



white paper

# **CANNABIDIOL (“CBD”) PRODUCTS AND DRUG TESTING**

With CBD use becoming more common among a growing number of job applicants, employers are now wondering what impact, if any, CBD use will have on drug testing.

---



Cannabidiol (“CBD”) has become the new hot product in many states across the U.S. CBD is being credited with helping a host of medical problems, from epileptic seizures to sleeplessness, inflammation and anxiety. But CBD continues to remain unregulated across the nation, resulting in varying origins and effects on users depending on the CBD product used. With CBD use becoming more common among a growing number of job applicants, employers are now wondering what impact, if any, CBD use will have on drug testing.

## Q1) WHAT IS CBD?

Cannabidiol (“CBD”) is one of the more than 80 active cannabinoids found in the marijuana plant.<sup>1</sup> Marijuana contains both tetrahydrocannabinol (“THC”) and CBD, but unlike THC, CBD is not psychoactive. In other words, CBD use will not produce euphoria or intoxication.<sup>2,3,4</sup> This is because they act via different receptors. The euphoric effects of THC

are caused by activation of CB1 receptors, which CBD has a very low affinity for. Hence, when CBD binds to this receptor, it produces little to no effect.<sup>1</sup>

Marijuana and hemp are both derived from *Cannabis Sativa*. Marijuana can additionally be derived from *Cannabis Indica* or *Cannabis Ruderalis*. Marijuana typically contains very high

<sup>1</sup> Borgelt et al. The pharmacologic and clinical effects of medical cannabis. *Pharmacotherapy (Review)* 33(2): 195-209 (2013).

<sup>2</sup> Martin-Santos et al. Acute effects of a single, oral dose of  $\Delta^9$ -tetrahydrocannabinol (THC) and cannabidiol (CBD) administration in healthy volunteers. *Curr Pharm Des.* 2012; 18(32): 4966-79

<sup>3</sup> Fusar-Poli et al. Distinct effects of  $\Delta^9$ -tetrahydrocannabinol and Cannabidiol on Neural Activation During Emotional Processing. *Arch Gen Psychiatry.* 2009; 66(1): 95-105

<sup>4</sup> Winton-Brown et al. Modulation of Auditory and Visual Processing by  $\Delta^9$ -tetrahydrocannabinol and Cannabidiol: an fMRI study. *Neuropsychopharmacology.* 2011 Jun; 36(7): 1340-8.

amounts of THC and only a very low amount of CBD. Hemp, on the other hand, has a very high amount of CBD, and only a very low amount of THC.

In the U.S., the legal definition of “industrial hemp,” per Section 7606 of the Agricultural Appropriations Act of 2014, is “the plant *Cannabis sativa* L. and any part of such plant, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight

basis.” Thus, hemp is cultivated to not contain more than 0.3 percent of THC on a dry-weight basis.

Most of the CBD products are derived from hemp. CBD products are available as CBD oil, gel, creams, salves, capsules, etc. They are used for a variety of benefits such as anti-seizure, neuroprotective, analgesic, anti-inflammatory and anti-anxiety,<sup>5</sup> to name a few.



## Q2) CAN CBD PRODUCE A POSITIVE DRUG TEST RESULT FOR THC?

**It depends, but for now, CBD use can never be a valid medical explanation for a THC positive drug test.**

THCA (11-nor-delta-9-tetrahydrocannabinol) a metabolite of THC (Tetrahydrocannabinol) is the target for initial and confirmatory urine drug tests for marijuana.<sup>6</sup> The test does not detect CBD.

Given the extremely low levels of THC in industrial hemp sold in the U.S., CBD oil derived from such hemp should not

produce a positive drug test result for THC. However, CBD oil can also be derived from marijuana, in which case it can produce a positive drug test for THC. Some CBD products containing high levels of THC are still available in other countries and can likely be obtained in the U.S. (e.g., through the internet).

<sup>5</sup> Nora D.Volkow. *The Biology and Potential Therapeutic Effects of Cannabidiol*. NIDA (National Institute on Drug Abuse) Jun 24, 2015

<sup>6</sup> Robert B.Swotinsky. *The Medical Review Officer's Manual*, 5th edition, 14: 245

As per the Substance Abuse and Mental Health Services Administration, “a product named Charlotte’s Web Oil is being advertised in Colorado for similar symptoms (spasticity). That product appears to be a marijuana extract enriched with higher ratios of CBD to THC. The product might give a positive THCA test result. The DEA has reiterated their position on the extracts of marijuana such as CBD or Charlotte’s Web Oil. CBD is currently being illegally produced and marketed in the United States in violation of the CSA and the Federal Food, Drug, and Cosmetic Act. Because this extract is a derivative of marijuana, it falls within the

definition of marijuana under federal law and is listed as Schedule I.”<sup>7</sup>

Thus, CBD products have a low probability of causing a positive drug test for THC if they are derived from industrial hemp made in the U.S. since such hemp contains very low levels of THC. However, as previously mentioned, CBD products are not FDA regulated, and the level of THC contained in them can vary based on their origin. Hence, it is prudent to avoid these products if one is anticipating a drug test.



## CONCLUSION

To summarize, marijuana contains both CBD and THC. Hemp also contains both CBD and THC (albeit very low amounts in industrial hemp, of less than 0.3 percent). Most CBD products in the U.S. are derived from industrial hemp. CBD products derived from industrial hemp should not produce a positive result for THC given the extremely low levels of THC in industrial hemp sold in the U.S.

However, CBD products may be derived from marijuana as well, in which case they can produce a positive test result for

THC. Thus, the amount of THC contained in a CBD product, and subsequently whether or not the CBD product produces a positive result for THC, depends on the product’s origin and the source the CBD was derived from (either marijuana or hemp). Nonetheless, for now, an applicant’s CBD use can never be a valid medical explanation for a THC positive drug test. ■

<sup>7</sup> Medical Review Officer Guidance Manual for Federal Workplace Drug Testing Programs, U.S. DEPT. OF HEALTH & HUMAN SERVICES, SAMHSA 55 (rev. March 2018), available at [https://www.samhsa.gov/sites/default/files/workplace/mro\\_guidance\\_manual\\_508\\_final\\_march\\_2018.pdf](https://www.samhsa.gov/sites/default/files/workplace/mro_guidance_manual_508_final_march_2018.pdf).