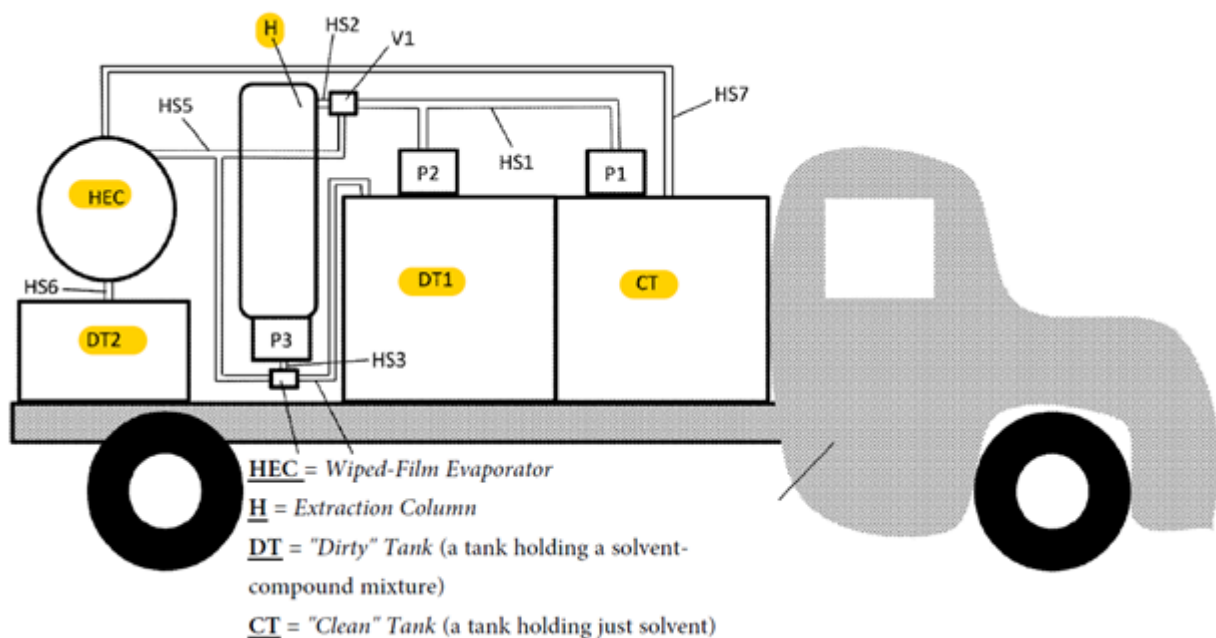
US Patent Nos.: 8,343,553; 9,358,259;  
9,155,767; 9,987,319; 10,849,949

Application Serial Nos.: 15/173,662;  
and further pending assets

Sectors: Ethanol, Hydrocarbon, Mobile  
Extraction, Extraction Automation

RMC

### AUTOMATED, MOBILE EXTRACTION SYSTEMS AND WIPED-FILM SOLVENT RECYCLING



**PATENTED & PATENT-PENDING  
POST-EXTRACTION TECHNOLOGY**



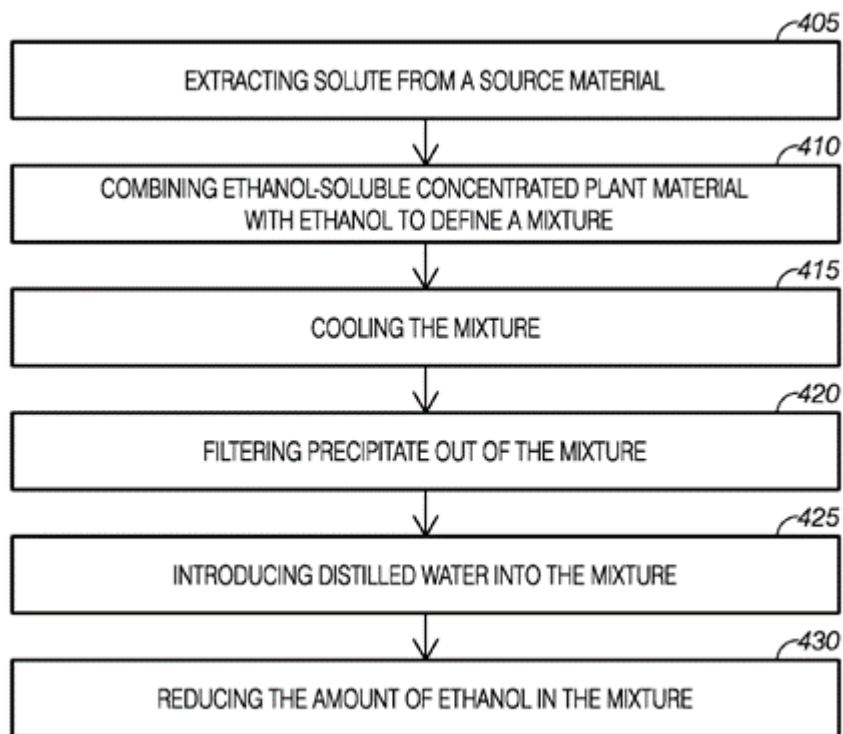
Inventive methods include introducing a liquid solvent (e.g., ethanol, terpenes) for creating a concentrated plant material solution of particular viscosities, among other qualities.

Methods include mixing extracted concentrated plant material (in solution with a plant-material solvent) with ethanol and reducing the amount of ethanol in the mixture until the mixture is primarily water and concentrated plant extract. In another variation, an "alcohol-containing concentrated plant material", a liquid, and a solvent are mixed and heated above the boiling point of ethanol and below the boiling point of the solvent to reduce an amount of alcohol in the concentrated plant material until the mixture has a low enough viscosity for a volatile compound to flow and evaporate at a temperature for inhalation via an electronic cigarette or an electronic vaporizer.

US Patent Nos.: 9,926,513; 10,595,555

Application Serial No.: 16/806,692

Sectors: All Extraction Types, Formulations



UDOXI SCIENTIFIC'S POST-EXTRACTION-PROCESSING METHODOLOGIES

## RMC'S CONTROLLED DECARBOXYLATION

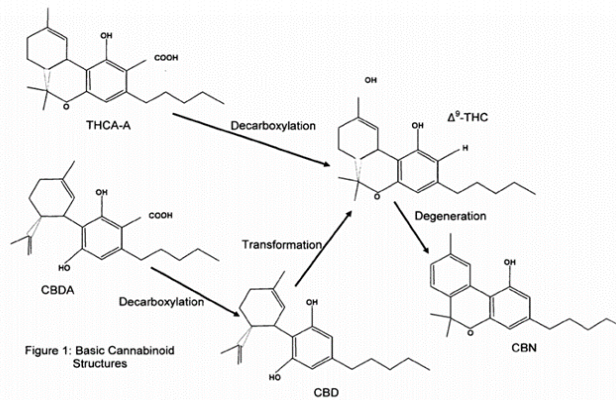
02

This patent claims a process for controlling the degree of decarboxylation of acidic cannabinoids, so that a product (e.g., an edible) contains a standard, known amount of THC.

Ground, dried raw cannabis is mixed with a cofactor of vitamin B6 and a solvent to form a mixture. The amount of the cofactor vitamin B6 dictates the degree of decarboxylation of acidic cannabinoids in the mixture.

US Patent No.: 8,980,941

Sector: Post-processing



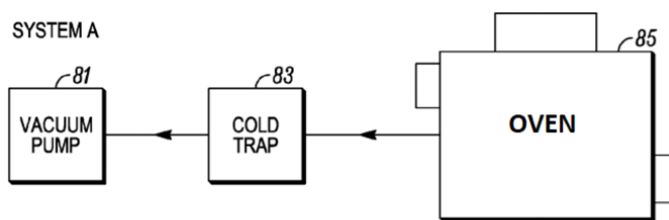
## TRICHOME TECHNOLOGIES' COLD DISTILLATION

03

Ken Morrow invented "room-temperature" distillation, which volatilizes thermally sensitive terpenes under vacuum and captures the volatilized terpenes with a single cold trap (numeral 83 below) or a series of cold traps that are set at different temperatures. The cold trap apparatus can have at least one sealable chamber under vacuum and is connected to a condenser for collecting terpenes, among other possible volatiles (e.g., flavonoids and cannabinoids).

European Patent Application No.: 17786496

Sector: Solventless Distillation (or Extraction)



TRICHOME TECHNOLOGIES' COLD DISTILLATION

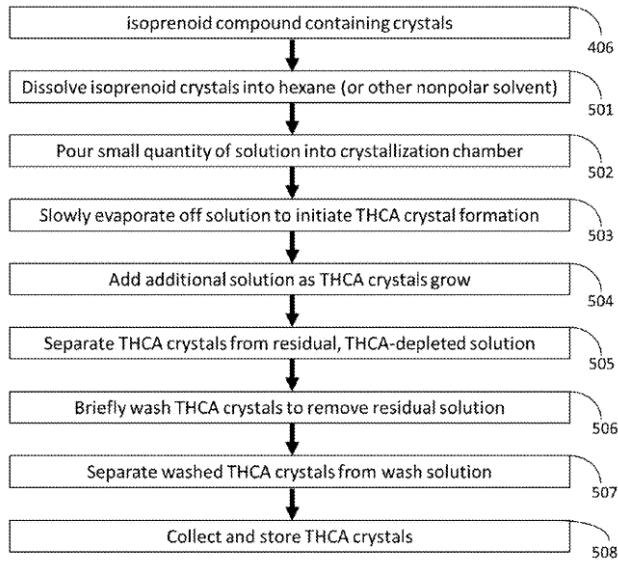
# GUILD EXTRACTS' PURIFICATION OF NON-PSYCHOACTIVE ISOPRENOID COMPOUNDS

04

Brian Robertson of Guild Extracts invented accelerating THCA crystal production and terpene separation via a centrifuge or other crystallization chamber.

US Patent No.: 10,323,014

Sector: Post-Processing



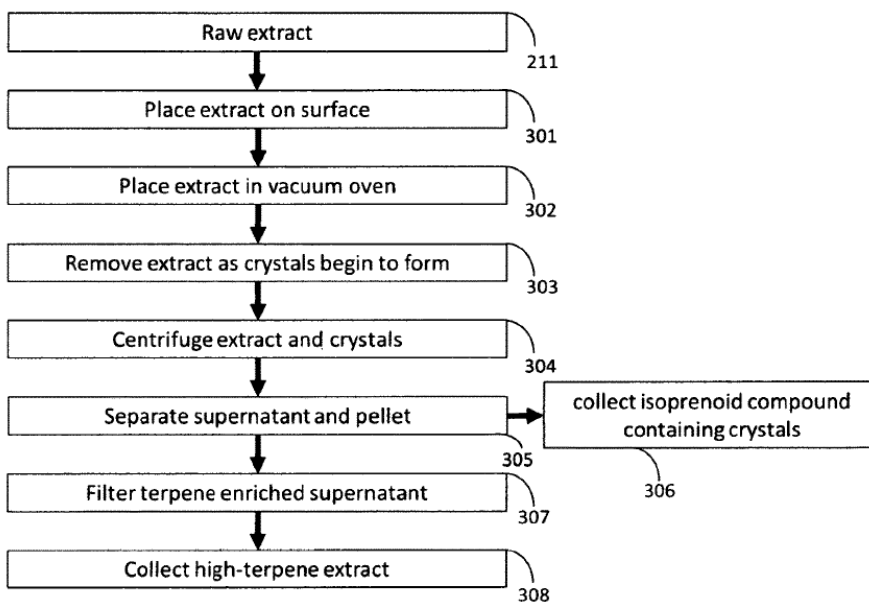
# GUILD EXTRACTS' EXTRACTION AND ISOLATION OF ISOPRENOID AND TERPENE COMPOUNDS

05

Brian Robertson of Guild Extracts invented accelerating THCA crystal production and terpene separation via a centrifuge or other crystallization chamber.

US Patent No.: 10,967,018

Sector: Post-Processing

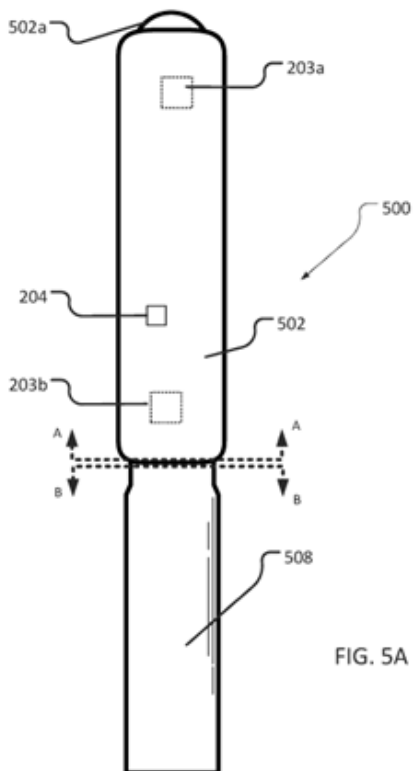


## BERGSTROM INNOVATIONS' PROTECTIVE VAPE PEN

The '843 patent covers vape pens that protect a cartridge such as AVD's Alpha Pen, shown below.

US Patent No: 11,330,843

Sector: Personal Vaporizers





---

# TRADE SECRETS

---

DUE TO THE NATURE OF TRADE SECRETS, FURTHER DETAILS CAN ONLY BE SHARED AFTER SIGNING AN NDA



## Flor America's Arthritis-For-Animals Treatment Formulations

**IP:** Trade Secret, patent-pending

**Sector:** Animal Care

Concentrated, liquid formulations.



## RMC's Formulations

**IP:** Trade Secret

**Sector:** Consumer Packaged Goods

Precision-dosed, multi-cannabinoid formulations with balanced, consistent terpenoid content. Provide the same ingestible product year-after-year, even while using different strains as a source material.



## Udoxi Scientific's Formulations

**IP:** Trade Secret

**Sector:** Consumer-Packaged Goods, among others

Shelf-stable, neutral tasting, and consistent, predictable off-set and on-set time formulations with cannabinoids, among other formulations available for license in vape, edible, nebulized, beverage, or other forms.



## Udoxi Scientific's Flower Curing SOPs

**IP:** Trade Secret

**Sector:** Processing

Procedures for curing flower for different use cases (e.g., pre-roll vs. high-end extraction products).

# ENFORCING “OUTLAW” PATENTS & CONTRACTS IN FEDERAL COURTS

SAM BERGSTROM, CIPO

## PATENT RIGHTS ARE NOT AFFECTED BY A FEDERAL OR STATE BAN ON THE USE OF THE PATENTED INVENTION.

As cannabis cases increasingly work their way through federal courts, defendants often invoke illegality as a defense to enforcing a contract or applying a federal regulation.<sup>1</sup> However, even if a contract concerns a “plant-touching” business, which directly grows or processes cannabis, federal courts are generally enforcing contractual obligations. The main exception is when said obligations directly violate federal law, such as obligating cannabis cultivation, processing, or a purchase of a plant-touching company. Federal courts will likely not enforce such “specific performance” contracts until federal legalization, but most other contractual obligations and regulations seem to be fair game and enforceable.

Similarly, courts have consistently held that patents with illegal applications are nonetheless enforceable. In **Whistler Corp. v. Autotronics, Inc.**, the court held that a radar signal detector was patentable even though the most practical use of the device was to circumvent law enforcement: “[u]nless and until detectors are banned outright, or Congress acts to withdraw patent protection for them, radar detector patentees are entitled to the protection of the patent laws.”

Looking at **Whistler’s** reference to an “outright” ban, **patent rights are not affected by a federal or state ban on the use of the patented subject matter, particularly when the subject matter (e.g., extraction equipment) of the claimed invention is not banned.**<sup>2</sup>

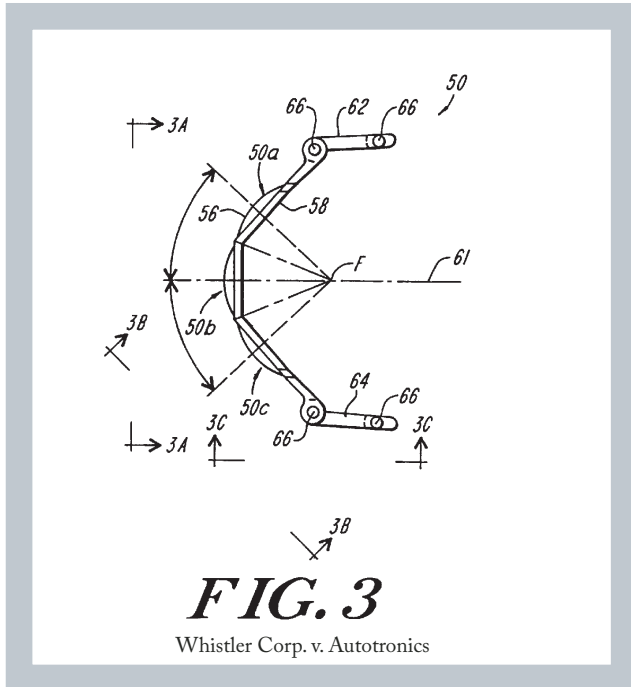
This holds true, it appears, even if the invention could only be used for illegal purposes under federal law as the only practical use of the radar detector was to circumvent the law, and the underlying patent rights were nevertheless held enforceable.<sup>3</sup>

---

<sup>1</sup> *Federal bankruptcy protection has not been extended to cannabis companies. It may be possible only in the rare instances that it makes sense all “plant-touching” assets/income are removed, and thus curing the CSA violation.*

<sup>2</sup> *See Manuela Cabal Carmona, Dude, Where’s my Patent?: Illegality, Morality, and the Patentability of Marijuana, 51 VAL. U. L. REV. 651, 673–74 (2017).*

<sup>3</sup> *Id.*



Regarding cannabis-related subject matter, “ancillary technologies” such as agriculture, extraction, and delivery-device technologies are enforceable regardless of a defendant’s “plant-touching” application of the claimed subject matter.

## FEDERAL COURTS ENFORCE CONTRACTS & REGULATIONS AGAINST CANNABIS COMPANIES

In the current mix of state and federal law, Federal courts enforcing “cannabis contracts” have focused on the legal principle that “even where contracts concern illegal objects, where it is possible for a court to enforce a contract in a way that does not require illegal conduct, the court is not barred from according such relief.” **Mann v. Gullickson** (N.D. Cal. 2016).

Federal courts have thus enforced contracts seeking monetary damages, among other things, but have not granted specific performance remedies if it requires a party to engage in activity that is illegal under federal law.

For example, a Texas federal court extensively searched for case law involving the illegality defense under federal contract law and found such a defense was nuanced and requires a balancing of factors such as “the avoidance of windfalls or forfeitures, deterrence of illegal conduct, and relative moral culpability,” **Ginsburg v. ICC Holdings, LLC** (N.D. Tex. 2017). In enforcing a standard loan agreement against a cannabis company,

a leading blog states that, “Ginsberg is remarkable in that the court continued the whittling down of federal law as an invalidating presence upon state contracts involving state-legal cannabis activity, **and did so in a way that frames the decision as a culmination of established principles of contract law.**”<sup>4</sup>

Beyond enforcing contracts, courts have also held that Federal regulations apply to cannabis companies. For example, the Tenth Circuit Court of Appeals held that the Fair Labor Standards Act applied to the defendant, Helix, even if it provides security to cannabis businesses. It had failed to pay its employee overtime, as required by the FLSA.

Helix moved to dismiss the claim, arguing that its employee was not entitled to protection under the FLSA because cannabis is illegal under the CSA. The court disagreed, holding the FLSA indeed applies to cannabis businesses: “employers are not excused from complying with federal laws just because their business practices are federally prohibited.” The court further noted that its holding was consistent with that of **Greenwood v. Green Leaf Lab LLC** (D. Or. July 13, 2017), which addressed precisely the same issue.

Until federal legalization renders the entire issue moot, Gene Pool welcomes the robust development of federal case law around plant-touching businesses. Further, plant-touching contracts are uncontroversial in State courts, which have legislative guidance to adjudicate cannabis controversies, including general contracting rights in Colorado<sup>5</sup> and “bankruptcy-like” regulations in Oregon<sup>6</sup> and Washington.<sup>7</sup>

4 <https://www.cannalawblog.com/commercial-cannabis-contracts-case-law-update-federal-courts-continue-to-find-a-balance/> (emphasis added)

5 When Colorado passed Amendment 64 for recreational marijuana, it also passed C.R.S. § 13-22-601, which states that, “[i]t is the public policy of the state of Colorado that a contract is not void or voidable as against public policy if it pertains to lawful [cannabis-related] activities...”

6 <https://www.cannalawblog.com/no-bankruptcy-no-problem-receivership-and-cannabis/> (“In Oregon, OAR 845-025-1260 provides “Standards for Authority to Operate a Licensed Business as a Trustee, a Receiver, a Personal Representative or a Secured Party.”)

7 *Id.* (“RCW 7.60.010 et seq. provides that a Washington state court may appoint a receiver over a marijuana business...”.)

# NOTABLE CANNABIS INDUSTRY PATENT ENFORCEMENT ACTIONS 2019 - 2020

STEPHEN MARTIN, CEO

---

It should come as no surprise to anyone in the industry that as the size and value of the cannabis market has accelerated so too have the industry's IP filing and enforcement action rates. With many US MSO's achieving billion dollar or higher market caps, and discussion increasingly turning to differentiation and the "moats" that proprietary and protected advantages can provide, we have seen significantly increased patent filing actions by US operators in the last few years. Accordingly, as more granted patent assets have entered the landscape there has been a coinciding rise in the frequency of patent assertions and challenges within the industry as well. This article will serve to outline some of 2019 and 2020's most notable patent enforcement actions.

## INSYS THERAPEUTICS' INTER PARTES REVIEW OF GW PHARMACEUTICALS' PATENTS

In 2018 pharmaceutical company and Opioid manufacturer Insys Therapeutics filed an Inter Partes Review (IPR) challenge with the Patent Trials and Appeals Board (PTAB) against Claims 1-13 of GW Pharmaceuticals' US Patent 9066920. An IPR allows for an individual or company to proactively challenge a patent in front of the USPTO, without requiring that the challenging company be accused of infringement of the challenge patent. IPRs are intended to provide individuals and companies a chance to "head off at the pass" accusations of infringement from erroneous or "trollish" patents. However, the other edge of the sword that is an IPR challenge is that once a patent's claims has survived the validity test that is an IPR, those patents are often in a much stronger position to enforce as their claims can now be considered "battle tested".

In 2019 a final decision was issued by the PTAB on the challenge to GW Pharmaceuticals' patented claims, in what can only be considered an overall win for GW a full 11 out of the 13 claims that were challenged were affirmed as valid by the PTAB. Notably the two claims from GW's patents which were found invalid were Claim 1 (the only independent Claim challenged through the IPR) and Claim 2, thereby eliminating the broadest claim in GW's patents.

Insys' challenge to GW's remaining claims largely failed due to their inability or unwillingness to affirmatively argue where in the prior art the limitations on GW's patent claims were disclosed, ultimately leading the PTAB to affirm all 11 of the remaining claims.

From an outside perspective it is hard to interpret the results of this challenge as anything other than a win for GW, even if said win did come at the cost of losing its broadest claim. GW is now in a much stronger position to enforce this patent in the future should they choose to do so.

## UNITED CANNABIS CORPORATION'S LAWSUIT AGAINST PURE HEMP COLLECTIVE

In 2018 vertically integrated hemp and cannabis company United Cannabis Corporation filed suit against hemp business Pure Hemp Collective, alleging wilful infringement of its UCC's US patent 9730911. Wilful infringement is an allegation that the party accused of patent infringement continued to make, use, or sell patented technologies in spite of being aware of the fact that their activities did qualify as patent infringement. Wilful infringement can open up a defendant to as much as triple the typical rate of patent damages, however in later filings UCC dropped its

assertion that Pure Hemp’s infringement was wilful.

The case was particularly notable for providing through omission what may be considered the final nail in the argument that cannabis specific inventions are “unpatentable”. Pure Hemp initially sought to bring a 101 challenge against UCC’s 911 patent, essentially alleging that the patent covers material that is not patentable subject matter. The Judge rejected this claim on a number of grounds, however more important than the minutiae of what his rejection did detail is what his rejection did not mention, namely that the 911 patent could be considered to cover “unpatentable” subject matter due to its relevance to the domain of a federally illegal substance. One would think if this was a legitimate argument to why cannabis inventions could not be enforced in federal court, it would have come up when the judge was examining the patent’s validity in the framework of federal law. The end result was a full court opinion denying that a cannabis specific patent was in any sense unpatentable, treating it like any other invention.



Ultimately UCC was forced to drop its case against Pure Hemp Collective after financial stresses put it into Chapter 11 bankruptcy proceedings.

AFAB Industrial, Newbridge Global Ventures, EcoXTraction, and CleanWave Labs Lawsuit Against Apothio and Apothio Bakersfield

Earlier this year several companies acting as joint Plaintiffs Industrial filed suit against Apothio and Apothio Bakersfield in alleging infringement of US patents 10011804, 9469548, 8430968, 7507014, 6627784 and 10220365.

According to court filings the case stems from a joint venture gone bad between Newbridge and

Apothio, wherein the original concept of the JV was for hemp grown by Apothio to be extracted using proprietary technologies owned by Newbridge. In order to facilitate the necessary extraction, AFAB and EcoXTraction were brought in by Newbridge.

The plaintiffs allege that Apothio received equipment owned by them and leased to Apothio on the condition that Apothio would lease the facility necessary for them to use it to perform the extraction, but that Apothio has failed to lease the necessary real estate. After the plaintiffs requested that Apothio return the equipment, Apothio allegedly refused to do so, leading the plaintiffs to file suit. This case is still in development and in its early stages, but serves as an example of how patent infringement can be used as a proxy or supplement for allegations of violation of contracts.

**LAVVAN’S \$800M “RESEARCH, COLLABORATION, AND LICENSING AGREEMENT” LAWSUIT AGAINST AMYRIS**

Earlier this year cannabinoid research company Lavvan filed suit claiming that its partner in a Research, Collaboration, and Licensing Agreement (RCL) Amyris “did not come close to holding up its end of the deal” and seeking damages accordingly.

According to the case filing the crux of Lawan’s assertion is as follows; In March 2019 Lawan and Amyris joined forces in an RCL in which Lawan provided Amyris with the cash infusion and access to the intellectual property it would need in order to manufacture and sell cannabinoid products created through cellular agriculture. In return, Amyris was bound to make good faith efforts to continue pursuing the manufacturing milestones specified



in the RCL contract, and to provide Lawan an element of control over the go-to-market and public relations around said manufacturing efforts. Lawan alleges that Amyris received its payments and intellectual property, ceased making meaningful efforts towards achieving the required milestones, and even broke contract by promising third parties that it would be bringing the products created through Lawan's IP without Lawan's consent.

Further, Lawan alleges that Amyris is infringing several patents which as part of the deal Lawan has exclusive license to. These patents are US Patents 8415136, 8603300, 8859261, 9914941, 9410214, 7172886, 7667017, 7622282, 7736882, 7915026, 8288147, 7183089, 7670825, 7129392, 8999682, 7659097, 9200296, 10106822, 9765363, and 9670518. Many of these patents are owned by Amyris, but exclusively licensed and controlled by Lawan (even in respect to Amyris' freedom to operate, according to court filings). As per Lawan's initial filing;

**“LAVVAN HAS STANDING TO SUE FOR PATENT INFRINGEMENT UNDER FEDERAL PATENT LAW, BECAUSE IT IS AN EXCLUSIVE LICENSEE AND THE PATHWAY PATENTS AND FERMENTATION PATENTS AT ISSUE ARE OWNED BY AMYRIS. PROVIDING LAVVAN STANDING TO SUE IN ITS OWN NAME IS THUS NECESSARY TO PREVENT AN ABSOLUTE FAILURE OF JUSTICE. WITH RESPECT TO THE ADDITIONAL PATHWAY PATENTS, LAVVAN INTENDS TO RELY ON DISCOVERY TO ESTABLISH THAT AMYRIS'S INTERESTS IN THOSE PATENTS ENABLED AMYRIS TO PROVIDE LAVVAN WITH AN EXCLUSIVE LICENSE.”**

# PATENT STRATEGIES ARE MISSION CRITICAL FOR CANNABIS OPERATORS

JAY YONAMINE, COO

## CANNABIS OPERATORS SHOULD DEVELOP PATENT STRATEGIES NOW

ORIGINALLY PUBLISHED IN *NEW CANNABIS VENTURES*

Patents are mission critical to virtually all industries, and especially so during their early stages of growth. From glass to golf balls to sweeteners to smartphones and everything in between, the development and enforcement of patented technology is a core element not only of business operations but also of industrial growth and maturity. Plus, patents are big business: corporations spend an estimated \$40B a year on filing and maintaining their patent portfolios alone, with hundreds of billions more spent on R&D used to generate the innovations, and billions on patent litigation and licensing fees. For example, in 2019 alone, smartphone manufacturers paid an estimated \$2.6B in patent royalties.<sup>1</sup>

Although the cannabis industry has not yet spent similarly large dollars on patent royalties, it is inevitable that patents will also play a crucial role in the cannabis industry. Today we are at an inflection point in the industry driven by a rapid increase in patented innovation (cannabis-related patent applications have more than tripled since 2015, according to Law360), growing revenue, and a pervasive indifference to patent rights that all but ensures widespread infringement.

Despite the ramp up in patent filings, most operators are still woefully unprepared to face the potential onslaught of infringement claims and lack a robust risk-mitigation strategy. This is especially true of companies selling concentrates-based products—be it edibles, topicals, shatter, butter, or

vape cartridges—since all of these products directly or indirectly utilize extraction equipment, which represents some of the most advanced and heavily patented technology in the industry. Companies that produce and sell concentrate-based products are almost certainly infringing someone's patents and are at serious risk of being subject to patent litigation.<sup>2</sup>

Take a moment to let that sink in. A number of thoughts may have jumped into your head, including:

- You can't get patents covering cannabis products, get lost.<sup>3</sup>
- My lead PhD scientist told me he invented all of the technology we use, get lost.<sup>4</sup>
- We buy our goods and materials from third parties so they're liable, not me, get lost.<sup>5</sup>
- Maybe so, but who cares, no one is getting sued, get lost.

I've been worried about this, what should I do?

If any of those reactions resonated with you, then you're in the right place and should keep reading.

<sup>2</sup> Growing and selling flower carries far fewer patent risks.

<sup>3</sup> You can.

<sup>4</sup> He hasn't. Unless his name is Thomas Edison, and even then he probably hasn't.

<sup>5</sup> Even if your suppliers and equipment manufacturers have granted you patent indemnification (which is extremely rare thus far in the cannabis industry), you will still likely be dragged into a litigation even if the primary defendant is the supplier/manufacturer. Patents are infringed via 'make, use, or sell', at least one of which you are doing.

<sup>1</sup> Calculated by multiplying the cumulative royalty rate from the Hoover Institute by the total sales estimated by Statista.

In the rest of this article, we're going to explain why those in the 'get lost' categories should migrate to the 'what should I do?' category, and why your biggest patent risk might not be what you think it is. We'll also provide some answers to the 'what should I do?' question to help operators start protecting their innovations while also taking steps to meaningfully mitigate their current and future patent risk.

## **YOU MAY OPT TO SETTLE, BUT THE TERMS YOU WILL BE OFFERED WILL LIKELY BE FAR MORE EXPENSIVE THAN THOSE YOU WOULD HAVE RECEIVED IF YOU HAD NEGOTIATED TERMS BEFORE GOING TO COURT**

### **THE WORST-CASE SCENARIO IS A VERY BAD SCENARIO**

Before we go any further, we need to address what can actually happen to companies that opt to not address their patent risk. What's the worst that could happen? The most severe outcome, although rare in the United States, is that you receive an injunction,

which prohibits you from making, using, or selling a product that was deemed to infringe another's patent rights. The less severe, but far more likely 'worst case scenario' is that you'll receive a complaint from a patent owner alleging infringement, you'll tell them to 'get lost', they'll file suit in court, where you'll have to spend hundreds of thousands or millions of dollars defending your position in formal litigation. At that point, you may opt to settle, but the terms you will be offered will likely be far more expensive than those you would have received if you had negotiated terms before going to court (or, even more ideally, before the claim is even made). If you decide to litigate to a verdict rather than settling and the jury sides with the plaintiff, you'll end up paying a portion of past and future revenue attributable to the infringing product, with this rate tripling if the jury believes that infringement was 'willful' (i.e. known by you, the defendant), and potentially even be forced to reimburse the plaintiff's legal fees. For cannabis operators in a hyper-competitive market, potentially struggling with thin margins or cash flow challenges, losing a patent litigation could mean the end of the company.

### **THE 'GET LOST' ATTITUDE IS LIKELY GOING TO COST MORE**

Given the history of the industry, the 'get lost' attitude is understandable, even if misguided. Much of the cannabis industry still operates with a 'legal adjacent' mindset, especially with respect to patents, and only a few years ago it would have been unthinkable for most operators to even consider paying a royalty for the right to use a patented technology.

There are at least three additional market conditions that also help explain this attitude. First, there were and might still be seemingly reputable law firms providing poor legal advice, like incorrectly advising clients that 'you cannot patent cannabis'. Second, the cannabis industry has seen minimal patent enforcement across all segments. Third, many operators over the past few years have been in perpetual survival mode, so the last thing on their



minds is patent risk. Given all of this, it's understandable why almost no cannabis operators have meaningful patent strategies, but it is also dangerously shortsighted, and especially so for companies with concentrates-based products.

## CONCENTRATES-BASED PRODUCTS CARRY HEIGHTENED PATENT RISK

Why? Because critical aspects of the concentrates-based products supply chain have been and continue to be patented. Unlike selling raw flower, which requires less technology, concentrates-based products involve highly technical and fine-tuned equipment and processes that have been invented and patented in the past decade.<sup>6</sup> You might not know that these patents exist, but they do. There are over 60 issued patents covering extraction technologies that have become widely adopted, including in-line dewaxing, low-temperature extraction, and solvent recovery techniques. Add in patents covering post-extraction treatments, formulations, and delivery mechanisms, and you're looking at hundreds of more patents.

Additionally, the concentrates market is now the largest and fastest growing sub-segment of the broader cannabis industry, with (legal) 2019 revenues estimated at \$6B a year and growing at 30% annually, according to BDSA, so 'get lost' is no longer a viable business plan. If a patent owner is able to make a credible case of potential infringement, you're either negotiating a deal or you'll be forced into litigation, which can lead to one or more of the difficult outcomes as previously discussed. Thus far, few cannabis companies have had to make this type of decision. But inevitably, you will. There are people — be they independent inventors tinkering in their garage or highly compensated scientists at billion-dollar companies — who have dedicated their lives to developing and patenting the innovative technology on which the industry is built, and they

will eventually be recognized and compensated. Additionally, the industry, as it grows and matures, will increasingly depend on incentivizing investment in R&D and innovation, which also requires that the industry follows general business best practices, such as paying for the rights to practice patented technologies.

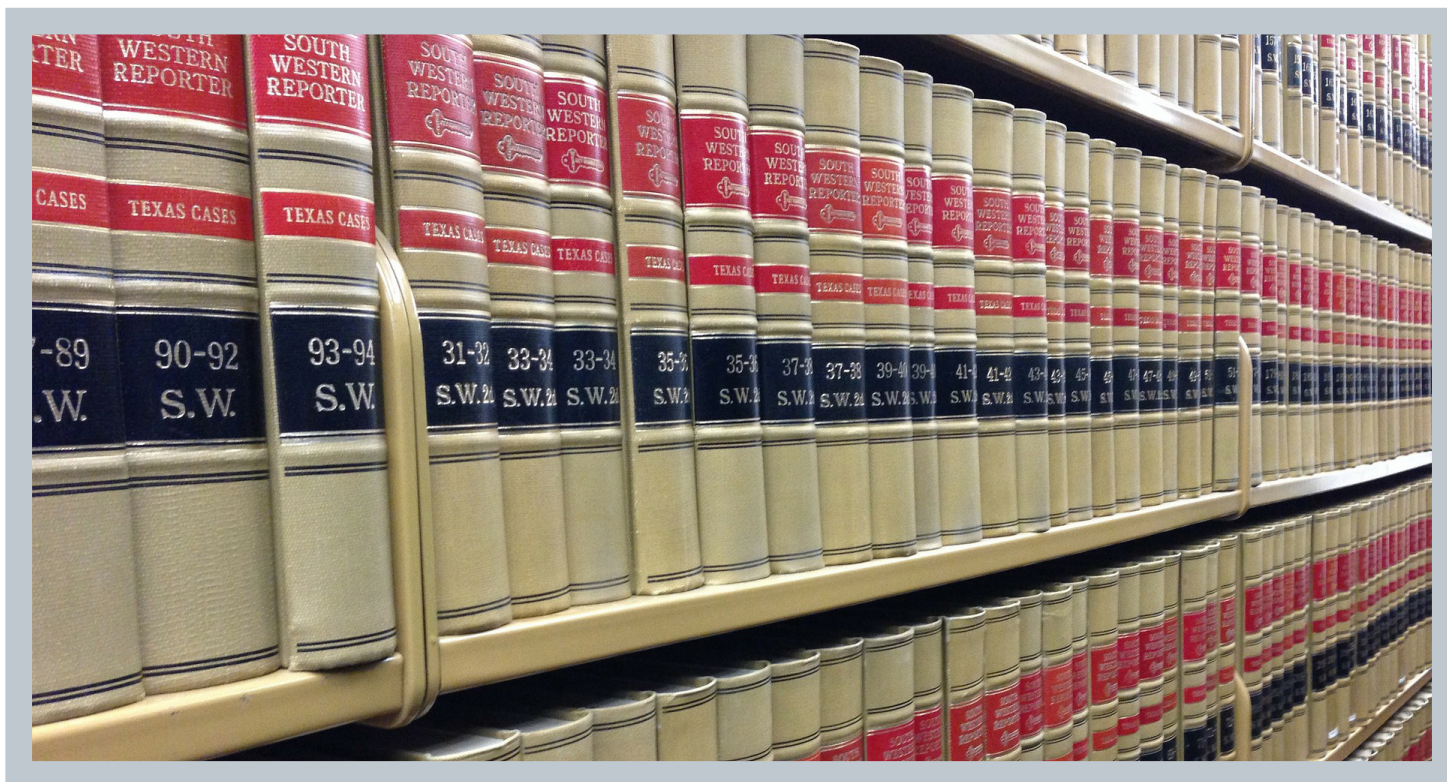
## WITH PATENTS, IT PAYS TO BE PROACTIVE

By this point, if you were initially in the 'get lost' category, hopefully you've come around to the 'so what should I do?' category, and if you were in the 'what should I do?' category, you've realized that a patent strategy should move up higher on your To-Do list. So what are the right steps to take?

## BRING IN THE EXPERTS

The first step to begin developing a robust patent strategy is to bring in an expert. Large cannabis operators may opt to hire a full-time patent counsel (or may already have a team), but for most operators, it will be far more cost efficient to find and retain patent counsel at a law firm. When doing so, make sure that your counsel has relevant patent domain and industry experience. In terms of patent experience, some counsel are highly specialized in patent prosecution (i.e., helping inventors obtain patent rights for their ideas), others focus on litigation, and others still on licensing and patent sales. Ideally, you'll find a firm with experience in all three areas. With canna-patents, it's also optimal to find a firm with both the relevant technical background (e.g., chemistry, pharma) and cannabis experience, which is becoming increasingly possible as a number of established firms are launching cannabis-specific patent services. A skilled firm will be able to help assess your current risk via a detailed review of your existing products, contract agreements with equipment manufacturers and other product suppliers, and the landscape of relevant existing patents. After this initial review, they will be in a position to help you devise a comprehensive go-forward patent strategy.

<sup>6</sup> Considerable R&D and patent activity are also occurring at the genetic plant level, which could raise patent risk for growers as well as concentrates-based product producers.



Generally, all patent strategies will be based on one or more of the six risk-mitigation methods detailed here.

## SIX WAYS TO MITIGATE PATENT RISK

### 1. Pay for a Standard License:

This is the most common, straightforward, and generally cost-effective approach to mitigating patent risk — you simply negotiate a price to pay for the right to use someone else's patented technology. Patent licenses take many forms, but the most vanilla versions include either a lump sum or recurring rate to use technology claimed in a list of enumerated patents for a specific product. Virtually every company in the S&P 500 derisks their products via patent licenses. In most instances, there are first-mover advantages to receiving lower royalty rates (i.e. the percent of revenue that you pay), so it is often in operators' best interest to be proactive.

### 2. Alter Products Based on Freedom to Operate Analysis:

Freedom to Operate is a rigorous process by which

patent counsel and product engineers collaborate before the launch of new products and features to determine the extent to which they may be infringing third-party patents. When potential infringement is found, the company can decide to drop the feature before going to market, design-around the existing patents to replicated the feature as best they can using different technologies, negotiate a licensing deal with owners of potentially infringed patents to pay for the right to use the technology, or take a calculated risk to go to market with the infringing product or feature even though this will likely lead to litigation.

### 3. Deter Litigation via Portfolio Growth:

A common risk-mitigation strategy in more mature industries is to deter patent risk by building a patent portfolio, either organically by filing patents on your own innovations or by acquiring third-party patents. Owning a strong portfolio may enable you to deter other companies from asserting patents against you because you would be able to counter-assert with your own assets. In some industries, this dynamic of mutually assured destruction has led to a peaceful detente between companies.

Additionally, owning a portfolio can enable you to pursue cross-licensing agreements, which can be a cost effective tool to mitigate risk.

#### 4. Acquire Infringed Patents:

If you identify patents that your company's products are infringing (either via a proactive search or via a formal complaint from the patent owners), an alternative risk-mitigation strategy is to acquire the patents. By acquiring the patents, you have assumed the right to practice their claimed technology (and enforce it against others), thereby completely eliminating the risk posed by those patents. Often, however, this is the most expensive option and generally only efficient if you plan to use these patents to gain leverage against competitors via enforcement or the deterrence mechanism explained above.

#### 5. Roll the Dice in Litigation:

While the vast majority of patent disputes are settled out of court, litigation occurs when parties cannot come to terms. Patent litigation is generally the most time intensive and costly risk-mitigation option and is also the least predictable, since verdicts can be awarded by juries composed of non-patent professionals.

#### 6. Attempt to Invalidate:

Inter Partes Review (IPR) was introduced in 2012 as part of the America Invents Act, which allows someone to challenge the validity of one or more claims in a patent even after the patent has been granted by the USPTO. Whereas traditional litigation generally arises over disputes about the degree of infringement of a patent, IPR's address whether or not claims in the patent should not have been allowed in the first place. Challenging the validity of a patent is a common risk-mitigation strategy, although it is primarily used in the software industry, where patent examination is more difficult because the subject matter tends to be more abstract compared to other industries.

## CONCLUSION

The cannabis industry is one of the fastest growing and dynamic industries in the world. Although cannabis has been cultivated and consumed for centuries, the last decade has seen exponential growth in investment and innovation across genetics, formulations, pharmaceutical application, and specialized machinery. Many of these innovations, which form the foundation of the industry today and will fuel continued growth, were patented by their inventors. Patents in the cannabis industry present both tremendous opportunity and risk for operators. Opportunity in that companies that are differentiating their processes

# PATENTS IN THE CANNABIS INDUSTRY PRESENT BOTH TREMENDOUS OPPORTUNITY AND RISK FOR OPERATORS

and products via true innovation have a mechanism to protect their inventions, and risk in that almost every operator today is likely infringing patents owned by someone else. Right now, few cannabis companies have faced meaningful disruption from patents, but this is inevitably going to change. A small number of mostly large and sophisticated operators already have robust patent strategies. For the rest of the industry, the window is closing and the time to act is now.

# RATES

Gene Pool Technologies offers competitive portfolio-wide licensing rates to interested parties. Entities who choose to license GPT's entire portfolio receive several benefits: Portfolio-wide licensees automatically receive a license to any additional patents brought into GPT's portfolio at no additional cost.

Portfolio-wide licensees receive a "bulk license" at lower per-patent licensing rates than individual rates for one or more specific patent families within GPT's portfolio.

Portfolio-wide licensees benefit from shared access to the Proactive Acquisition, Prosecution, Defense, and Challenge Fund. More details on this can be found starting in the "IP Holders' Information" section.

Portfolio-wide licensees are entitled to one "Freedom-to-Operate" search performed by GPT on their behalf, at no additional cost.

# BENEFITS

- Portfolio-wide licensees automatically receive a license to any additional patents brought into GPT's portfolio at no additional cost.
- Portfolio-wide licensees receive a "bulk license" at lower per-patent licensing rates than individual rates for one or more specific patent families within GPT's portfolio.
- Portfolio-wide licensees benefit from shared access to the Proactive Acquisition, Prosecution, Defense, and Challenge Fund. More details on this can be found starting in the "IP Holders' Information" section.
- Portfolio-wide licensees are entitled to one "Freedom to Operate" search performed by GPT on their behalf, at no additional cost.

Portfolio-wide license rates are available for "plant touching" operators only, equipment manufacturer licenses must be negotiated on a case-by-case basis. Royalty rates are calculated at the wholesale price level, with discounts available to retail or vertically integrated operations, as negotiated on a case-by-case basis. Portfolio-wide licensing rates apply only to granted patent assets within the GPT portfolio, trade secrets are licensed separately on a case-by-case basis.

Portfolio-wide licensees may enjoy the example rates on the following page, but said rates are subject to change and apply only to licensees' future activities that occur after a license agreement is executed, and only if said license agreement was executed without litigation, an administrative proceeding (e.g., before the USPTO PTAB), or the like that involves a licensee or is supported by a licensee. That is, these rates are only applicable to non-contentious, post-deal licensee activities and are not a guide for limiting litigation damages.

# PORTFOLIO-WIDE POTENTIAL LICENSING RATES

Extractors with Revenue < \$20mil per year*	All Applicable Product Sales	Annual Royalty Rate
	up to the first \$100k in royalties paid	15%
	after \$100k royalties paid	7.5%
	after \$1,000,000 royalties paid**	0%

\* Equity compensation options available on a case-by-case basis.

\*\* Caps no longer apply beginning Q1 of the year after a company's first annual revenue earnings is in excess of \$20,000,000.

Extractors with Revenue > \$20mil per year*	All Applicable Product Sales	Annual Royalty Rate
	up to the first \$100k in royalties paid	15%
	after \$100k royalties paid	7.5%
	after \$2,000,000 royalties paid	3.5%
<b>OR</b>	Annual lump-sum license purchase price UPON REQUEST.	0%

\* Equity compensation options available on a case-by-case basis.

Pre-Revenue Extractors*	All Applicable Product Sales	3-Year License Fee
	one-time, non-renewable license	UPON REQUEST

\* Equity compensation options available on a case-by-case basis.

# IP HOLDERS' INFORMATION

## FREQUENTLY ASKED QUESTIONS

### IF A LICENSEE CHOOSES TO ONLY LICENSE PART OF THE POOL INSTEAD OF TAKING A PORTFOLIO-WIDE LICENSE, HOW ARE THOSE REVENUES SPLIT?

This is negotiated on a case-by-case basis. Royalty rates for any deals that are not portfolio-wide licenses will be relatively higher on a per-patent basis.

### IF MY PATENTS ARE IN THE POOL AND SOMEONE IS INFRINGING MY PATENTS AND REFUSES TO TAKE A LICENSE, WILL GENE POOL TECHNOLOGIES FUND THE NECESSARY ENFORCEMENT?

This is negotiated on a case-by-case basis. Typically if a company is infringing more than one of the patent portfolios in the pool and enforcement is required, GPT will make best efforts to share in the costs or even fund the case in its entirety. Even if a company is only infringing one patent portfolio within the pool and enforcement is required, GPT generally intends to assist in enforcement efforts.

### I AM AN INVENTOR AND WANT TO INCLUDE MY PATENT IN THE POOL. WHERE DO I START?

Please email us at [info@genepool.io](mailto:info@genepool.io).



**GENE POOL  
TECHNOLOGIES**

Gene Pool Technologies, Inc.

[info@genepool.io](mailto:info@genepool.io)

[www.genepooltechnologies.com](http://www.genepooltechnologies.com)



# Non-Disclosure Agreement

This Non-Disclosure Agreement ("agreement") is between the parties signing below and has retroactive effect from DATE, 2022. "We," "us" and "our" refer to both of the parties signing below and our respective affiliates.

Party X	GENE POOL TECHNOLOGIES, INC. ("Gene Pool")
ADDRESS	ATTN: Sam Bergstrom <a href="mailto:sam@genepool.io">sam@genepool.io</a>
Sign:	
Print Name:	Sam Bergstrom
Print Title:	CIPO
Signature Date:	

**1. The purpose of this agreement.** This agreement allows us to disclose confidential information to each other, to our own affiliates and to the other's affiliates under the following terms. An "affiliate" is any legal entity that one of us owns, that owns one of us, or that is under common control with one of us. "Control" and "own" mean possessing a 50% or greater interest in an entity or the right to direct the management of the entity.

**2. Confidential information.**

a. **What is included.** "Confidential information" is non-public information, know-how, and trade secrets in any form that:

- Are designated as "confidential"; or
- A reasonable person knows or reasonably should understand to be confidential.
  - Without limiting the generality of the foregoing, examples of Confidential Information include cannabis or hemp-related intellectual property owned or otherwise accessible by Gene Pool, monetization strategies of said intellectual property, the identity of Gene Pool's investors, said investors' contractual terms with Gene Pool, and the existence of said terms.
  - Further non-limiting examples of Confidential Information include business development, marketing, and strategic plans developed by Gene Pool as well as Gene Pool's SOPs, operations, and strategy related to the cannabis industry, including any reports or documents created by Gene Pool that include, summarize, and/or refer to Gene Pool's Confidential Information disclosed hereunder.
  - It is specifically acknowledged and agreed that, the fact that Gene Pool and you



have engaged in discussions regarding a potential business relationship shall itself be deemed Confidential Information for purposes of this Agreement.

- b. **What is not included.** The following types of information, however marked, are not confidential information. Information that:
- Is, or becomes, publicly available without a breach of this agreement;
  - Was lawfully known to the receiver of the information without an obligation to keep it confidential;
  - Is received from another source who can disclose it lawfully and without an obligation to keep it confidential; or
  - Is independently developed.

**3. Treatment of confidential information.**

- a. **In general.** Subject to the other terms of this agreement, each of us agrees:
- We will not disclose the other's confidential information to third parties; and
  - We will use and disclose the other's confidential information only for purposes of our business relationship with each other.
- b. **Security precautions.** Each of us agrees:
- To take reasonable steps to protect the other's confidential information. These steps must be at least as protective as those we take to protect our own confidential information;
  - To notify the other promptly upon discovery of any unauthorized use or disclosure of confidential information; and
  - To cooperate with the other to help regain control of the confidential information and prevent further unauthorized use or disclosure of it.
- c. **Sharing confidential information with affiliates and representatives.**
- A "representative" is an employee, contractor, advisor, or consultant of one of us or one of our respective affiliates.
  - Each of us may disclose the other's confidential information to our representatives (who may then disclose that confidential information to other of our representatives) only if those representatives have a need to know about it for purposes of our business relationship with each other. Before doing so, each of us must:
    - ensure that affiliates and representatives are required to protect the confidential information on terms consistent with this agreement; and
    - accept responsibility for each representative's use of confidential information.
- d. **Disclosing confidential information if required to by law.** Each of us may disclose the other's confidential information if required to comply with a court order or other government demand that has the force of law. Before doing so, each of us must seek the highest level of protection available and, when possible, give the other enough prior notice to provide a reasonable chance to seek a protective order.

#### 4. Length of confidential information obligations

- a. **Termination.** This agreement continues in effect until one of us terminates it. Either of us may terminate this agreement for any reason by providing the other with 30 days' advance written notice. Termination of this agreement will not change any of the rights and duties made while this agreement is in effect.
- b. **No other use or disclosure of confidential information.** Except as permitted above, neither of us will use or disclose the other's confidential information for five years after we receive it. The five-year time period does not apply if applicable law requires a longer period. Compliance with the obligations imposed by this Agreement for trade secrets that are disclosed by either of us to the other shall continue until (a) both parties mutually agree, in writing, that such obligations shall cease or (b) said trade secrets are no longer a trade secret under applicable law.

#### 5. General rights and obligations.

- a. **Dispute Resolution.** The parties agree that any dispute or difference between them arising under this agreement shall be settled first by attempting to confer and resolve the dispute in a good faith manner. If the parties' attempt to confer and resolve their dispute in a good faith manner is unsuccessful, the Parties may submit their dispute to arbitration or pursue other means to resolve the dispute.
- b. **Law that applies; jurisdiction and venue.** The laws of the State of Colorado govern this agreement. The Parties agree that the appropriate court in the State of Colorado, USA shall have exclusive jurisdiction with respect to any controversy or dispute arising out of or relating to this agreement that is not resolved by the Parties.
- c. **Waiver.** Any delay or failure of either of us to exercise a right or remedy will not result in a waiver of that, or any other, right or remedy.
- d. **Money damages insufficient.** Each of us acknowledges that money damages may not be sufficient compensation for a breach of this agreement. Each of us agrees that the other may seek court orders to stop confidential information from becoming public in breach of this agreement.
- e. **Attorneys' fees.** In any dispute relating to this agreement the prevailing party will be entitled to recover reasonable attorneys' fees and costs.
- f. **Transfers of this agreement.** The agreement shall bind each party's representatives, heirs, successors, and assigns. If one of us transfers this agreement, we will not disclose the other's confidential information to the transferee without the other's prior written consent. Such consent shall not be unreasonably withheld. Any assignment or transfer in violation of this section shall be void.
- g. **Enforceability.** If any provision of this agreement is unenforceable, the parties (or, if we cannot agree, a court) will revise it so that it can be enforced. Even if no revision is possible, the rest of this agreement will remain in place.
- h. **Whistleblower Immunity:** Pursuant to 18 USC § 1833(b), an individual may not be held criminally or civilly liable under any federal or state trade secret law for disclosure of a

trade secret: (i) made in confidence to a government official, either directly or indirectly, or to an attorney, solely for the purpose of reporting or investigating a suspected violation of law; and/or (ii) in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. Additionally, an individual suing an employer for retaliation based on the reporting of a suspected violation of law may disclose a trade secret to his or her attorney and use the trade secret information in the court proceeding, so long as any document containing the trade secret is filed under seal and the individual does not disclose the trade secret except pursuant to court order.

- i. **Entire agreement.** This agreement does not grant any implied intellectual property licenses to confidential information, except as stated above. We may have contracts with each other covering other specific aspects of our relationship (“other contracts”). The other contract may include commitments about confidential information, either within it or by referencing another non-disclosure agreement. If so, those obligations remain in place for purposes of that other contract. With this exception, this is the entire agreement between us regarding confidential information. It replaces all other agreements and understandings regarding confidential information. We can only change this agreement with a signed document that states that it is changing this agreement.