Washington State
Liquor and Cannabis Board

Research Brief
Intoxicating Hemp Products
March 2025

LCB Research Program
The Research Program at the Washington State Liquor and Cannabis Board (LCB) is a non-partisan, transparent resource focused on public health and safety outcomes related to the products, policy, and regulation of alcohol, cannabis, tobacco, and vapor products.

Purpose
Public health, prevention, and research partners have expressed concerns about unregulated intoxicating hemp products that are banned in Washington State. These products continue to persist in the unregulated market, online, and in convenience-type stores. They are a concern to legal cannabis business and state regulators. This brief is based on a review of existing evidence including scientific literature, government reports, regulations and policies, and other credible information sources.

This document does not represent an official position of LCB.

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Background

Both cannabis and hemp come from the same plant species *Cannabis sativa* L. which contains over 100 cannabinoids. Some of these cannabinoids are intoxicating, and the primary intoxicating compound is delta-9-tetrahydrocannabinol (Δ9THC).

The Agricultural Improvement Act of 2018 (commonly referred to as the Farm Bill) federally legalized hemp cultivation and distinguished hemp from cannabis based on the concentration of Δ9THC.

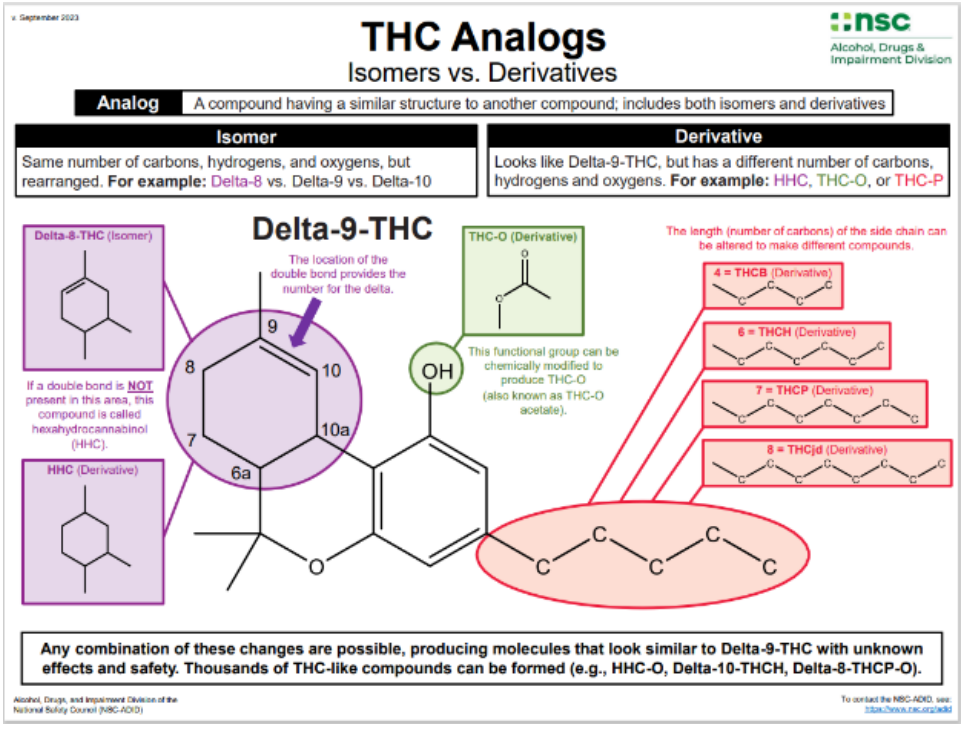
Hemp was defined in the Farm Bill as plants or plant parts containing 0.3% Δ9THC or less by dry weight.

Cannabis was defined as any plant or plant part containing more than 0.3% Δ9THC by dry weight. Only plants that meet the definition of cannabis are regulated as a controlled substance.[1-3]

This definition of hemp created two loopholes that allowed legal intoxicating products to emerge in the market. First, the 0.3% limit *by dry weight* allows edible hemp products to have higher levels of Δ9THC if the dry weight of the non-hemp ingredients has certain proportions. For example, a 50-gram (g) candy bar could contain up to 150 milligrams (mg) of hemp-derived Δ9THC (i.e., 150mg of Δ9THC [0.15 g] divided by 50g of non-hemp product equals 0.3% Δ9THC by dry weight).[1-3]

The second loophole is that there are other intoxicating cannabinoids in addition to Δ9THC that are not federally prohibited. Some of these

Figure 1. Delta-9-tetrahydrocannabinol (Δ9THC) analogs.[4]



are naturally occurring in the *Cannabis sativa* plant at low levels (e.g., Δ8THC and Δ10THC), while others are not naturally occurring and are created in laboratories (e.g., THC-O or THC-P).[1-3]

Figure 1 illustrates the molecular differences between various natural and synthetic THC compounds, which are often referred to as analogs.[4] These are sometimes collectively called "hemp-derived cannabinoids" because they are typically sourced from hemp rather than cannabis.

These legal loopholes led to a rapid increase in intoxicating hemp products that are often available to buy in places like gas stations, vape stores, and online. A study that examined hemp-derived products available for sale online identified more than 25 different intoxicating hemp-derived cannabinoids being sold as vapes, edibles, and flower.[5] The most common cannabinoids being sold were Δ8THC, THC-P, and Δ9THC. Most products were blends containing more than one intoxicating cannabinoid.[5]

These products currently exist in a regulatory gray area since they are not considered *cannabis* and do not have the same regulations as cannabis products.[5-6]

Prevalence

Estimating how common or how many intoxicating hemp products are in the market is difficult because they are sold under various names and can be easily confused for cannabis products. In general, Δ8THC is the most common and most-studied hemp-derived cannabinoid.[7] However, current estimates on the prevalence of Δ8THC use vary widely in the U.S., from 12% use in the *past year* to 12% *lifetime use* (i.e., used at any point in their life).[7,8]

Individuals who live in states with legal medical and non-medical cannabis appear to be less likely to use these products. For example, in 2023, the prevalence of lifetime Δ8THC use was about 18% in states where all forms of cannabis are illegal, 13% for states where medical cannabis is legal, and 9% in states where non-medical cannabis is legal.[7] In Washington state, about 6% of people aged 16 to 65 years have used Δ8THC sometime in their life and about 1% have used it in the past month.[7]

The three most common reasons for using Δ8THC products in Washington were because: 1) someone offered it to them; 2) it was easy and convenient to buy; and 3) because it is federally legal.[7]

Among youth, 8% of 10th graders in the U.S. reported using Δ8THC in the past year.[9] In Washington state, 5% of 12th graders reported current (past 30-day) use of any hemp-derived product, intoxicating or not.[10]

Health Effects

There is limited research on the short- and long-term effects of intoxicating hemp products because they are relatively new, largely unregulated, and constantly evolving.

As with prevalence of use, most research has focused on Δ8THC. Several studies have linked these products to negative health effects including mental health disorders, poisoning, and lung and heart disorders.[11-14] Negative mental health effects may be most likely when people use these products to cope with problems or to conform to other people's use. This is similar to trends among people who use cannabis.[15] At least one case of cannabinoid hyperemesis syndrome (cyclical and uncontrollable vomiting) and several cases of psychosis have been linked specifically to chronic Δ8THC use.[14,16]

Conversely, there is some research to suggest Δ8THC may provide less intense effects and last for a shorter duration of time than Δ9THC.[17] One online survey found that people reported feeling less anxious, paranoid, sick, and restless when using Δ8THC relative to Δ9THC.[18]

Some people report using Δ8THC to self-treat a range of health conditions and having favorable outcomes.[19] More research is needed to better understand the effects of Δ8THC, other intoxicating cannabinoids, and how they are similar and different from Δ9THC.

Recent data shows an increase in emergency room visits associated with Δ8THC.[13] It is uncertain if these increased rates are due to increased availability and use or to increased harm.

The National Poison Data System (NPDS) reports there were 3,358 Δ8THC exposures nationwide in 2022. Over half of these calls were for those younger than 20 years old.[20] The rate of exposure also increased by 89% from 2021 to 2022.[21] However, in Washington state there were only six Δ8THC calls to the NPDS recorded in 2022.[20]

Health and Safety Concerns

Many health and safety concerns stem from the lack of regulation that intoxicating hemp products have at the national level. Concerns include:

1) The concentration of cannabinoids in intoxicating hemp-products may not be labeled accurately, which can increase risk of accidental overconsumption.
2) Hemp products do not have the same product testing requirements as cannabis. They may contain harmful additives and contaminants, such as heavy metals and pesticides.[22]
3) There is no national minimum age for buying these products. Intoxicating hemp products have been marketed in ways that appeal to young people, such as in the form of candy and snacks. Some have directly mimicked well-known candy and snack brands including Cap'n Crunch, Nerds, Starbursts, and Sour Patch Kids (**Figure 2**).[11]
4) These products are readily available online, which is a challenge for age verification and enforcement.
5) Accidental consumption is also a concern for children, due to lack of child-resistant packaging and labeling requirements, as well as intentional mimicking of non-intoxicating products.

6) Retail availability of intoxicating hemp products appears to be more prevalent in lower income neighborhoods.[23-26]

Figure 2. Δ8THC product marketed to look like Sour Patch Kids.[11]

Legal Cannabis Market Concerns

There are several legal concerns related to intoxicating hemp products having less stringent regulations than legal cannabis products despite having similar intoxicating effects. Concerns include:

1) Intoxicating hemp products are sold in places like gas stations, convenience stores, smoke/vape shops, and online. This increased availability provides more opportunities for people to buy hemp rather than legal, regulated cannabis products.
2) Hemp products can be inexpensive. They are also not subject to the same taxes and product testing requirements that states impose for legal cannabis businesses. This may create an unfair financial benefit for untaxed, unregulated hemp products. It may increase competition between these two industries and potentially reduce tax revenues for states.
3) Consumers may be unaware of similarities and differences between hemp products and cannabis products, which may increase confusion and decrease informed decision making. For example, one study found that most people tended to report on their experiences with intoxicating hemp products when asked specifically about cannabis products.[7]
4) Unlike legal cannabis markets, hemp-derived products can participate in interstate commerce (except for states where they are illegal), which is another advantage over legal state cannabis markets.[1-3,23-26]

Despite these concerns, the national market for intoxicating hemp products appears to be about 10% of the overall size of the cannabis market. This is an increase of more than 1000% from 2020 to 2023.[27]

State Regulations

Due to the many concerns related to intoxicating hemp products, several states have taken regulatory action. However, state regulations vary widely and are unevenly enforced. State regulations can be classified in the following five categories (**Figure 3**):[28-29]

1) **Legal (21 states)**: Intoxicating hemp-derived cannabinoids are legally available with few restrictions.
2) **Legal, Some Restrictions (10 states)**: Intoxicating hemp-derived cannabinoids are legally available

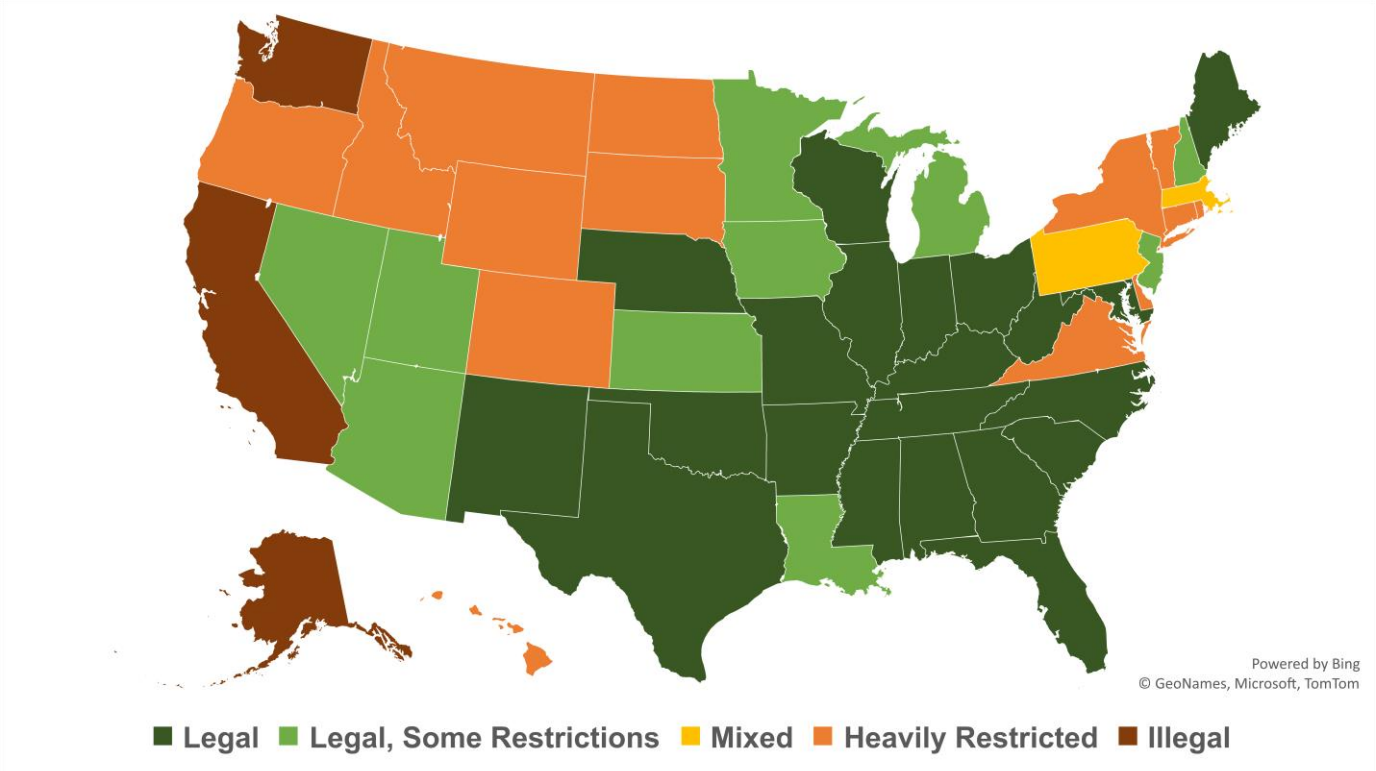
with some restrictions, such as milligram caps on total THC content, prohibitions on certain types of products, and limits on where products can be sold.

3) **Mixed (two states)**: Intoxicating hemp-derived cannabinoids are illegal, but enforcement is so limited or locally variable that one classification does not apply to the whole state.
4) **Heavily Restricted (14 states)**: Cannabinoids produced through isomerization (i.e., the same chemical composition but a slightly different configuration such as Δ8THC and Δ10THC) are prohibited, or caps on THC concentration are so low that legal products are unlikely to cause intoxication. Hemp-derived Δ9THC is still illegal.
5) **Illegal (three states)**: Cannabinoids that are produced through isomerization (e.g., Δ8THC and Δ10THC) are prohibited, and hemp with any detectable amount of THC is prohibited or only available where legal cannabis products are sold.

Intoxicating hemp products are less likely to be banned or restricted in states without legal adult-use cannabis markets. However, four states with legal cannabis markets have not yet banned or restricted intoxicating hemp-derived products (IL, ME, MO, NM) which means that these products are likely competing with their legal cannabis markets.

Research has shown that banning intoxicating hemp products is

Figure 3. Hemp-derived cannabinoid legal status by state.[29]



effective, but not perfect.[30,31] In states without bans, vape shops were 16 times more likely to be selling intoxicating hemp products compared to states with bans. However, in states with bans, 43% of vape shops still sold some form of these products.

States with only *some* regulations for intoxicating hemp products (e.g., potency and availability) had about the same number of vape shops selling these products as states with limited or no regulations.[26]

Washington State Regulations

In 2023, Washington State enacted Engrossed Second Substitute Senate Bill (E2SSB) 5367, making it illegal to sell any product with detectable levels of THC (including Δ8THC, Δ10THC, and other analogs) outside of the I-502 legal cannabis market. This law reduced the availability of hemp-derived THC products. However, they are still available online and there continue to be LCB enforcement reports of these products being sold in some stores, primarily those with only a tobacco license or that are unlicensed. For example, LCB's Enforcement and Education Division seized over 880 THC-containing products in 2023 and over 2,000 products in 2024.[32]

Future Considerations

Diverse stakeholders including researchers, public health professionals, and regulators have called for changes at the national level to close the loopholes the 2018 Farm Bill created. These include:

- Set a 21-year-old age limit for buying intoxicating hemp product;
- Standardize testing and labeling across products;
- Require packaging that is child-resistant and without designs that are especially appealing to youth;
- Adopt advertising practices that do not target or otherwise appeal to youth, and restrict certain health claims from being made;
- Develop location restrictions to ensure products are kept physically distant from schools, parks, etc.; and
- Standardize taxation for all cannabis and hemp-derived products to reduce unevenness in costs between cannabis and hemp markets.[1-3,30,31,33]

Finally, more research is needed to better understand the health impacts of these products, and education is essential to inform consumers about the risks of these products and to distinguish them from legal, regulated cannabis products.

Suggested Citation

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