

Vape Cartridge Analysis Finds No Vitamin E Oil

Recent reports of e-cigarette and vaping product-associated lung injury have researchers scrambling to find a cause. Thus far, the Centers for Disease Control has confirmed 1,888 cases resulting in thirty-seven deaths nationwide. Statements from the Federal Drug Administration and the New York State Health Department in September identified a particular form of vitamin E oil called tocopheryl acetate as a possible culprit. Vitamin E oil, a common cosmetic ingredient not generally used for inhalation, has found use in the illicit cannabis market as a thickener used to extend low-quality vape cartridges.

To evaluate the prevalence of vitamin E oil in vape cartridges sold legally in dispensaries in the greater San Diego, California area, scientists from Coastal Analytical, a state-licensed cannabis testing lab, randomly purchased numerous brands and styles of cartridges from 5 licensed dispensaries and tested them for tocopheryl acetate.

Of the 33 samples tested, none contained the vitamin E compound suggesting that vaping products purchased from licensed dispensaries in the San Diego area are free of the subject adulterant.

List of Dispensaries and Products Tested

Dispensary	Brand (Flavor)
Apothekare	Dosist (Bliss), Lowell Farms (Garlic Cookies), Outco (Sherbet), Marley Natural (Trident CBD rich), Platinum Vape (Sour Tsunami), Orchid Essentials (Blackberry Kush)
THCSD	Bloom Farms (White Rhino), Gold Flora (Platinum Sativa), Ionic (Sour Diesel), Moon (Animal Cookies), Moxie (GSC)
Torrey Holistics	Absolute Xtracts (Blue Dream), Cresco Labs (Cloud Cake), Cru Cannabis (Forum Cookies), Heavy Hitters (Lemonade), Jetty Extracts (Gelato), RAD (Banana Pancakes), Raw Garden (Mendo Dragon)
Urbn Leaf (San Diego)	Eel River Organics (Nectar Dairy Queen), Honey Vape (GG4), Jetty Gold Cartridge (Sage N Sour), Loud and Clear (Crème Brûlée), Potters Full Spectrum (Maui Wowie), Rove Cartridge (Skywalker)
Urbn Leaf (San Ysidro)	Care by Design Cartridge (8:01), Kingpen (Purple Punch), Kurvana (Kool Mint), Kurvana (Sour Diesel), Stiiizy (Skywalker), Loud and Clear (Purple Punch), Potters Cannabis Co (Watermelon), Rover Cartridge (Glue), Select Elite (Jack Herer)

Technical Information:

Vape cartridge samples were analyzed for tocopheryl acetate (Vitamin E acetate, CAS# 52225-20-4) using Liquid Chromatography Mass Spectrometry (LCMS). Sample preparation was performed by combining 100 mg of the sample with 20 mL of methanol (MeOH) and vortexing for 10 minutes. The samples dissolved completely in the MeOH. A negative control was prepared by dissolving approximately 100 mg of canola oil in 20 mL MeOH. The positive control was prepared by spiking canola oil with a certified reference standard of tocopheryl acetate and combining 100 mg of the mixture with 20 mL of MeOH.

Instrument: Shimadzu LC-10ADVP coupled to a Waters Quattro Micro MS

LC Parameters: Isocratic 95% MeOH (0.5 mM Ammonium Formate/1% Formic Acid) / 5% H₂O (0.5 mM Ammonium Formate/1% Formic Acid)

Column: Agilent Eclipse XDB-C18 2.1 mm x 150 mm

Mode: MS1 Scan/Single Ion Monitoring (SIM)

Ionization Mode: ESI+

Ions: 478.3, 490.3, 962, Scan range 50 – 1000 Daltons

Certified Reference Material: 1,000 ppm Tocopheryl acetate / MeOH (Cerilliant, V-022-1ML)