



## **Cannabis Derivatives**

**5/8/23**

The emergence of the cannabis derivatives market was an unintended consequence of the 2018 U.S. Farm Bill, a piece of federal legislation that is passed every five years. One significant change in the most recent edition was a loophole that allowed commercialization of hemp derived products, which allowed for the sale of hemp and cannabis derivatives products.

### **WHAT ARE CANNABIS DERIVATIVES?**

Delta-8, Delta-10, THC-O, and THC-P are psychoactive chemical compounds found in cannabis and hemp plants. Plants naturally generate a very low amounts of some of these compounds. Due to those low levels, products can be derived from a chemical conversion process which generates a kind of synthetic product.

### **HOW DO PEOPLE USE CANNABIS DERIVATIVES?**

People consume Delta-8, Delta-10, and other cannabis derivatives in a number of ways. The most popular methods of consumption are edibles, vaping, capsules and tinctures. These products can be purchased in a variety of stores in Illinois, including vape/smoke shops, convenience stores and gas stations, where there may not be age limits on who can purchase them.

### **REGULATION**

Delta-8 and Delta-10 products are unregulated by oversight agencies. This makes it very difficult for a purchaser/buyer to know what additives or chemicals have been involved in the chemical process to create these synthetic derivatives. Due to this variance, products can fluctuate significantly in potency and impacts. The Food and Drug Administration (FDA) has not evaluated these products, and in fact has received reports of adverse events tied to the use of these products. Between January 2021-February 2022, there were 2,632 exposure cases related to Delta-8 reported to the National Poison Center. Of those calls, 41% were for pediatric patients under the age of 18.

Furthermore, the FDA has expressed concern about marketing for cannabis derivatives. These products can “fly under the radar” for parents because they can be marketed in misleading ways that put the public health at risk. Phrases such as “all-natural,” and “hemp-derived cannabinoid (CBD) product” often appear on labels, which can make the products appear to be low-risk, safe or safer than traditional THC products. Others express therapeutic or medical claims. This includes physical marketing, but also digital marketing which appeals to youth.

## **WHAT DO PARENTS NEED TO KNOW ABOUT DELTA-8, DELTA-10, THC-O, THC-P?**

While traditional Delta-9 THC products are derived from cannabis and produce the “high” people may experience after purchasing them in marijuana dispensaries, the lesser-known Delta-8, Delta-10, THC-O and THC-P products are sometimes found in stores frequented by youth such as convenience stores and gas stations. In addition, delta-type THC-derivative products may be confused with hemp or CBD products that are not intoxicating, exposing adults and teens to the risk of harm from unexpected or increased intoxication. Products including hemp, CBD and Delta-8 usually contain some level of THC and do not have to be sold in dispensaries if containing less than .3% THC by weight. However, youth who are consuming lower-THC products with the intent of obtaining a “high”, may use the product at an increased amount to get a dose necessary for the desired effect. All THC has psychoactive, intoxicating effects whether derived from the cannabis plant or from hemp/CBD using a synthetic process. In terms of potency, THC-O and THC-P are more potent than both Delta-8-THC and Delta-9-THC, with THC-P being the highest potency. Hemp and CBD products typically are not psychoactive; Delta-8 and Delta-10, however, are psychoactive, although less so than Delta-9. Consumers of these products use at their own risk; no federal or state agency monitors THC levels or ingredient safety of any of the Delta-derivatives. Keep in mind that even if a product is not sold in a dispensary, it should not be assumed to be safe. Delta-8 THC products, and other THC derivatives, have not been evaluated or approved by the FDA for safe use in any context, and should be kept out of reach of children. The FDA has issued warnings about these products. Caregiver vigilance means knowing the health and safety risks for youth and being aware of youth access to these products in your community.

FDA, Centers for Disease and Control and Prevention (CDC) and others have issued consumer warnings about THC derivatives, which follow. Parents should know that:

- Products are packaged and labeled in ways that appeal to kids;
- Products can be illegally purchased by kids online who click “yes” when asked if they are an adult to gain entry into manufacturers’ websites, which require no proof of age.
- Products are illegally marketed to alleviate or cure health conditions that may be experienced by youth such as anxiety, depression, chronic pain, and nausea.
- Products may illegally list a THC-derivative as a food additive ingredient. In doing so, the product can be unnoticed among food coloring and preservative names. For example, “organic tetrahydrocannabinol” may be missed by a parent who is skimming the ingredient list on candy, snack or a beverage. The FDA has not found these THC-derivative substances to be “generally recognized as safe” (GRAS).
- Products are unlawful when their label has drug misbranding (e.g., the products lack adequate directions for use, such as suggested dosage, or warning about underage dangers). Products are not tested by a U.S. government regulatory agency for contaminants such as heavy metals, solvents, or pesticides that may have adverse health effects (source: CDC. Increases in Availability of Cannabis Products Containing Delta-8 THC and Reported Cases of Adverse Events. 2021 <https://emergency.cdc.gov/han/2021/han00451.asp>). THC-O doesn’t exist organically in nature and THC-P in the cannabis plant is at levels too low to extract for manufacturing, so both are synthetically processed from CBD using harsh chemicals that can be dangerous to human health. Producing THC-O requires acetate anhydride, a toxic flammable chemical compound used in manufacturing processes for fibers, plastics, dyes, and pharmaceutical products. Once

THC-O is extracted, the manufacturer should purify the end product to get rid of any traces of acetate anhydride due to its potential damage to our bodies, but without any regulation, there is no oversight.

- Products are often sold in natural food and supplement stores and in pet stores, where teens may hold part-time jobs and gain easy access.
- Products including Delta-8 and other THC-derivatives that are the property of adult household members should be stored safely away from children and teens. Children mistaking edibles that contain THC (e.g., fruit-flavored gummies containing delta-8 THC) as candy, have experienced adverse events from delta-8 THC intoxication that can resemble delta-9 THC intoxication. This may include:
  - anxiety
  - lethargy
  - dizziness
  - hallucinations
  - vomiting
  - uncoordinated movements and decreased psychomotor activity
  - slurred speech
  - increased heart rate progressing to slowed heart rate
  - low blood pressure
  - difficulty breathing
  - sedation or loss of consciousness
  - psychosis and depression risk is heightened in those with an elevated genetic psychiatric history (source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8945254/>) or a current diagnosis of a significant clinical mental health issue; recreational drugs should be avoided in their entirety by these individuals.
  - increased risk of heart damage or abnormal heart rhythms in youth and adults with pre-existing significant underlying cardiovascular issues with heavy use of Delta-8-THC due to inflammation caused by THC (Source: Stanford <https://med.stanford.edu/news/all-news/2022/04/marijuana-heart-disease.html>)
- Products used over time may impact youth brain development. A 5-year study published in 2021 on brain development in 13- to 17-year-olds who used marijuana (Source: <https://pubmed.ncbi.nlm.nih.gov/34132750/>) found cannabis use was associated with thinning of the prefrontal cortex and that this effect was dose-dependent — the greater the cannabis exposure, the greater the cortical thinning. The researchers reported that accelerated cortical thinning was associated with attentional impulsivity.
- Products containing THC can be psychologically and physically addictive, especially for youth whose growing brains are at a higher risk of addiction than adults. Research in animal studies of Delta-8 THC showed increasing tolerance with repeated use, and withdrawal effects including depressed behaviors (Source: Assessment of dependence potential and abuse liability of Delta-8 tetrahydrocannabinol in mice. Drug and Alcohol Dependence. Nov2022. <https://www.sciencedirect.com/science/article/abs/pii/S0376871622003775>.)

## **WHEN CAN THE PUBLIC EXPECT MORE RESEARCH DATA ON SAFETY AND EFFECTIVENESS?**

Clinical studies that have evaluated Delta-8, as well as Delta-10, THC-O, and THC-P in humans, are limited to a handful of studies with small sample sizes. (Source: Review of delta-8-tetrahydrocannabinol [( $\Delta^8$ -THC)]: Comparative pharmacology with Delta-9-THC. Brit J Pharmacology 2022.

<https://bpspubs.onlinelibrary.wiley.com/doi/10.1111/bph.15865>).

Additional studies are needed to understand the health effects, safety and drug interactions of these THC derivatives. The CDC continues to follow health effects of products of potential concern containing delta-8, delta-10 THC, THC-O, and THC-P.

The FDA is working to address the concerns related to these products and monitor product complaints, adverse events, and other emerging derivative products of potential concern.

### **COMMUNITY POLICY SIGNIFICANTLY SHAPES COMMUNITY NORMS -**

Youth continually pick up messages sent intentionally and unintentionally from their community, which impacts their attitudes, beliefs and behaviors. Prevention research indicates the importance of both family and community norms in influencing youth behavior related to underage substance use. Families benefit greatly from the support of protective community norms around youth substance use, aiding in effective parenting. Research demonstrates that the more available and accepted substances are in a community, the more it signals to youth in the community that use is a safe and supported practice.

**Community policy is one of the most effective strategies for preventing and reducing youth underage substance use.** Community policy is effective when it:

- Creates barriers, limiting access to substances, through establishment of an age for legal purchase and holding retailers responsible for not selling to those under that age.
- Creates limitations on what youth see and hear through formal marketing and promotion related to substances.
- Creates limitations on informal marketing and promotion of substances through product placement, where, when, and how product is allowed to be used, sponsorships, etc.

**Prepared by the 360 Youth Services Prevention Team which provides leadership for the following community-wide youth substance use prevention programs: The Community Alliance for Prevention, The Youth Advisory Committee, Power of Choice, and Operation Snowball.**



<https://360youthservices.org/>

<https://www.communityallianceforprevention.org/>

## Sources:

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