



# HEALTH ADVISORY

Missouri Department of Health and Senior Services

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## Health Risks Associated with *Hemp-Derived Intoxicating Cannabinoids*

The Missouri Department of Health & Senior Services (DHSS) uses four types of documents to provide important information to medical and public health professionals, and to other interested persons:

**Health Alerts** convey information of the highest level of importance which warrants immediate action or attention from Missouri health providers, emergency responders, public health agencies, and/or the public.

**Health Advisories** provide important information for a specific incident or situation, including that impacting neighboring states; may not require immediate action.

**Health Guidances** contain comprehensive information pertaining to a particular disease or condition, and include recommendations, guidelines, etc. endorsed by DHSS.

**Health Updates** provide new or updated information on an incident or situation; can also provide information to update a previously sent Health Alert, Health Advisory, or Health Guidance; unlikely to require immediate action.

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### Summary

- The recent amplified availability and use of Hemp-Derived Intoxicating Cannabinoids (e.g., delta-8 tetrahydrocannabinol (THC) and over a dozen others) pose significant health risks, particularly to youth.
- Reporting of adverse reactions to consumption of products containing Hemp-Derived Intoxicating Cannabinoids has increased.
- These intoxicating compounds are currently untested in humans, unregulated, and sold to the public without restriction.
- Until safety data is available for human consumption, Missourians are advised to avoid these products.

### Background

Hemp-Derived Intoxicating Cannabinoids are not currently subject to federal regulation.

- The 2018 Farm Bill legalized hemp but included “derivatives” and “isomers” of the plant in the definition of hemp, as long as content of delta-9 THC by weight is less than 0.3%.
- Since 2018, processes have been developed to chemically derive over a dozen different intoxicating cannabinoids from hemp at varying potency levels.
- Hemp is indeed regulated by the U.S. Dept of Agriculture, but that regulatory authority ends after harvest. There is no safety/quality/concentration regulation pertaining to hemp subject to post-harvest chemical conversions.
- The FDA views hemp-derived cannabinoids as unapproved food additives, unapproved new drugs, misbranded drugs, adulterants when in food, and excluded from the definition of dietary supplements. The FDA has issued numerous warning letters to food facilities documenting violations of these regulations after the 2018 Farm Bill, including letters sent as recently as November 2023.

Hemp-Derived Intoxicating Cannabinoids are also not currently subject to state regulation in Missouri.



Currently, a wide variety of foods, beverages, purported dietary supplements, and other commodities containing hemp-derived compounds, both intoxicating and non-intoxicating, are available online and in traditional brick-and-mortar establishments in Missouri.

These products are marketed progressively and assertively in eye-catching ways to attract public consumption, particularly that of young consumers.

11.4% of 2,186 US 12-grade students self-reported Delta-8-THC use in 2023, and this prevalence was noted to be higher in the Midwest, according to a recent March 12, 2024, publication in the Journal of the American Medical Association (Harlow, et al.).

### **Risk Factors**

Consuming Hemp-Derived Intoxicating Cannabinoids is associated with the following risks:

#### **Risk for Poisoning**

- There are no studies on human health effects and safety of these compounds.
- Both short-term and long-term effects of these compounds are unknown.
- Many products include a combination of these new intoxicating cannabinoids.
- Many products are mislabeled, alleging inaccurate potency, and not disclosing presence of combinations of intoxicating cannabinoids or other toxic byproducts or contaminants.
- There are no regulated potency limits, despite risk of higher potency leading to greater harm.
- Accidental poisoning to children is due to attractive packaging and lack of childproofing.
- U.S. Poison Centers reported 82% more delta-8-THC cases in 2022 compared to 2021.

#### **Potential for Unexpected Intoxication**

- There are no standards requiring products containing hemp-derived compounds to disclose the amounts of intoxicating cannabinoids in the product. One recent study found at least twenty-six different intoxicating compounds in hemp-derived cannabis products readily available on the market, the most common being Delta-8 tetrahydrocannabinol (THC), THC-P, Delta-9 THC, HHC, THC-A, Delta-10 THC, THC-H, THC-B, THC- JD, THC-X, HHC-P, and Delta-11 THC.
- Because there are large variations in product formulation and widespread inaccuracies in labelling of active ingredient content, percentage, and/or quality, the consumer cannot have confidence in the dosage of hemp-derived compounds being ingested, even when attempting to make an informed decision based on the label.

#### **Appeal to Children and Mimicking of Commercial Food Products**

- There are no regulations imposing age restrictions on intoxicating hemp-derived products, which are widely available online and in brick-and-mortar establishments like gas stations, grocery stores, and convenience stores. Some of these intoxicating hemp-derived products intentionally mimic commercial food products that appeal to children.

Direct effects of these particular cannabinoids on the body include but are not limited to the following:

- Impairment of cognitive function, memory, and judgment. Hallucinations. Anxiety.
- Nausea, vomiting.
- Dizziness, tremor.
- Loss of consciousness, death.
- Dependency: Prolonged use may result in dependency, leading to addiction and withdrawal symptoms.



Impaired driving and operation of machinery, increasing risk for lethal accidents.

Contaminants and byproduct effects on the body

- Chemically processing hemp into intoxicating cannabinoids can involve the use of toxic solvents and acids, which can remain in the final product.

Processing hemp into intoxicating cannabinoids without testing may result in products with high concentrations of heavy metals, infectious contaminants, and other contaminants, such as mold and pesticides.

**Context**

Intoxicating cannabis-related compounds can be divided into at least 4 categories:

	Category	Availability
1	<b>Marijuana/Cannabis</b> Naturally occurring intoxicating compounds contained within Cannabis indica, Cannabis sativa, and Cannabis ruderalis. Although these plants contain over 480 constituents, delta-9-THC is assumed to be the main ingredient that generates the intoxicating effect.	Adult recreational cannabis is legal in Missouri for ages 21 and up, only at cannabis dispensaries, regulated by the MO Department of Health and Senior Services – Division of Cannabis Regulation. Medical cannabis is regulated separately for eligible individuals by the same agency.
2	<b>Hemp-Derived Intoxicating Cannabinoids</b> <i>Chemically derived</i> psychoactive compounds processed from hemp, including but not limited to <b>Delta-8 THC</b> , Delta-6 THC, Delta-10 THC, Delta-11 THC, THC-A, THC-O, THC-P, THC-V, THC-JD, PHC, HHC, HHC-P and HXC. These compounds are also referred to as “Derived Psychoactive Cannabis Products” (DPCPs).	These products are progressively available to the public at commercial venues without age restrictions or any other health and safety regulations.
3	<b>Synthetic Cannabinoids</b> Chemically engineered molecules that do not necessarily resemble the cannabinoid molecular structure but that nevertheless trigger the cannabinoid receptors. Also referred to as “Designer Synthetic Drugs.” Ex: K2 or Spice.	These are illegal drugs sold on the black market.
4	<b>Pharmaceutical Cannabinoids</b> FDA-approved pharmaceutical cannabinoids for targeted health conditions. Ex: dronabinol (brand name Marinol)	Available by prescription only. Classified as Schedule III drugs under the Controlled Substances Act.



**Missouri DHSS Recommendations**

In 2021, DHSS joined CDC in issuing a [Health Advisory](#) that warned the public to be aware of concerns with Hemp-Derived Intoxicating Cannabinoids. Since then, Missouri has experienced an increase in cannabis consumption poisonings and has identified reliable evidence of unique health and safety risks associated with these products. At this time, the public should avoid products that contain Hemp-Derived Intoxicating Cannabinoids until further notice. Without additional research regarding safety in humans, these compounds are considered unsafe.

Youth are particularly susceptible to these readily available products. These products should vigilantly be kept out of reach of children and pets.

Sale of these products in Missouri is discouraged until safety data is available in order to protect the public health of Missourians. If direct-to-consumer availability persists, retailers are strongly encouraged to ensure the products they sell have been tested for contaminants, to only sell products that accurately disclose potency



information, to clearly label products with a warning that the product has not been determined to be safe or effective, to avoid making any medical claims about the product's use in the diagnosis, cure, mitigation, treatment, or prevention of disease, and to prohibit sales to youth under 21 years of age.

Product labels should be checked when possible to identify and avoid the following product ingredients, which are Hemp-Derived Intoxicating Cannabinoids if sold outside of a Missouri-regulated cannabis dispensary: Delta-8 THC, Delta-6 THC, Delta-10 THC, Delta-11 THC, THC-A, THC-O, THC-P, THC-V, THC-JD, PHC, HHC, HHC-P and HXC. However, it is important to note there is no regulatory authority verifying these product labels are accurate.

Further awareness-raising and education is warranted to inform the public in Missouri.

Healthcare providers should screen patients for all types of cannabinoid use and provide appropriate interventions for those at risk. Patients presenting with cannabis intoxication symptoms who do not report cannabis use should be queried about their exposure to Hemp-Derived Intoxicating Cannabinoids and managed accordingly.

**For additional information on Hemp-Derived Intoxicating Cannabinoids:** Refer to the References listed below.

### References

- MO DHSS: <https://health.mo.gov/safety/cannabis/pdf/hemp-derived-cannabinoids.pdf>
- CDC: Increases in Availability of Cannabis Products Containing Delta-8 THC and Reported Cases of Adverse Events [https://emergency.cdc.gov/han/2021/pdf/CDC\\_HAN\\_451.pdf](https://emergency.cdc.gov/han/2021/pdf/CDC_HAN_451.pdf)
- DEA: [https://www.dea.gov/sites/default/files/2020-06/Marijuana-Cannabis-2020\\_0.pdf](https://www.dea.gov/sites/default/files/2020-06/Marijuana-Cannabis-2020_0.pdf)
- FDA: 5 Things to Know about Delta-8 Tetrahydrocannabinol – Delta-8 THC <https://www.fda.gov/consumers/consumer-updates/5-things-know-about-delta-8-tetrahydrocannabinol-delta-8-thc>
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- Rossheim, Matthew & Tillett, Kayla & Vasilev, Viktor & Loparco, Cassidy & Berg, Carla & Trangenstein, Pamela & Yockey, Andrew & Sussman, Steve & Siegel, Michael & Jernigan, David. (2024). Types and Brands of Derived Psychoactive Cannabis Products: An Online Retail Assessment, 2023. Cannabis and cannabinoid research. 10.1089/can.2023.0266.
- University of North Texas Health Science Center at Fort Worth School of Public Health – Dr. Matthew Rossheim <https://www.unthsc.edu/school-of-public-health/derived-psychoactive-cannabis-products-dpcps/>

### Target Audience

Local Health Departments, Hospital Emergency Departments, Health Care Providers, First Responders, Poison Control Centers, Laboratories and the Public.

This information is current as of April 18, 2024, but may be modified in the future. We may continue to post updated information regarding the most common questions about this subject.