

EIGHTH REVOLUTION

MONTHLY PLAYBOOK

CANNABIS & HEMP

PLATINUM



JULY 2021

TABLE OF CONTENTS

JULY 2021

LETTER FROM THE TEAM	1
----------------------------	---

CHAPTER 1	
REGULATIONS	3
US States & Regulations	3
International Regulations	4
Who's Legal & Who's Not	5

CHAPTER 2	
ECONOMIC CLIMATE	6
Hemp Wholesale Pricing	6
Evaluating Factors Affecting Market Size	9
Sector Market Analysis	10

CHAPTER 3	
INDUSTRY	11
The Supply Chain's Breaking Point	11
Brand Focus: Highborn	12

CHAPTER 4	
INFORMATION	13
Hot in the News	13
The ABCs of Cannabinoid Manufacturing	14





NOTICE

The information contained in this document is intended for the sole confidential use of the designated recipients and contains confidential information. This information can not be shared. If you have received this information in error, any review, dissemination, distribution or copying of this information is strictly prohibited. If you have received this information in error, please notify us immediately by telephone or email. Thank you.

**FOR QUESTIONS OR
MORE INFORMATION,
PLEASE CONTACT**

info@8threv.com

(516) 653-2006

www.eighthrevolution.com

DEAR READER,

We want to thank you for your trust, and most importantly, your time. With the endless amount of resources at your disposal, we appreciate you leaning on us as your guide through the muddy waters of this industry's limitless news and intelligence.

We at Eighth Revolution initially created this document to help our partners understand how their short-term decisions were having long-term effects on the success of their businesses. In an industry that changes as aggressively as ours, we can't stress the importance of effective decision making enough.

Though the information in the report is never meant to dictate specific actions or guarantee certain outcomes, we hope that we're able to provide another voice in the room, one that illuminates, simplifies, and supports you.

If you find one area more helpful than others and want us to expand on it, please never hesitate to reach out. For any suggestions or questions, we can be reached directly at bryan@8threv.com.

Welcome to the revolution.

Bryan Fields
CEO, CO-FOUNDER



Kellan Finney
CSO, CO-FOUNDER



JULY 2021

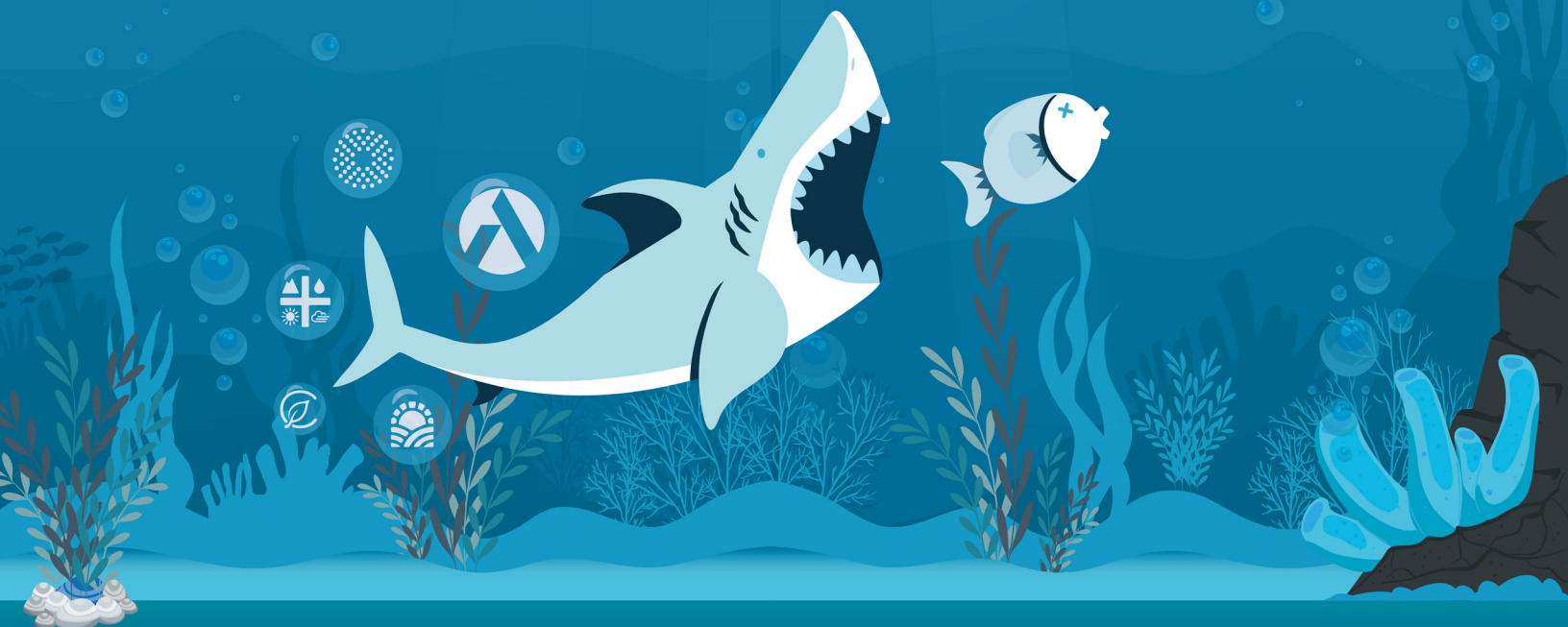
A NOTE FROM YOUR PARTNERS

As we enter the hot months of summer and celebrate the birth of our great nation, the cannabis & hemp industries continue to mature. This is more prevalent in the cannabis industry, as it seems there's a new state pushing for adult-use legalization every other week. This breakneck pace has spurred more mature players with bigger and more daring goals to enter the space through acquisitions and strategic partnerships. The size of some of these recent deals have been astronomical. All the while, the hemp industry continues to stagnate as the federal government refuses to approve CBD as an additive. With so much going on, it can start to feel like you're lost at sea with no refuge in sight, but we look forward to being with you every step of your journey, helping you navigate through any murky waters.

— Kellan Finney

We're just over halfway through 2021, and the progress the industry has made is astounding. Connecticut has officially become the 18th state to legalize cannabis, the fourth state this year, and 36 percent of the U.S. has now gone green. Even more impressive, three other east coast states (namely RI, PA, and DE) are looking to follow suit. These previously untapped markets will present areas of growth for current operators and outside conglomerates to dominate the space and dive into the green rush. As the industry continues to both expand and consolidate, we'll be here every step of the way to help you navigate these shark infested waters.

— Bryan Fields





“G I A N T
LEAPS
ARE JUST A BUNCH OF
BABY ” 1
STEPS PUT TOGETHER.

LETTER FROM THE TEAM

Progress doesn't always show up as major milestones, and nowhere is this more evident than in the cannabis industry. As we continue our

journey to end Prohibition 2.0, we must consistently remind ourselves that the small wins, when combined, equate to massive progress. As author and poet Richelle Goodrich wrote, "Small steps may appear unimpressive, but don't be deceived. They are the means by which perspectives are subtly altered, mountains are gradually scaled, and lives are drastically changed."²

In the cannabis space, the changing of perspectives is akin to a seismic shift, and every legal victory is a small chip away at the crumbling, anti-cannabis infrastructure.

Over the past few months, we've all anxiously awaited information regarding the bill to end cannabis

prohibition, a piece of legislation aggressively championed by Senator Schumer.³ While many would argue that his repeated yet empty assurance that the bill will come "soon" is a sign of stagnation, it's important to look at his statements in conjunction with the changes the industry is experiencing.

Within the past dozen weeks, Alabama legalized medical cannabis, Texas has expanded their medical cannabis program, Louisiana ruled in favor of decriminalization, and Connecticut has just become the 18th adult-use state.

If all of these events happened in a year's time within another industry, it would be chalked up as an automatic success. In the cannabis space,

Alabama
legalized medical
cannabis, Texas
has expanded
their medical
cannabis program,
Louisiana ruled in
favor of
decriminalization,
Connecticut has
just become the 19th
adult-use state.



“

Large, outside industry
players have officially
announced their intention
to enter the
cannabis world.

however, frustration with the system has somehow minimized the impact of such regulatory accomplishments.

This progress isn't confined to the world of legislation; it extends throughout the entire market. Large, outside industry players have officially announced their intention to enter the cannabis world, and as Uber continues to share their thoughts on cannabis delivery, Amazon is pushing for federal legalization.^{4,5} (Does this sound familiar? If it does, it's because we predicted it back in January!) Even the NFL has decided to offer its support after years

of suspending players for failed drug tests, with its pain management committee announcing that it “will provide \$1 million in funding for research into pain management and cannabinoids.”⁵

These are the small steps that may appear unimpressive individually, but together indicate that cannabis is an industry that's here to stay and ready to change lives for the better. The Prohibition 2.0 walls are coming down, and these events generate the necessary momentum to make the bigger dominos fall.



DOMESTIC NEWS

LINKED
PAGE



Marlboro (NJ) officials take first step to prohibit cannabis sales, production in town

“The members of the Marlboro Township Council have introduced an ordinance that will, if adopted, prohibit the operation of any class of cannabis licensed business in the municipality.”

Missouri Cannabis Activists to Unveil Adult Use Initiative for 2022

“Backers of Missouri’s successful 2018 ballot measure that legalized medical marijuana say they plan to unveil their next effort — an initiative petition targeting the 2022 ballot to legalize recreational use — by the end of June.”

Issuance of Adult-Use Cannabis Licenses May Be Stalled in New York

“The issuance of adult-use cannabis licenses in New York may be delayed as Gov. Andrew Cuomo and state Senate leaders are reportedly in conflict over who should lead the Office of Cannabis Management and Cannabis Control Board.”

INTERNATIONAL *REGULATIONS*

AUSTRALIA



“Little Green Pharma Ltd has acquired a world-class, fully-operational, GMP medicinal cannabis cultivation and manufacturing facility in Denmark from Canopy Growth Corporation. The facility, located in Northern Odense, has the capacity to produce...”

GERMANY



“Berlin-based cannabis start-up Sanity Group announced today it has closed a \$44.2M USD Series A financing round with new investment led by Swiss venture capital firm Redalpine along with US-based Navy Capital and SOJE Capital. GMPVC also participated in...”

CANADA



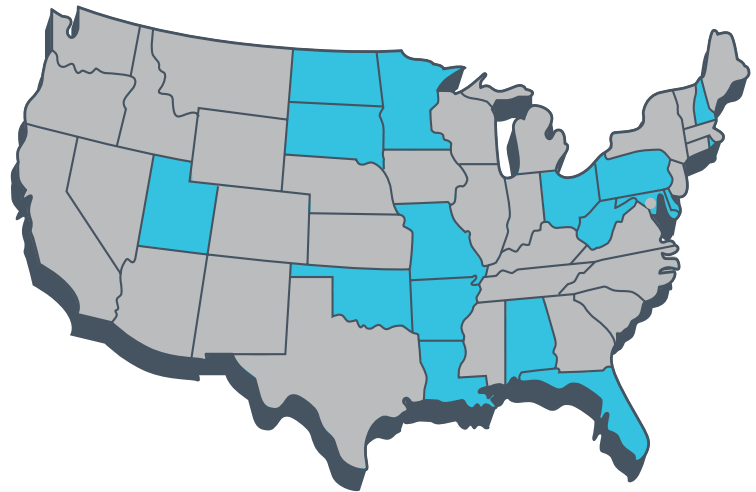
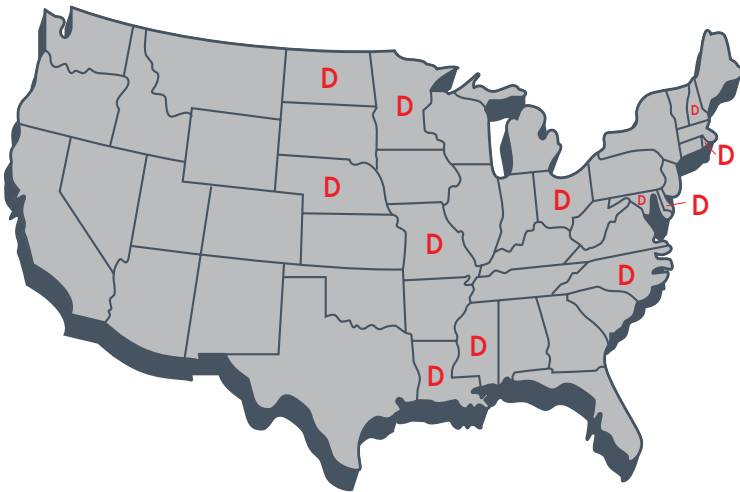
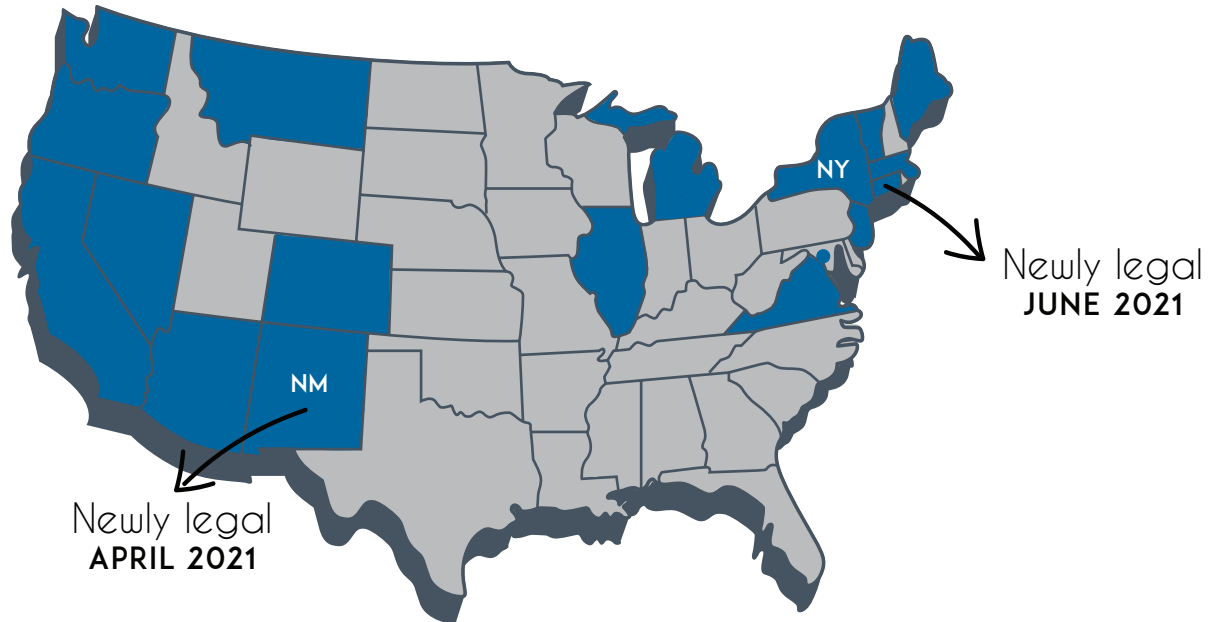
“On Monday, Cronos Group, a Canadian cannabis company backed by Altria, said it agreed to make a “strategic investment” in US cannabis company PharmaCann, which has operations in New York. Cronos paid \$110.4 million for an option to acquire a 10.5%...”

LEGALITY OF CANNABIS IN THE UNITED STATES



DID YOU NOTICE?

We've added some new brothers and sisters to our growing family!



ADULT-USE



DECRIMINALIZED



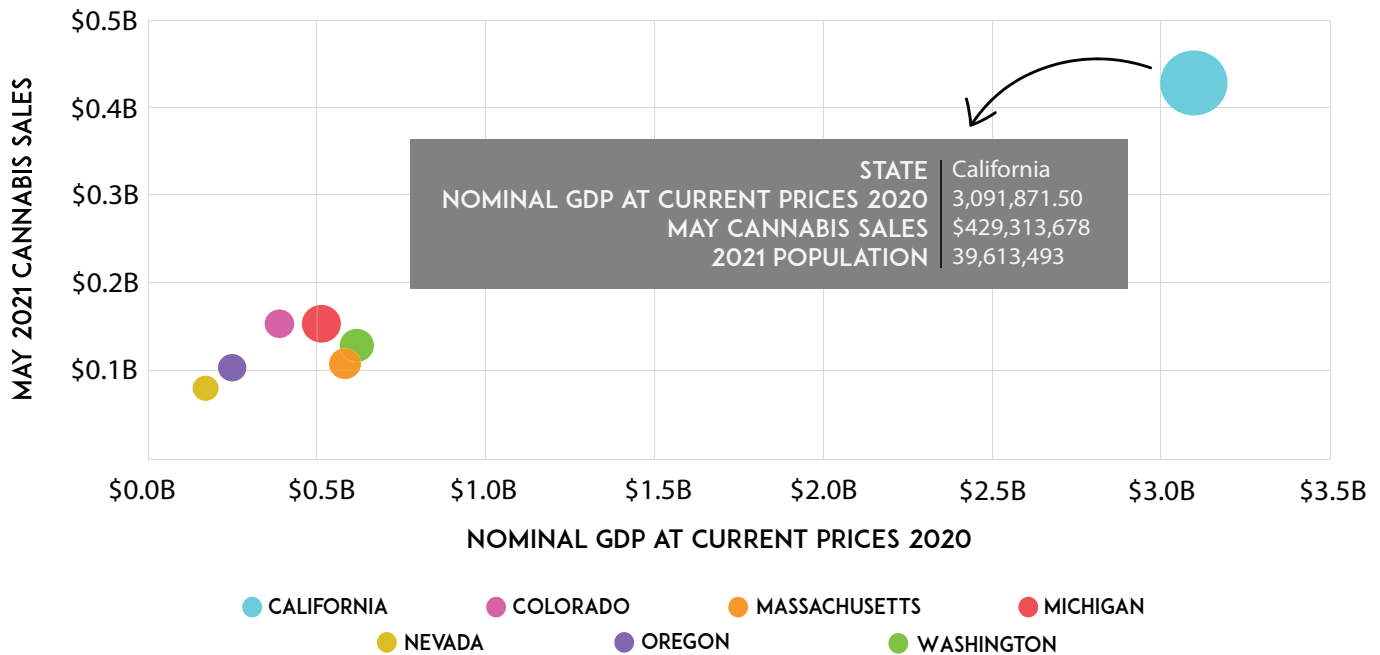
MEDICALLY LEGAL



EVALUATING FACTORS AFFECTING MARKET SIZE

While the legal cannabis landscape continues to expand into new state markets, there are several factors influencing executive teams when analyzing these strategic growth opportunities.

NOMINAL GDP AT CURRENT PRICES 2020 // MAY CANNABIS SALES // 2021 POPULATION BY STATE



NOTE:


The circles represent the size of the population in each state. The larger the circle, the larger the population. Their place along the x- and y- axis represents the gross domestic product (GDP) that was sold in 2020 and the recent dollar amount of cannabis sales, respectively.

Over the past six months, several states have turned into hot markets for MSOs looking to expand. To understand the factors that influence market opportunity and visualize their correlation, we cross-analyzed population, nominal GDP, average basket size in existing markets, and May's cannabis sales data. California, for example, contains more than 50% of the American adult population eligible to purchase cannabis, in addition to over 54% of the total nominal GDP amongst the 7 adult-use markets evaluated.^{7,8} This state, however, only accounts for 36% of the total monthly cannabis sales, demonstrating that the population and GDP may not serve as a direct correlation when understanding a state's market opportunity.⁹

When you consider the average basket size in each of the states, a clearer picture emerges. In California, the average basket size is only \$67.42, whereas in Michigan, the average basket size is \$84.09.⁹ When comparing these stark differences, it is clear that the state's population doesn't play as much of a role as the amount each customer spends per trip and number of adults in the state consuming cannabis.



SECTOR ANALYSIS*


	INDICES	3 MONTH	6 MONTH
	S&P 500	21.19%	30.26%
	DOW JONES	3.27%	13.24%
	NASDAQ	9.06%	10.02%
	GLOBAL CANNABIS INDEX	-17.06%	28.90%
	AMERICAN CANNABIS STOCK INDEX	-21.47%	28.22%



“We think this is a time for long-term investors
to be patient.

The fundamentals are
as good as they have ever been
for the industry, even if the stocks are acting
like no one cares.”¹⁰

*This text expresses the opinion solely of the writer. The thoughts expressed are independently formed and the writer is not compensated by any third party.

	SECTOR	3 MONTH	6 MONTH
	HEALTHCARE	33.55%	40.55%
	TECHNOLOGY	5.72%	14.14%
	INDUSTRIALS	6.81%	18.76%
	FINANCIALS	7.55%	28.97%
	CONSUMER CYCLICAL	4.26%	22.94%
	CONSUMER NON-CYCLICAL	6.83%	10.25%
	BASIC MATERIALS	10.33%	24.11%
	ENERGY	11.17%	38.42%
	UTILITIES	4.67%	5.49%
	ALTERNATIVE HARVEST ETF (MJ)	-15.29%	8.77%
	MULTI- STATE OPERATORS (MSOS)	-21.51	36.44%

*Information retrieved from NCV and E*trade.





RAW MATERIALS



JULY 2021

What's this month's
broken link in the supply chain?

MANUFACTURING, RETAIL, & DISTRIBUTION

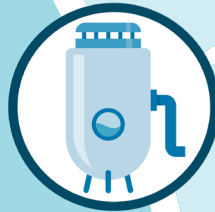
The cannabis supply chain has been showing fast development, evident by the significant amount of capital being pumped into the ancillary sector for both the hemp & cannabis industry. Not only are these companies attractive investments from an ROI perspective, but they're also the ones that will bring stability to the industry as a whole. Their ability to operate under normal business conditions means that they don't have to deal with sticky legislation such as 280E and they can scale across the U.S., regardless of each state's cannabis regulations.

You may be thinking, 'What's the problem?' The problem lies with staffing. Morning Consult found that one in five workers changed their career path in the past year and that a quarter of them had decided to look for a new job once life started to return to normal.¹¹ In other words, though COVID-19 has loosened its grip in the U.S., staffing continues to be an issue. Manufacturing, distribution, and retail sectors may be slower as these ancillary companies continue to adjust to the continued lack of staff and upcoming high turnover rates.

TESTING



MANUFACTURING



THE
BREAKING
POINT



DISTRIBUTION



RETAIL



CUSTOMER



BRAND SPOTLIGHT: H I G H B O R N



Price Range:	\$14 - \$60
Target:	Women ages 25 - 50
Availability:	U.S.
Ownership Status:	Private

OUR RATING:



WHY WE LOVE THEM:

From the packaging to the pitch, they know what they're doing.

Sell the feeling, not the product.

People are attracted to how a product makes them feel, not what the product actually is. Case in point? The alcohol industry. Highborn isn't selling their proprietary mixture of soothing essential oils. Instead, they're selling the feeling you'll get when you glide the sweet-smelling mixture over your pulse points and your sigh of relief when you finally take a minute to yourself. When marketing your brand, hone in on the pain points that your target market is dealing with, whether it's boredom, lack of focus, anxiety, or overstimulation.



Simple, elegant, and chic - that's Highborn in a nutshell. With a focus on CBD as a topical, Highborn has cornered the aromatherapy market by combining the calming, anti-inflammatory effects of CBD with oils like lavender, rose, and sandalwood. Housed in frosted glass, each vial swims with a reiki-charged crystal and is stamped with the perfume's name in a charmingly handwritten style. These thoughtful touches transform an otherwise impersonal product into a seemingly bespoke creation, and by inviting the stressed consumer to set aside time and indulge in the feeling of stillness, the company advocates that the use of their product should only be a small part of a larger, ritualistic approach to self care. This clever (and well meaning) usage strategy encourages repeat customers and lifelong users.

Visit Highborn at highborn.nyc



HOT IN THE NEWS

A

Louisiana Governor
Signs Marijuana
Decriminalization

Bill Into Law

B

CANNABIS MSO
COLUMBIA CARE
TO BUY
DENVER-BASED
MEDICINE MAN FOR
\$42M

C

NFL, NFLPA WILL PROVIDE
FUNDING FOR RESEARCH INTO
PAIN TREATMENT,
INCLUDING MEDICAL
MARIJUANA

D

"DURING MAY, MICHIGAN CANNABIS SALES
INCREASED 76% FROM A YEAR AGO TO
\$148.9 MILLION, A 3% DECREASE
FROM APRIL DESPITE
HAVING AN ADDITIONAL DAY"

E

"The amount of dried
cannabis held in
stock by
Canadian producers,
wholesalers and retailers fell in
March for the fourth
straight month"

G

"The Rhode Island Senate
became the first chamber of the
General Assembly to ever vote
in favor of recreational
marijuana on Tuesday, though
the legislation still has a ways to
go before potentially
becoming law."

F

CONNECTICUT LAWMAKERS PASS
RECREATIONAL
MARIJUANA
LEGALIZATION BILL, SEND
TO GOVERNOR

The



of cannabinoid manufacturing

In the world of manufacturing, things move quickly. The manufacturer's goal is to manufacture their product with the target quality in the proper quantity with as little waste possible. Many manufacturing outlets will do their quality control before a process starts and after the process ends, but *what about while something is being created?*

Welcome to The *ABCs* of cannabinoid manufacturing

Provided to you by
Hellma®

CANNABIS MANUFACTURING FOR THE 21ST CENTURY

Part 7: Overview of Extraction Methodologies & Monitoring

Our most recent issue tackled alcohol and hydrocarbon extraction, but this month, we're covering extraction with supercritical CO₂. Using CO₂ has several advantages; it's nonflammable, non-toxic, relatively inert, abundant, and inexpensive.[1, 2] The other main advantage is that at a temperature of 31°C, you can maintain the supercritical liquid at 74 bar. Both of these parameters are far easier to reach than many other compounds. [3, 4]. The first step of the process creates supercritical CO₂ and flows it over raw cannabis material to begin the extraction. Depending on the temperature and pressure parameters chosen, the density of the supercritical CO₂ can be set.

The various components of cannabis have different solubilities in different densities of supercritical CO₂, thus allowing a clean extraction of only the target compounds. However, one study has shown that the concentrations of different products can be extracted at different rates, so the extract should be analyzed. [1, 5, 6] The enriched supercritical fluid is passed to the next stage(s) of separation. In the separator(s), the supercritical CO₂ is cooled and depressurized into the sub-critical form of CO₂ to allow the separation of the compounds from the CO₂. The various compounds will condense and fall to the bottom of the separator. Since different compounds have different solubilities in CO₂, one can pass the enriched CO₂ through more than one separator with different temperatures and pressures to help fraction the various compounds.

The last step in the extraction process is to siphon the used CO₂ away from the separated compounds. Since CO₂ will not solubilize any of the compounds in its full gaseous form, it is easy to recycle and reuse the CO₂. CO₂ extraction is easily scaled to large quantities as CO₂ is an inert compound that can be stored safely and does not require any special hazard classifications due to volatility. One of the disadvantages of CO₂ extraction is that post-processing steps, such as winterization, are required to refine the resulting product into a market ready form. [7] Each of these methods currently, if at all, use high pressure liquid chromatography (HPLC) or gas chromatography (GC) with Mass Spectrometry (MS) to determine the chemical species extracted and their concentrations.

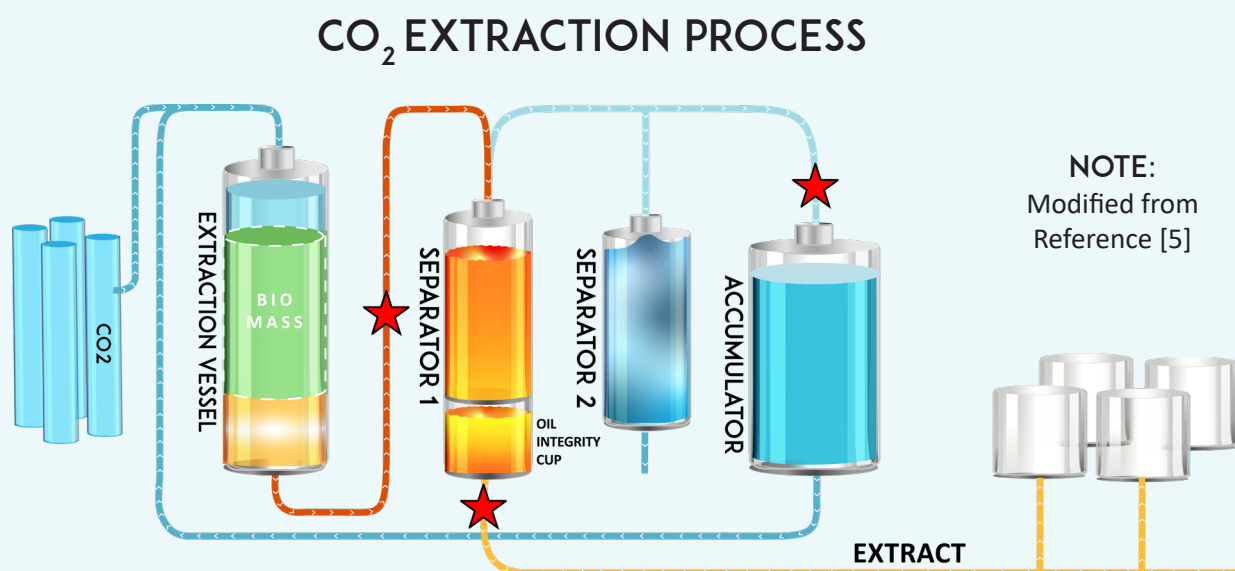


CANNABIS MANUFACTURING FOR THE 21ST CENTURY

Part 7: Overview of Extraction Methodologies & Monitoring

However, both of these methods require removing a sample from the process and doing either an at-line or in-lab measurement, which take time. As covered in Part 2 of this series, it is difficult to react in a timely fashion if there is an outlier from the defined control limits. Spectroscopy has the advantage that it is a quick method that can be integrated directly into either the tank, the pipelines, or in a bypass. By monitoring with process analytical technologies such as spectroscopy at several points in the process, the control system could easily be tracking multiple aspects of the reaction's chemistry and giving real-time feedback of the conditions, the chemical compositions, and quantitative concentration information for each species at every stage.

FIGURE 1



In Figure 1, the red stars denote places that could be monitored by an analytical technique. The eventual goal would be to monitor the entire system, so that it can immediately and automatically change a parameter, such as the temperature, if something starts to go wrong. This automated learning would allow for a fully autonomous system that is efficient and safe.

MISSED PART SIX?

CATCH UP

Expanded versions of previous article installments are available upon request.

Hellma USA, Inc has been serving the U.S. markets in spectroscopic accessories for over 50 years. They specialize in quartz manufacturing for the lab and probes for the process. Dr. Carrier earned her Ph.D. from University of Wisconsin – Madison in Physical Chemistry specializing in Spectroscopic techniques to monitor chemical reactions.



REFERENCES

1. Malinowski, Shirley. "200+ Baby Steps Quotes to Walk Your Way to Success." Central Of Success, November 18, 2020. <https://www.centralofsuccess.com/baby-steps-quotes/>.
2. Goodrich,, Richelle E. "Making Wishes: Quotes, Thoughts, & a Little Poetry for Every Day of the Year." Goodreads. Goodreads. Accessed June 18, 2021. <https://www.goodreads.com/quotes/1046748-small-steps-may-appear-unimpressive-but-don-t-be-deceived-they>.
3. Jaeger, Kyle. "First-Ever Congressional Bill To Decriminalize All Drugs Announced Ahead Of Nixon Drug War Anniversary." Marijuana Moment, June 15, 2021. <https://www.marijuanamoment.net/first-ever-congressional-bill-to-decriminalize-all-drugs-introduced-ahead-of-nixon-drug-war-anniversary/>.
4. Bursztynsky, Jessica. "Uber CEO Says Company Could Get into Cannabis Delivery." CNBC. CNBC, April 12, 2021. <https://www.cnbc.com/2021/04/12/uber-ceo-says-company-could-get-into-cannabis-delivery.html>.
5. Battista, Judy. "NFL, NFLPA Will Provide Funding for Research into Pain Treatment, Including Medical Marijuana ." NFL.com. NFL, June 8, 2021. <https://www.nfl.com/news/nfl-nflpa-will-provide-funding-for-research-into-pain-treatment-including-medica>.
6. U.S Wholesale Hemp Price Benchmarks - May 2021. PDF file. June, 8 2021. www.hempbenchmarks.com
7. US States - Ranked by Population 2021. Accessed June 18, 2021. <https://worldpopulationreview.com/states>.
8. "GDP by State." GDP by State | U.S. Bureau of Economic Analysis (BEA), February 25, 2021. <https://www.bea.gov/data/gdp/gdp-state>.
9. Headset. Accessed June 18, 2021. <https://insights.headset.io/app/public/login?redirectUrl=%2Finsights%2Freport%2Fall-markets-overview>.
10. Brochstein, Alan. "Cannabis Stocks Are Primed After Four Months of Consolidation." New Cannabis Ventures, June 13, 2021. <https://www.newcannabisventures.com/cannabis-stocks-are-primed-after-four-months-of-consolidation/>.
11. Vinopal, Courtney. "The Pandemic Forced Millions out of a Job. Some Say They Can't Return to the Way Things Were." PBS. Public Broadcasting Service, June 17, 2021. <https://www.pbs.org/newshour/economy/the-pandemic-forced-millions-out-of-a-job-some-say-they-cant-return-to-the-way-things-were>.



REFERENCES

The *ABCs* of cannabinoid manufacturing

1. C. L. Ramirez, M. A. Fanovich and M. S. Churio, "Cannabinoids: Extraction, Methods, Analysis, and Physiochemical characterization," *Studies in Natural Products Chemistry*, vol. 61, pp. 143-173, 2019.
2. Airgas, "Safety Data Sheet - Carbon Dioxid," 12 February 2018. [Online]. Available: <https://www.airgas.com/msds/001013.pdf>.
3. M. Ollero and D. Touboul, "Lipidomics by Supritical Fluid Chromatography," *International Journal of Molecular Science*, vol. 16, no. 6, 2015.
4. P. Atkins and J. de Paula, *Physical Chemistry*, 7th Edition, Oxford University Press, 2002.
5. M. May, "The Best Extraction Methods for Marijuana concentrates," 3 May 2018. [Online]. Available: <https://www.analyticalcannabis.com/articles/the-best-cannabis-extraction-methods-for-marijuana-concentrates-300434>.
6. A. Beadle, "Advances in Cannabis Extraction Techniques," 25 June 2019. [Online]. Available: <https://www.analyticalcannabis.com/articles/advances-in-cannabis-extraction-techniques-311772>.
7. P. Bennett, "What are CO2 Cannabis Extracts and how are they made?," Leafly, 29 January 2018. [Online]. Available: <https://www.leafly.com/news/cannabis-101/what-are-co2-marijuana-concentrates>.





DISCLAIMER

The information contained in this document should not be relied on as the basis for any decision or action. It is general advice only and you should exercise your own independent skill and judgement. In some cases, the material in this document may incorporate or summarize information or recommendations of third parties or comprise materials contributed by third parties (*'third party material'*). Such third party material is assembled in good faith, but does not necessarily reflect the considered views of Eighth Revolution or indicate a commitment to a particular course of action.

We make every effort to ensure that links included in this document are kept up-to-date. The accuracy of the links is dependent upon the owners of those sites letting us know of any changes. If you find a link that does not work, please contact us by emailing info@8threv.com.

To the extent permitted by law, Eighth Revolution and its employees and agents are not liable for any loss or damage arising from the use of, or reliance on, the material contained in this document whether or not caused by a negligent act or omission.

You obtain access to this document at your own risk, and Eighth Revolution accepts no responsibility for any interference, loss, damage, or disruption to your own computer system which arises in connection with your use of the document or any linked website. You must take your own precautions to ensure that the process which you employ to obtain access to this document does not expose you to the risk of viruses, malicious computer code, or other forms of interference which may damage your own computer system.

info@8threv.com
(516) 653-2006
www.eighthrevolution.com