

What is HHC? Hydrogenated Cannabinoids & Apocalypse-Ready THC

HHC (hexahydrocannabinol) is the most stable form of THC. It's resistant to heat and UV radiation & has a substantially longer shelf-life than THC.

There's also some evidence that HHC doesn't register on standard drug tests.

What is HHC?

HHC stands for hydroxyhexahydrocannabinol. There are several isomers of this hydrogenated form of THC.

HHC is to THC, what margarine is to butter.

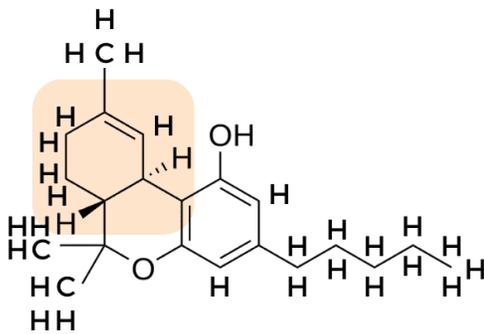
By saturating the molecule with hydrogen atoms, the shelf-life of this cannabinoid is extended substantially without affecting the effect profile too much.

HHC is naturally occurring, but only in trace concentrations. For companies to sell this cannabinoid, they're going to need to make it in a lab.

Basically, HHC is THC without any double bonds in its chemical structure. It's the exact opposite molecule as CBN (cannabinol), which forms as THC breaks down and gains additional double-bonds.

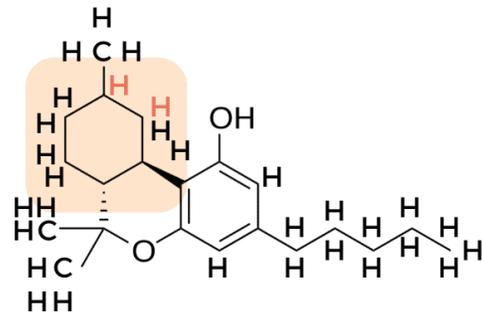
With HHC, all the double bonds have been broken and replaced with hydrogen (AKA hydrogenation).

Delta 9 THC



There is one double bond, which prevents the ring structure from being completely saturated with hydrogen.

HHC



The hydrogenation process forces the double bond to break and replaces it with two extra hydrogen atoms.

The difference is subtle, but this changes the geometry of the molecule, along with its binding affinity for the CB1 and CB2 endocannabinoid receptors and TRP pain receptors.

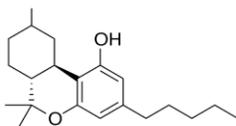
This change also makes the molecule much more stable — meaning it's going to have a longer shelf-life before losing its potency than other forms of THC. This happens for the same reason that hydrogenated vegetable oils last so much longer than regular vegetable oils. By saturating the chemical structure, it becomes less susceptible to oxidation and breakdown.

This compound is also much more resistant to improper storage or exposure to heat and UV light. HHC would make for a perfect apocalypse cannabinoid because of how long it remains viable in storage.

Delta 9 THC, the most abundant naturally-occurring form of THC, but it's also the least stable. As it oxidizes, it loses hydrogen atoms and forms two new double bonds on its top ring structure. When this happens, THC becomes CBN (cannabinol) — which has only 10% of the psychoactivity of THC.

Key Points: What is HHC?

- HHC is a hydrogenated (semi-synthetic) form of THC
- HHC offers similar effects & potency compared to THC
- HHC has a substantially longer shelf-life & is more resistant to high heat or UV exposure
- The safety profile of HHC is still unclear, but there's no evidence to suggest it's dangerous



HHC

What Are The Effects of HHC?

HHC has very similar effects as THC. It produces feelings of euphoria and stimulation, altered visual and auditory perception, changes in heart rate and body temperature, and altered headspace and cognition.

Many users report the effects of HHC are similar to that of delta 8 THC in terms of being more heavily weighted towards relaxation than stimulation. HHC is more potent than delta 8 but slightly less potent than delta 9 THC.

HHC is still very new, so there aren't many studies available to evaluate its potential therapeutic effects — but so far, it seems this cannabinoid offers most of the same therapeutic effect profile as other forms of THC. There's even been some animal testing that showed beta-HHC possesses notable painkilling effects when tested on rats.

The potential benefits of HHC include:

- May help manage chronic pain
- May reduce inflammation
- May promote deeper, more restorative sleep
- May alleviate nausea or vomiting
- May alleviate anxiety (may also increase anxiousness)

The real benefit of this cannabinoid comes from its impressive shelf-life, more so than its physical effects. It offers very similar benefits to THC but comes in a much more stable form.

Is HHC Legal?

There's a lot of debate around the legality of cannabinoids like HHC or delta 8 THC. Companies that intend to sell HHC, claim it's entirely legal because it's naturally occurring. However, like many of the other THC analogs, it doesn't occur in any meaningful amounts in nature and therefore must be made in a lab in order to get any usable supply.

Specifically, HHC is made by hydrogenating THC. This process involves subjecting concentrated THC to high pressure, hydrogen, and a catalyst such as palladium.

An older method outlined a process for converting CBD to 9 α -OH-HHC, 8-OH-iso-HHC, and Δ 9-tetrahydrocannabinol using artificial gastric juice. There haven't been many updates on this procedure since the initial article published in 2007.

Whether this constitutes a natural or synthetic compound is up for debate.

If deemed natural, as long as the final product remains below the legal threshold of 0.3% delta 9 THC and the starting material is derived from hemp, it's legal on a federal level.

If deemed synthetic, HHC is illegal on a federal level with the same repercussions as delta 9 THC.

Related: [What are synthetic cannabinoids?](#)

Currently, the legality of the entire alternate cannabinoid market is a big question mark. While some interpretations make these compounds appear legal, there are other laws that could make these compounds illegal already — such as the Federal Analog Act. This law makes any analog of a listed Schedule I drug (such as delta 9 THC) illegal by proxy.

Most countries have similar laws and also list THC as a prohibited substance.

Use these products at your own risk.

Is HHC Safe?

There have never been any safety studies for HHC to date — so any information currently available regarding the safety of this compound is speculative.

With that said, the popularity of HHC is on the rise, and there have already been a lot of people using it on a daily basis. There has not yet been any reports of severe side effects. Preliminary research suggests it shares a comparable safety profile to THC.

There are some side effects that have been reported. These effects are similar to the side effects experienced with high-dose THC:

- Anxiety
- Insomnia
- Rapid heart rate

- Dizziness & confusion
- Increased hunger levels
- Dry mouth
- Red eyes
- Paranoia

Will HHC Show Up On a Drug Test?

One of the main selling points used to market this compound is that it doesn't register on conventional 12-panel drug tests. This has a lot of people interested because the other THC alternatives, such as delta 8 and delta 10 THC, will both contribute to a failure on urine or blood tests for THC.

Whether HHC can truly avoid drug tests or not is still up for debate. There's some indication this compound doesn't metabolize into 11-hydroxy-THC, which is the primary metabolite of THC drug tests can detect.

This is only a theory and has not yet been tested to prove whether it's true or not.

HHC vs. THC: What's The Difference?

Structurally, HHC and THC are nearly identical. THC normally has one double bond in its top ring structure, which is absent in HHC.

This makes HHC more stable than THC long-term and alters its ability to bind with various receptors in the body,

Overall, HHC is considered about 80% as potent as THC (some suggest it's stronger) but otherwise shares virtually identical traits.

Source or Origin

Delta 9 THC is the most abundant form of THC in the cannabis plant, by far. This goes for both hemp and marijuana strains.

As delta 9 THC breaks down, most of it is converted to CBN, while a very small concentration is converted to delta 8 THC, delta 10 THC, or HHC.

Because of how abundant delta 9 THC is in the plant, it can be extracted and concentrated without any additional effort.

All of the other forms of THC are present in concentrations too low for this method to be feasible. Companies would need to extract massive quantities of marijuana to obtain any meaningful supply of this compound.

Instead, companies make HHC and other forms of tetrahydrocannabinols through isomerization or hydrogenation processes. Delta 8 and delta 10 are made through the isomerization of CBD, while HHC is made through a hydrogenation process involving THC that's either converted from CBD or extracted in its natural form. HHC can also be made from the terpene citronellol.

Chemical Structure

There are a lot of THC analogs on the market today, and several others are expected to hit the market within the next couple of months.

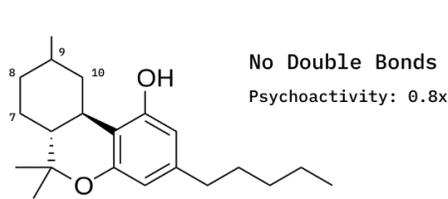
There are two variables of THC that can be tweaked to create a new analog:

- The location of the double-bond in the top ring structure on the THC molecule
- The length of the side chain extending off the bottom ring structure (benzene ring) on the THC molecule

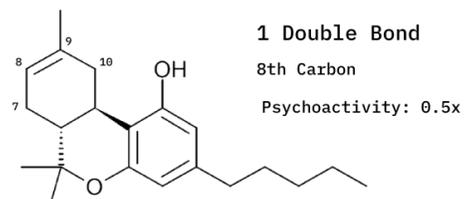
HHC is an alteration to the first variable. It's characterized by a lack of any double bonds on the first ring structure.

Here are a few of the different variants that can be made by playing around with the double bonds in the THC molecule:

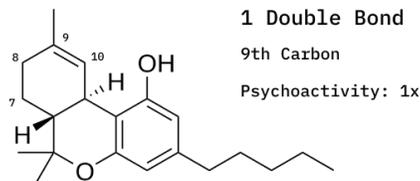
- Double bond at the tenth carbon — delta 10 THC
- Double bond at the ninth carbon — delta 9 THC
- Double bond at the eighth carbon — delta 8 THC
- Double bond at the fifth or seventh carbon — delta 7 THC
- Maximum number of double bonds — CBN
- No double bonds — HHC



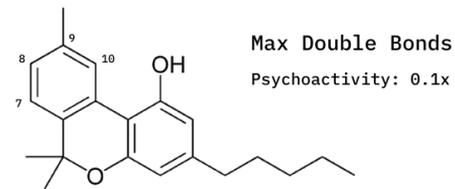
HHC



Delta 8 THC



Delta 9 THC



CBN (Cannabinol)

● DailyCBD

Effects & Potency

The effect profiles of HHC and THC are very similar. Any form of THC that has more than three carbons in its side chain has psychoactive effects.

The more carbons in the chain, the stronger the psychoactive effects.

Ranking the potency of Tetrahydrocannabinols (Weakest to Strongest):

- THCC has one carbon and is non-psychoactive.
- THCV has three carbons and is about 25% as potent as THC.
- THC (both delta 8, delta 9, and delta 10) have five carbons. The delta 9 isomer is the strongest of the three.
- HHC also has five carbons and is placed somewhere in between the potency of delta 8 THC and delta 9 THC.
- THC-O-acetate is a prodrug of delta 9 THC. It's stronger because it has a higher bioavailability than natural THC.
- THCP has seven carbons and is the strongest of them all — somewhere between 5 and 33 times as potent as delta 9 THC