



7-Hydroxymitragynine (7-OH)

**DEA Intends to Schedule Dangerous Opioid
Currently Being Sold Commercially
Across the United States**

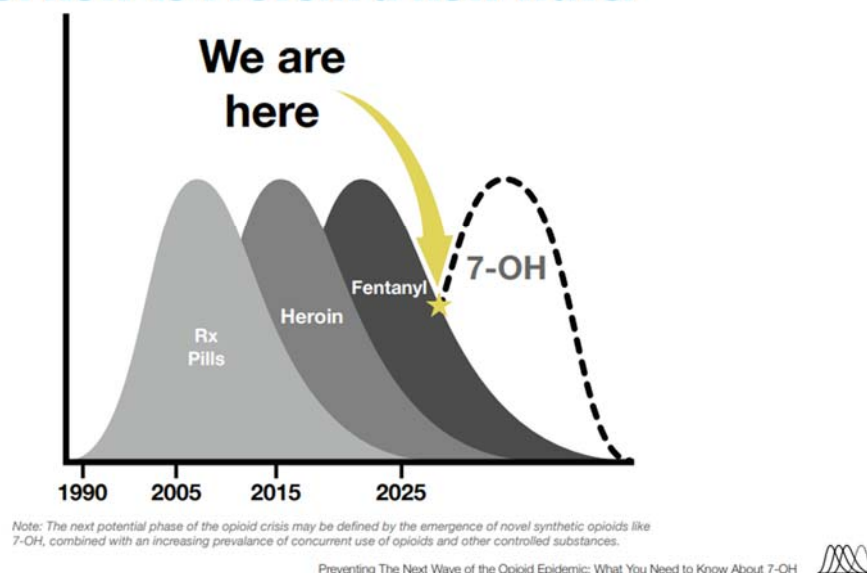
**Houston Investigative Support Center (HISC)
An Initiative of the Houston HIDTA
August 2026**



UNCLASSIFIED

This assessment has been prepared to provide awareness about a semi-synthetic opioid called 7-hydroxymitragynine (7-OH) and its impact within the Houston HIDTA. Although this threat is largely unrecognized by the general public, the U.S. Food and Drug Administration (FDA) has warned that 7-OH could become the next wave of the opioid epidemic. 7-OH and related products have increasingly been linked to addiction and deaths across the nation, including adults and teens in the Houston HIDTA. On July 29, 2025, the FDA recommended that this dangerous substance, currently available for purchase online and in retail stores, be scheduled under the Controlled Substances Act (CSA). On July 1, 2026, the Drug Enforcement Administration (DEA) announced its intent to temporarily place these enhanced 7-OH products and three related substances in Schedule I of the CSA to protect public safety.

The Opioid Epidemic is Evolving with 7-OH. We Can and Must Act Now to Prevent a New Wave.



FDA's Warning about 7-OH

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What Is 7-Hydroxymitragynine (7-OH)?

7-hydroxymitragynine (7-OH) is a newly emerging public health threat in the United States.^{1,2} It is referred to as a “gas station opioid” because, unlike prescription opioids dispensed at pharmacies or counterfeit opioid tablets purchased discreetly on the illicit drug market, 7-OH is sold openly online and in vape shops, gas stations, and convenience stores. Because it is sold in stores, some consumers may naively believe it is safe to use, but this is far from the case. The ease of accessibility of this opioid is leading to addiction and death, both regionally and nationally.

The Distinction Between Natural Kratom and 7-OH Products

Although 7-OH is the focus of this assessment, it is often confused with another related, but distinctly different, product called kratom. Compounding this issue, many 7-OH products are falsely labeled as kratom, misleading consumers.^{3,4,5} Therefore, for clarification, each of these products will be defined in this report. Both kratom and 7-OH have been linked to dependence, but 7-OH is far more potent and addictive.^{6,7,8}



Kratom Products

Kratom is derived from the leaves of a tropical evergreen tree (*Mitragyna speciosa*) in the coffee family (Rubiaceae) that is native to Southeast Asia.^{9,10} Kratom leaves contain numerous alkaloids (organic compounds that may have pronounced physiological effects in humans).¹ The predominant psychoactive compound in kratom leaves is mitragynine. When the leaves are dried, a substance called 7-hydroxymitragynine (7-OH) is produced in trace amounts of less than 2%.^{1,2} Kratom first arrived in the United States after the Vietnam War.¹¹ It has been for sale since the 1990s and began gaining popularity in the mid-2000s.^{11,12,13} An estimated five million Americans have tried kratom, and a recent national study found that kratom use is at an all-time high and is increasing.¹³

Kratom is typically sold in forms such as powders, capsules, extracts, and beverages such as seltzers.^{14,15} At low doses, it produces caffeine-like stimulant effects, including increased alertness and physical energy. However, at high doses, it causes sedative-like effects similar to opioids.¹⁶ In Southeast Asia, it has been used for centuries to boost energy and manage pain. Kratom leaves were traditionally chewed or brewed in tea, most often by field workers, to combat fatigue and increase work productivity.¹⁷ In the United States, kratom is commonly advertised as an energy supplement, a mood enhancer to treat anxiety and depression, a natural pain reliever, and in recent years, it has increasingly been used to self-treat opioid addiction and temper the effects of withdrawal.^{18,19,20}

The FDA has not approved kratom as a dietary supplement or for any medical use and has warned of the risk of substance use disorder.²¹ Due to its opioid-like effects and subsequent potential for abuse, kratom has been on the Drug Enforcement Administration’s radar for quite some time. In August 2016, the DEA announced its intent to place the main constituents of kratom (mitragynine and 7-hydroxymitragynine) under Schedule I of the Controlled Substances Act.²² However, the agency withdrew its intent after widespread backlash, and instead, labeled kratom as a “Drug and Chemical of Concern.”^{23,24} Highlighting the increase in use and adverse effects of kratom, the Centers for Disease Control and Prevention (CDC)’s March 26, 2026, *Mortality and Morbidity Weekly Report (MMWR)* indicated more than a 1200% increase in kratom-related exposure calls to the National Poison Center Data System, from 2015 (258 calls) to 2025 (3,434 calls).²⁵

Examples of Common Forms of Kratom Available for Sale

Capsules



Powders



Extracts/Shots



Beverages



One beverage called **Feel Free**, described by its manufacturers as containing a blend of two herbal supplements, kratom and kava root (a substance promoted as a natural alternative to alcohol and anti-anxiety drugs), has been the subject of attention in the news and on social media.^{26,27,28} This kratom-based drink is advertised as a “feel-good tonic,” claiming to boost mood and increase energy. However, consumers are warning of its addictive properties.²⁸ Numerous anecdotes about addiction to this product have been reported. On Reddit, specific groups are devoted to the topic of *Feel Free* for individuals discussing their struggles to stop using it. The subreddit *Quittingfeelfree* currently has 16,000 weekly visitors.²⁹



Quittingfeelfree

This sub is a safe space for people struggling with Feel Free tonic. It seeks to provide useful information about ways to stop using FF, supplements to support the process, a forum for accountability, and a place to share success, struggles, and concerns. You are welcome here.

Created Jan 13, 2023

Public

16K

Weekly visitors

1.8K

Weekly contributions



Reddit · r/Quittingfeelfree

8.4K+ followers

r/Quittingfeelfree

In April 2026, the CDC warned the public about kratom–kava combination drinks in its MMWR entitled *Increase in Poison Center Reports Linked to Kratom-Containing Kava Products – National Poison Data System, United States, 2000-2025*.³⁰ Similarly, treatment providers in the Houston area have said that *Feel Free* can be a “gateway drug,” leading to the use of more potent opioids such as 7-OH, as tolerance to kratom develops and addiction progresses. Treatment providers also reported that opioid patients in recovery have relapsed after using various kratom products, causing them to return to treatment.

7-OH Products

7-OH products often look similar in form and packaging to kratom, but they are much more potent. These products contain levels of 7-hydroxymitragynine that are far beyond the naturally occurring levels found in dried kratom leaves.^{1,31} Unlike natural kratom, which at high doses can have opioid-like effects, 7-OH products are semi-synthetic opioids.⁹ Although they may have been derived, in part, from a natural source (kratom), they are not “natural” herbal supplements.³² To create these concentrated 7-OH products, it is believed that manufacturers have chemically oxidized mitragynine from kratom in a laboratory setting to produce large quantities of 7-OH.^{1,33} While kratom contains only trace amounts of 7-hydroxymitragynine, 7-OH products have been found to contain up to 98%.^{34,35} Unfortunately, many consumers do not realize the difference between kratom and 7-OH and believe they are purchasing kratom when, in fact, they are buying a 7-OH concentrate.³⁶



7-OH products became available for sale in late 2023.¹² Highlighting the extreme potency of these products, 7-OH has been referred to as “super kratom,” “kratom on steroids,” and “liquid morphine.” Because they are often labeled as natural kratom products, consumers may think they are safe to use, but nothing could be further from the truth. According to Christopher McCurdy, a professor of medicinal chemistry at the University of Florida and a pharmacist who has studied kratom for decades, 7-OH is “a

pure opioid that’s available without a prescription, so it’s akin to having morphine or oxycodone for sale at a smoke shop or gas station.”³⁷ The FDA has warned that 7-OH is up to 13 times more potent than morphine.³⁸ Other scientific studies have reported that 7-OH has an opioid receptor binding affinity that is 14 to 22 times stronger than morphine.³⁹ Astoundingly, it is quite possibly more potent than heroin (a Schedule I drug). Although internet sources on this topic were scant, various scientific reports and news articles available for review characterized heroin’s potency in a range of two to ten times more potent than morphine.^{40,41,42,43}

Therefore, it is not surprising that treatment providers in the Houston HIDTA reported a rise in the number of patient admissions to treat 7-OH addiction over the past year. While some patients addicted to 7-OH had a prior history of opioid use, an equal number had never used opioids. These patients had unknowingly used an addictive 7-OH product that was advertised as an energy booster or workout enhancer, a supplement for focus or relaxation, or a mood enhancer to combat anxiety or depression. Treatment providers say that addiction to 7-OH occurs quite rapidly, sometimes after using it for only a week or two. By six months of use, consumers are often entering treatment upon realizing they are unable to quit using 7-OH on their own. When they try to stop, they experience severe withdrawal symptoms, often immediately. Some patients reported getting up in the middle of the night to take the drug to prevent waking up in withdrawal. Withdrawal symptoms reported included anxiety, shakiness, cold sweats, stomach pain, nausea and vomiting, diarrhea, body aches, fatigue, headaches, and irritability. Treatment providers have acknowledged that the detoxification process is harsh and can be lengthy. Unlike traditional opioid withdrawal, 7-OH withdrawal can persist for months.⁷ Traditional opioid detoxification protocols are often not sufficient to treat these symptoms; thus, longer protocols, like those used for fentanyl addiction, may be necessary.⁴⁴ As one patient explained, “I’ve detoxed off heroin, and 7-OH is 10 times worse than that.” Some patients have required repeat detoxification because their persistent cravings were so severe.

7-OH Products (Continued)

Forms of 7-OH Products

7-OH is available in pill form, liquid drink shots and powdered drink mixes, edibles such as gummies, and vapes. In pill form, some product names mimic brands of prescription opioid tablets (e.g., Percocet and Roxicodone). The images on the right show products labeled as containing 7-hydroxymitragynine with the brand names *Roxy* and *Dozo Perks*. The image of a 7-OH vape below on the bottom right implies its opioid-like effect with the name *Pain Crusher Rx*.

Patients in treatment in Houston said that, over time, they needed to consume greater amounts to achieve the same initial effect and to prevent them from becoming violently ill as their addiction progressed. One patient reported, "I have no way to save the money I am making because I am avoiding withdrawals." Another said, "I lost all my money buying the pills." Numerous treatment providers reported stories of patients' lives spiraling downward and out of control after using 7-OH.

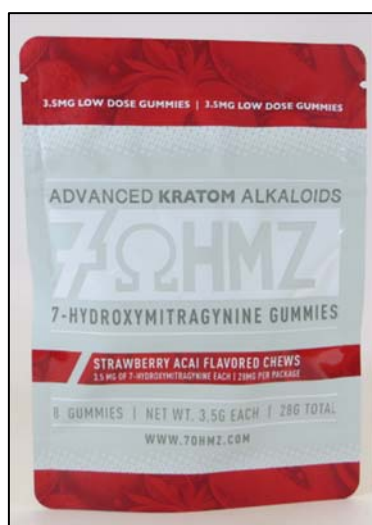
Pills



Drink Shots



Gummies



Vapes



Use of pills and drink shots were reported most frequently. As shown above on the left, 7-OH drink shots look like typical energy drinks (often described as appearing similar to the 5-hour ENERGY shot that contains caffeine). Given the popularity of energy drinks among Americans, the threat looms large, as the public often assumes that products sold in stores will not cause them harm. As with other products, like synthetic cannabinoids (K2, Spice), that were once on store shelves, these 7-OH products are found in colorful, alluring packaging to entice potential purchasers. However, like a wolf in sheep's clothing, 7-OH products are deceptively marketed and dangerous.



The Newest Public Health Threat: Vaping Opioids

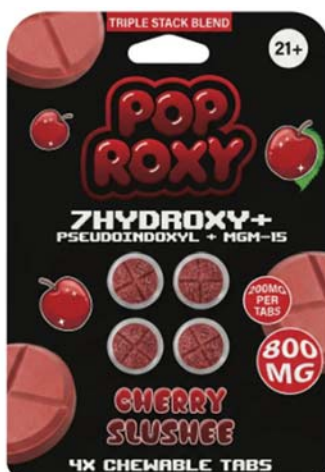
DEA laboratories have detected a variety of substances in vapes, but there have been no confirmed instances of an opioid in a vape in the United States.⁴⁵ However, with the emergence of 7-OH vapes on the commercial market, this is no longer the case.⁴⁶ Both teens and adults are vaping 7-OH in the Houston HIDTA, according to treatment



providers. This development is of utmost concern, particularly for the safety of youth, a subset of the population in which vaping is a highly popular activity. Further, inhalation may produce faster onset of effects than other forms.⁷ Although treatment providers confirmed that some teenagers in the Houston HIDTA are aware of these opioid vapes and are using them, the extent of this activity remains unknown. A 7-OH vape confiscated from a teenager by one treatment provider was described as being very small (similar in appearance to the image above on the right), and a metal detector used to screen for vapes did not detect it. This treatment provider said that teens were not buying them in stores, but rather they had obtained these 7-OH vapes via sources provided on Telegram, Discord, and Reddit. Another treatment provider said that teens are saying that it is easy to get “crossed” when using alcohol with “kratom” vapes. After a couple of drinks and the use of these vapes, they said it was like drinking a whole bottle of Jack Daniels. According to C. Austin Zamarripa, a professor of psychiatry and behavioral sciences at Johns Hopkins University, “concentrated 7-OH products raise real concerns about dependence, withdrawal, adverse events, and use with other substances like alcohol or other sedating drugs.”⁴⁷

Derivatives of 7-OH and Combination Products: MGM-15, MGM-16, and “Pseudo”

Heightening the threat is the availability of 7-OH analogs. For instance, a substance thought to be even stronger than 7-OH called dihydro-7-hydroxy mitragynine is being sold under names like MGM-15 and DHM.^{33,48} MGM-16 (the 9-fluoro derivative of 7-hydroxymitragynine) also exists and is reportedly even stronger than MGM-15.^{9,33,49,50} Mitragynine pseudoindoxyl, commonly referred to as “pseudo,” is also extremely potent.⁵¹ “Just as 7-OH is like kratom on steroids, mitragynine pseudoindoxyl is like 7-OH on steroids,” according to Corneliu Stanciu, an addiction psychiatrist and assistant professor of psychiatry at the Geisel School of Medicine at Dartmouth who has studied kratom and its derivatives for many years.⁵² Sometimes combinations of 7-hydroxymitragynine and these derivatives are found in a single product, as shown below on the left.



How Extensive Is the Public Health and Safety Threat from 7-OH?

Impact of 7-OH Throughout the United States: A Rise in Poison Center Calls, Deaths, and Addiction

Across the nation, states are sounding the alarm about the danger 7-OH poses. In August 2025, America's Poison Centers issued a health advisory, reporting a rise in the number of exposure calls involving 7-OH. Of the 165 exposure reports logged from January 1 to July 31, 2025, "35% [of callers] had serious health problems and 67% were treated at a healthcare facility."⁵³ The advisory described serious health effects associated with 7-OH use including agitation, confusion, nausea and vomiting, sweating, rapid heart rate, high blood pressure, trouble breathing, sleepiness or loss of consciousness, and seizures.⁵³ Although U.S. poison centers have been tracking kratom exposure calls for years, a specific code for 7-OH was added in February 2025 to better capture this threat.¹² Therefore, it is likely that the number of exposure calls specifically related to 7-OH was previously underreported and continues to be underdetected because many individuals use the terms kratom and 7-OH interchangeably. Because the two substances are often confused, the rise in kratom exposure calls is, therefore, significant when assessing the 7-OH threat. In 2025, the CDC reported that U.S. poison centers received a marked surge in kratom-related exposure calls (3,434 reports).²⁵ In comparison, available data from previous years (2011-2017) showed an aggregate total of 1,807 calls.⁵⁴

7-OH can cause respiratory depression like traditional opioids, putting users at risk for an overdose.^{55,56} It is of utmost concern that 7-OH has been linked to deaths across the United States.⁵⁷ Fortunately, medical professionals state that 7-OH overdoses can be reversed with naloxone (Narcan), although multiple doses may be required.^{7,55,56,58} Tracking fatal and non-fatal overdoses from 7-OH and related substances in the United States remains in its infancy and, therefore, statistics are not readily available to quantify the morbidity and mortality threat.⁴⁴ As is common with emerging drug threats, detection issues exist and laboratory testing is only beginning to identify these new substances. Medical examiners' offices are sending toxicology samples to specialty laboratories for testing and incurring additional costs, as many do not have the capability to test for these novel drugs in-house. Even at specialty laboratories, testing is challenging for various reasons. First, 7-OH is unstable in biological samples.^{7,9} Adding to the complexity, the mitragynine in kratom can naturally metabolize in the human body to 7-hydroxymitragynine, and 7-hydroxymitragynine can degrade to mitragynine pseudoindoxyl.⁵⁹ Therefore, laboratorians must not only be able to identify all of these possible substances, but also attempt to quantitate their levels to assist forensic clinicians in distinguishing natural metabolism that results from kratom use from the use of potent 7-OH or related semi-synthetic products.^{9,60} Also, polysubstance use can complicate the determination of causality.⁹ If another identified drug can explain the cause of death, additional testing may not be sought even though 7-OH or its derivatives may also have been a central factor.

The levels of use and addiction to this drug across the country also remain unclear, but, anecdotal reports have described a rise in the 7-OH threat in a multitude of states.^{61,62} As is the case in forensic testing, underdetection issues are common, as standardized drug tests used by treatment providers with patients do not screen for kratom (mitragynine), 7-OH, or its more potent derivatives.^{7,63,64,65} Specialized testing is still needed to identify these new drugs.^{66,67} Similarly, devices used by law enforcement for drug identification have only recently begun to include 7-OH.

Impact in the Houston HIDTA: Rise in Poison Center Calls, Deaths, Addiction, and Thefts, Burglaries, and Robberies to Obtain 7-OH

Mirroring the national trend, the number of kratom exposure calls to the Texas Poison Center greatly increased in 2025, and 7-OH was identified much more frequently in these calls than in 2024. Texas kratom exposure calls rose 248%, from 107 in 2024 to 373 in 2025. Of these calls, those in which 7-OH was identified rose from 3 in 2024 to 83 in 2025. From January 1 to June 30, 2026, there were 172 kratom exposure calls statewide; 7-OH was identified in 35 of them (20%). Data for the 18 Houston HIDTA counties (shown in the appendix on page 16) indicated a 274% rise in kratom exposure calls from 23 in 2024 to 86 in 2025. Of these calls, those in which 7-OH was identified rose from 2 in 2024 to 22 in 2025. From January 1 to June 30, 2026, there were 81 kratom exposure calls in the Houston HIDTA; 7-OH was identified in 35 of them (43%). Of the 59 7-OH exposure calls identified since 2024 in the region, the greatest number were from Harris County (35), followed by Montgomery County (10). Other counties for which exposure calls were reported were Galveston County (3), Fort Bend County (2), Jefferson County (2), Kleberg County (2), Nueces County (2), Liberty County (1), Aransas County (1), and Brazoria County (1).⁶⁸ The data indicates at least some level of 7-OH use throughout the Houston HIDTA.

Deaths involving mitragynine (kratom) in the Houston HIDTA have been identified sporadically in a low number of deaths for years, but predominantly in combination with other drug types. Deaths involving 7-OH and its derivatives (dihydro-7-hydroxy mitragynine, mitragynine pseudoindoxyl) have only recently been found in regional death data. The first death that the Houston Investigative Support Center identified involving 7-OH occurred in March 2025 in Montgomery County. To date, 17 deaths have been associated with 7-OH and/or a derivative in the region, including six in Harris County (four in 2025 and two in 2026), four in Montgomery County (one in 2025 and three in 2026), one in Fort Bend County (2026), two in Walker County (both in 2026), and four in Nueces County (all in 2026). The decedents ranged between 16 and 67 years old. Of particular concern was that 59% of the deaths involved victims between 20 and 29 years old.

Deaths involving 7-OH in the region are very likely underdetected. When another drug identified in the toxicology report can explain the cause of death, 7-OH involvement may be missed due to the need for out-of-house specialty testing. Further, identified deaths do not accurately portray the current scope of the threat, as there has been a noted lag between the time of death and the time in which the cause was confirmed. For example, deaths involving 7-OH in Harris County that occurred in 2025 were not confirmed until early 2026. This delayed confirmation has also been seen with other newly emerging drugs such as cychlorphine, a potent synthetic opioid that has infiltrated the illicit drug market in the United States, including in the Houston HIDTA, in the past year.

Treatment providers in the Houston HIDTA continue to field an influx of calls from patients addicted to this substance, often crying for help on the phone. Many patients have reported being surprised that they could become so quickly addicted to a product they purchased at a store. Treatment providers said that patients experiencing withdrawal symptoms have gone to emergency departments seeking detoxification services, but they have been turned away because no substances appeared in the drug screening performed.

7-OH has impacted the level of crime in the region as well. As was seen at the beginning of the opioid crisis when individuals started robbing and burglarizing pharmacies to obtain prescription opioids, analysts at the Houston Investigative Support Center have recently begun identifying robberies, burglaries, and thefts of 7-OH from vape shops and convenience stores in Harris County.

How Is the Threat from 7-OH Being Mitigated?

State Laws Related to Kratom and 7-OH

The legality of kratom varies from state to state. As of January 2026, kratom was regulated in some capacity in 30 states and the District of Columbia.⁶⁹ A map of kratom legality by state is provided on the right.⁷⁰ The states shown in blue have adopted the Kratom Consumer Protection Act. As can be seen, Texas is among those states.

The Texas Kratom Consumer Protection Act became effective on September 1, 2023. Section 445.003 of the Texas Health and Safety Code (Adulterated, Contaminated, and Prohibited Kratom Products) states that a kratom processor or retailer may not prepare, distribute, sell, or offer to sell a kratom product that contains a level of 7-OH that is more than 2% of any synthetic alkaloids, including synthetic 7-hydroxymitragynine, and that doing so will result in a civil penalty. Section 445.004 (Offense for Distribution or Sale of Kratom Product to Minor) states that it is a Class C misdemeanor to distribute, sell, or expose for sale a kratom product to an individual younger than 18 years of age. This statute can be found at the following website: <https://statutes.capitol.texas.gov/?tab=1&code=HS&chapter=HS.445&artSec=>.

While the Texas Kratom Consumer Protection Act clearly addresses 7-OH, enforcing the law has proved to be challenging in the Houston HIDTA. Regional crime laboratories that support Houston HIDTA counties have stated that they either cannot or are choosing not to test 7-OH concentration at this time for various reasons, including a lack of specialized equipment to do so, training issues, and/or personnel resource limitations resulting in the prioritization of testing for felony drug cases.

7-OH products in other regions of Texas and across the country have been found to contain far greater 7-OH concentrations than merely 2%. In February 2026, Texas Attorney General Ken Paxton filed a lawsuit against two California-based kratom retailers with locations in Midlothian, Texas, operating under the name Smokey's Paradise for deceptively marketing and selling kratom products with 7-OH levels that ranged from 86% to 96%.^{47,71} In April 2026, a temporary injunction was granted, barring Smokey's "from advertising, preparing, distributing, selling, or offering to sell Dozo Perks 7-OH Tablets, 7OHMZ 7-OH tablets, 7Tabz 7-OH tablets, 7 O'Heaven 7-OH liquid shot, and Tahj Mahji tablets in Texas because the products are adulterated and causing imminent and irreparable harm to Texas consumers."⁷² A similar lawsuit filed in May 2025 by Attorney General Catherine Hanaway in Missouri against Kansas City-based 7-OH distributor, Relax Relief Rejuvenate Trading, LLC (RRR), led to an agreement by RRR "to not sell, ship, deliver, or facilitate the sale of 7-OH, dihydro-7-hydroxymitragynine (MGM-15), mitragynine, mitragynine pseudoindoxyl, or paynantheine at any retail store in the State of Missouri, or to sell those products to Missouri consumers online."⁷³ In March 2026, Hanaway also sued American Shaman, the largest distributor of kratom products and 7-OH in Missouri, resulting in a similar agreement.⁷⁴ Targeting the 7-OH supply chain, Hanaway continues to expand investigations into numerous other manufacturers, distributors, and retailers.⁷⁵



State Laws Related to Kratom and 7-OH (Continued)

States have taken different routes to address the newly emerging 7-OH threat. To date, nine states have specifically banned 7-OH through legislation: Alabama, Arkansas, Florida, Indiana, Kentucky, Louisiana, Ohio, Vermont, and Wisconsin.⁵⁷ Other states, such as Arizona, Colorado, and South Carolina, have laws similar to Texas, setting limits on the percentage of 7-OH that a product can legally contain.⁵⁷

Texas has been proactive in addressing the threat from vaping, and fortuitously, a new Texas law related to prohibited e-cigarettes includes kratom and its derivatives among the list of banned substances. Passed in response to concerns about the use of vapes containing dangerous psychoactive drugs particularly by youth, Texas Senate Bill 2024 became effective on September 1, 2025. It is now a Class A misdemeanor for any business to market, advertise, or sell e-cigarette products containing any cannabinoids, alcohol, **kratom**, kava, mushrooms, tianeptine, **or any derivatives of those substances** to anyone of any age.^{76,77} Because this law includes kratom derivatives, it makes the sale of 7-OH vapes illegal in Texas. Texas Health and Safety Code, Section 161.0876 Prohibited E-Cigarette Products can be accessed at the following website: <https://statutes.capitol.texas.gov/?tab=1&code=HS&chapter=HS.161&artSec=161.0876>.

Other State and Local Enforcement-Related Actions Taken to Reduce the 7-OH Threat

Officials in numerous states have issued warnings to the public about the rising threat from 7-OH. Some states have countered the threat by using measures other than legislation to address the threat more promptly.

For instance, California took “aggressive statewide enforcement action against products containing kratom and 7-OH after growing evidence linked these products to serious health risks, including overdoses, addiction, and other adverse health outcomes, according to the California Department of Public Health (CDPH).”⁷⁸ In early 2026, California Governor Gavin Newsom announced that his administration was ordering the removal of all products containing kratom and 7-OH from California stores.⁷⁹ As of July 15, 2026, the Governor’s office reported that “California has achieved nearly 98% compliance among state-licensed retailers, removing more than 6,700 illegal products from store shelves.”⁷⁹ In June 2026, in a similar attempt to remove these dangerous 7-OH products from Houston stores, staff from the Houston Investigative Support Center sent an email to the Greater Houston Retailers Cooperative Association, along with an informational flyer on 7-OH and the 2023 Texas Kratom Consumer Protection Act, informing store owners that they could unknowingly be in violation of state law if products on their shelves contained more than 2% 7-OH.

Similarly, Florida adopted early proactive measures to protect consumers from 7-OH and related substances. In August 2025, Florida Attorney General James Uthmeier announced the classification of 7-OH as a Schedule I substance in the state.⁸⁰ In June 2026, Uthmeier expanded the emergency rule to include not only 7-hydroxymitragynine under the Schedule I classification, but also additional 7-OH-related compounds including MGM-15, MGM-16, mitragynine pseudoindoxyl, 7-acetoxymitragynine, 9-hydroxycorynantheidine, and 10-hydroxycorynantheidine.⁸¹ The Houston HIDTA has worked toward this same goal to reduce the 7-OH threat across the state of Texas. In June 2026, the Houston Investigative Support Center produced an Emergency Scheduling Petition (Request to Formally Ban the Sale and Possession of 7-OH and Related Synthetic Kratom Derivatives), which was sent to the Texas Department of State Health Services for consideration. Houston HIDTA staff followed up with phone calls and provided education on the 7-OH threat.

National Responses to the 7-OH Threat

U.S. Food and Drug Administration

FDA NEWS RELEASE

FDA Takes Steps to Restrict 7-OH Opioid Products Threatening American Consumers

Agency alerts health care professionals and consumers of 7-hydroxymitragynine risks

Because of its imminent threat to public health, in July 2025 the FDA recommended that certain 7-OH products be scheduled under the Controlled Substances Act.⁸² The FDA stated that “there are no FDA-approved 7-OH drugs, 7-OH is not lawful in dietary supplements and 7-OH cannot be lawfully added to conventional foods.”⁸² However, many companies are advertising 7-OH products in this manner. For this reason, the FDA issued warning letters to several companies addressing their illegal marketing of 7-OH products. The letters were sent to Shaman Botanicals, Relax Relief Rejuvenate Trading, Thang Botanicals, Royal Diamond Imports, Hydroxie, 7Tabz Retail, and My Smoke Wholesale. It is of note that the address for the owner of My Smoke Wholesale is located in Houston.^{83,84}

In addition to announcing the FDA’s recommendation for scheduling 7-OH, other actions were taken at this time. Former FDA Commissioner Dr. Marty Makary wrote a letter to health care professionals to educate them about this newly emerging drug threat.³¹ For the public, the agency provided links to various FDA educational resources on 7-OH, including an 11-slide presentation entitled *Preventing the Next Wave of the Opioid Epidemic: What You Need to Know about 7-OH*, and a scientific document entitled *7-Hydroxymitragynine: An Assessment of the Scientific Data and Toxicological Concerns Around An Emerging Opioid Threat*.^{1,38}

During the press conference related to this announcement, FDA Commissioner Makary emphasized the urgency of this threat, stating that “vape stores are popping up in every neighborhood in America, and many are selling addictive products like concentrated 7-OH. After the last wave of the opioid epidemic, we cannot get caught flat-footed again. 7-OH is an opioid that can be more potent than morphine. We need regulation and public education to prevent another wave of the opioid epidemic.”^{82,85}

“Even better than rolling back a public health crisis would be never having one in the first place: Let’s not allow 7-OH to drive the next wave of the U.S. opioid epidemic.”

– Marty Makary, M.D., M.P.H., FDA Commissioner

National Responses to the 7-OH Threat (Continued)

Drug Enforcement Administration

After much anticipation, and nearly one year later on July 1, 2026, the Drug Enforcement Administration filed its intent to temporarily place 7-OH and three related substances (mitragynine pseudoindoxyl, MGM-15, and MGM-16) into Schedule I of the Controlled Substances Act.⁸⁶ At the same time, they filed yet another notice of intent with the Federal Register to set a limit on the amount of 7-OH that can be present in products available for sale to the public.⁵⁷ The specified level, outlined in the Notice of Intent, was adapted from the definition used by the Department of Health and Human Services and is described below:⁵⁷

DEA to Temporarily Schedule 7-OH and Related Substances to Protect Public Safety

July 01, 2026

(A) Any botanical material of the plant Mitragyna speciosa, also known as kratom, and contains more than 0.050 percentage of 7-hydroxymitragynine on a dry weight basis, or

(B) Any alternative article to that described in (A), that is:

i. Resulting from synthetic methods and containing 7-hydroxymitragynine present in amounts greater than 0.050 percentage by weight/weight, weight/volume, or volume/volume or greater than 1.00 milligram of 7-hydroxymitragynine in the article, or

ii. Material derived from Mitragyna speciosa and further processed to manufacture alternative dosage forms such as extracts, concentrates, processed edibles, or pressed pills, and which may have materials that have been exposed to chemical, thermal, or other methods leading to chemical transformations that result in 7-hydroxymitragynine present in amounts greater than 0.050 percentage by weight/weight, weight/volume, or volume/volume, or greater than 1.00 milligram of 7-hydroxymitragynine in the article.



Further, on July 8, 2026, the DEA announced the intent to schedule another “gas station opioid” called tianeptine.⁸⁷ Tianeptine is also found in vape shops and convenience stores and is a drug for which the FDA has issued warnings.⁸⁸ While 7-OH is often referred to as “legal morphine,” tianeptine has been dubbed “gas station heroin.”⁸⁸ It goes by

brand names such as Neptune’s Fix, Zaza, Tianaa, Pegasus, and TD Red.⁸⁸ This drug has been less commonly identified in the Houston HIDTA, but drug investigators confirmed that it is present in some vape shops. In July 2026, for the first time reported to the Houston Investigative Support Center, a treatment provider shared that a patient had entered recovery services for addiction to substances described as both “kratom and Zaza.”



National Responses to the 7-OH Threat (Continued)

U.S. Military

The use of both kratom and 7-OH has been banned by the U.S. Army, Air Force, Navy, Marines, and Coast Guard.^{89,90,91} In a memorandum dated September 15, 2025, the U.S. Department of War declared that products made or derived from kratom would be prohibited by active-duty service members or members of the reserve components, effective December 31, 2025. This prohibition “includes semi-synthetic or synthetic products containing 7-hydroxymitragynine or mitragynine, regardless of the product’s concentration, claimed or actual, and regardless of whether such products may lawfully be bought, sold, or used under applicable civilian law, and regardless of the route of administration or use.”⁹²



With the military’s ban of 7-OH to protect the health and safety of its personnel, and thus also protect their ability to effectively provide for the safety of our nation, it seems that it would be beneficial for federal, state, and local law enforcement agencies to adopt similar policies prohibiting the use of this dangerous substance for the same purpose. The Houston HIDTA has prepared a policy development recommendation for the prohibition of the use of 7-OH by law enforcement that is available upon request.

Outlook

The upcoming scheduling of 7-OH and three of its derivatives by the DEA is a significant and commendable step toward protecting public safety. Law enforcement will be able to safeguard consumers by removing these dangerous, addictive opioids from neighborhood stores across the country. Unfortunately, many lives have already been harmed and even lost due to this addictive substance. The FDA warned of the “next wave of the opioid epidemic,” which may have already arrived. Although the DEA’s action will certainly be a huge step forward toward our nation’s goal to Make America Healthy Again (MAHA), much work remains to be done to reverse the damage caused by the deleterious effects of this newly emerging opioid threat.^{93,94}

Questions remain regarding the future impact of this scheduling. What will happen when 7-OH and its derivatives are no longer available for sale in vape shops and convenience stores? Making 7-OH a Schedule I drug (one that will be in the same class as heroin) will undoubtedly impart a strong message to the public of the danger of using it. This will likely prevent additional first-time use among consumers. Unfortunately, although 7-OH products will be less readily available when they are taken off store shelves, addiction to the drug will still exist for many individuals. Treatment providers predict that more individuals will experience serious opioid withdrawal, possibly becoming too ill to work and losing their employment as a result of their sudden lack of access to 7-OH.

The Houston HIDTA asserts with high confidence that the number of individuals seeking treatment for addiction to 7-OH will increase. With the reported severity of withdrawal symptoms from this drug type, coupled with lower availability of 7-OH, many users may be persuaded to make the necessary move to obtain the assistance they greatly need to get their lives on a path to recovery. However, the Houston HIDTA predicts there will be a rise in those addicted to 7-OH who will turn to other sources of opioids to assuage their addiction. The Houston HIDTA believes with strong certainty that 7-OH products will be diverted to the illicit drug market, sold alongside other dangerous synthetic opioids such as fentanyl, as well as newer, even more potent synthetic opioid threats such as nitazenes and orphines. 7-OH users are already discussing ways to try to get off the drug on Reddit, including the use of an orphine known as SR-17018 (another drug that is currently uncontrolled, but soon to be scheduled by the DEA).^{95,96,97} 7-OH products will also continue to be sold in stores due to the lucrative potential financial gain, but they will be sold more discreetly behind store counters or offered “out the back door” (as occurred when synthetic cannabinoids were banned). They will also remain available for sale via social media sources and online, including the dark web where other illicit substances are commonly sold. It is also highly probable that other 7-OH derivatives not encompassed in the DEA’s scheduling order will emerge on the retail market.

As law enforcement in the region begins its important role to diligently and immediately confiscate 7-OH products that remain in vape shops and convenience stores, there are ways the public can assist them. The Houston HIDTA administers ten StopDrugs websites, sponsored by law enforcement agencies throughout the region. One of the primary purposes of these websites is to maintain an interface between the public and drug investigators to reduce the threat from illicit substances. Each of the StopDrugs websites has an anonymous tip line for the public to report drug activity.



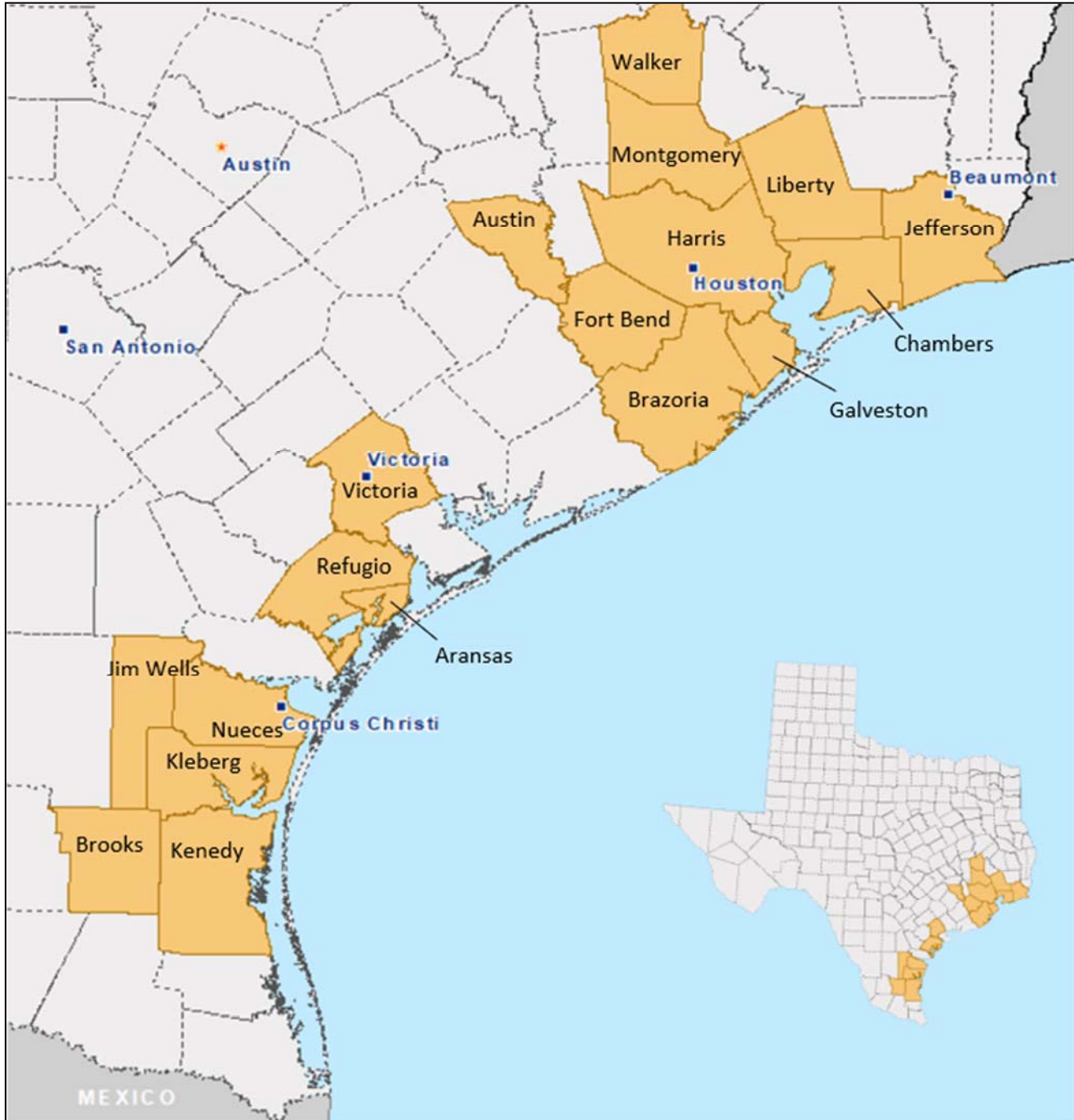
Individuals can use this resource to alert investigators to the locations of establishments where 7-OH and related products are still being sold so prompt enforcement action can be taken. All ten websites can be accessed through links on the StopDrugsHouston.org website, shown above.

In addition to a strong enforcement arm, prevention education must remain a key component of this threat reduction plan, particularly because this harmful drug is still relatively unknown to the general public and even some health care professionals. The Houston HIDTA has a robust prevention element coordinated by its Drug Intelligence Officer (DIO). The Houston HIDTA’s DIO routinely provides presentations on current and emerging drug trends within the region to a wide array of professional organizations, school district and university faculty, staff, and students, and numerous community groups, in collaboration with local prevention coalitions, treatment services providers, and law enforcement. The DIO, in collaboration with the Houston HIDTA’s Intelligence Initiative (the Houston Investigative Support Center), will continue efforts to inform the region of current drug threats such as 7-OH, working toward the primary goal of preventing addiction, overdoses, and deaths in the Houston HIDTA and surrounding region.

Please contact the Houston Investigative Support Center at IRT@houstonhidta.net or 713-936-7155 to obtain further information on drug-related threats impacting the Houston HIDTA, or to obtain contact information for the Houston HIDTA’s Drug Intelligence Officer to schedule a presentation on current and emerging drug trends for your agency or community group.

Appendix: Map of the 18-County Houston HIDTA Region

The Houston HIDTA consists of 18 counties primarily located along the Texas Gulf Coast. These counties include Harris, Galveston, Fort Bend, Brazoria, Austin, Jefferson, Montgomery, Liberty, Chambers, Walker, Victoria, Refugio, Aransas, Jim Wells, Nueces, Kleberg, Kenedy, and Brooks.



Endnotes

- ¹“7-Hydroxymitragynine (7-OH): An Assessment of the Scientific Data and Toxicological Concerns Around an Emerging Opioid Threat,” *U.S. Food and Drug Administration*, July 29, 2025, <https://www.fda.gov/media/187899/download?attachment>.
- ²Katherine Hill, Edward Boyer, Oliver Grundmann, and Kirsten Smith, “De Facto Opioids: Characterization of Novel 7-Hydroxymitragynine and Mitragynine Pseudoindoxyl Product Marketing,” *Drug and Alcohol Dependence*, Volume 272:112701, July 1, 2025, <https://www.sciencedirect.com/science/article/abs/pii/S0376871625001541>.
- ³“Consumer Alert on 7-OH Products,” *American Kratom Association*, January 21, 2025, <https://www.amerikankratom.org/news/consumer-alert-on-7oh-products>.
- ⁴“Statement on 7-Hydroxymitragynine Products,” *Global Kratom Coalition*, Accessed July 11, 2026, https://static1.squarespace.com/static/6508b3f79033221c2aa1ea17/t/66329e512f3dc222ec5dd328/1717013410023/Statement+on+7-Hydroxymitragynine+Isolate+Products_050124.pdf.
- ⁵“7-OH is not Kratom,” *Global Kratom Coalition on X*, November 13, 2024, <https://x.com/KratomCoalition/status/1856758974051233928>. (Image)
- ⁶Jeffrey Rogers, Stephanie Weiss, David Epstein, Oliver Grundmann, Katherine Hill, and Kirsten Smith, “Kratom Addiction Per DSM-5 SUD Criteria, and Kratom Physical Dependence: Insights from Dosing Amounts Versus Frequency,” *Drug and Alcohol Dependence*, Volume 260:111329, May 20, 2024, <https://pmc.ncbi.nlm.nih.gov/articles/PMC11493341/>.
- ⁷Benjamin Zohar, “What is 7-OH? The Emerging Opioid Threat Addiction Professionals Need to Understand in 2026,” *International Society of Substance Use Professionals*, March 11, 2026, updated July 1, 2026, <https://www.issup.net/node/33941>.
- ⁸“Legal Morphine – The Rise of Kratom and 7-OH in the US,” *Medscape*, May 16, 2025, <https://www.medscape.com/viewarticle/legal-morphine-rise-kratom-and-7-oh-us-2025a1000cco/>.
- ⁹Scott Alsbrook, George Pro, and Igor Koturbash, “From Kratom to 7-Hydroxymitragynine: Evolution of a Natural Remedy into a Public Health Threat,” *Pharmaceutical Biology*, Volume 63, No. 1, 896-911, November 11, 2025, https://pmc.ncbi.nlm.nih.gov/articles/PMC12671409/pdf/IPHB_63_2590311.pdf.
- ¹⁰“Mitragyna speciosa,” *Wikipedia*, Accessed July 11, 2026, https://en.wikipedia.org/wiki/Mitragyna_speciosa.
- ¹¹“Kratom’s Rise to Prominence,” *Global Kratom Coalition*, Accessed July 11, 2026, <https://globalkratomcoalition.org/the-evolution-of-kratom>.
- ¹²Samantha Anderer, “What to Know About 7-OH, the New Vape Shop Hazard,” *Journal of the American Medical Association (JAMA)*, Volume 334, Number 12, August 22, 2025, <https://jamanetwork.com/journals/jama/article-abstract/2838093>.
- ¹³Sean McCabe, “National Study Finds Kratom Use is Rising,” *Institute for Healthcare Policy and Innovation, University of Michigan*, May 15, 2026, <https://ihpi.umich.edu/news-events/news/national-study-finds-kratom-use-rising>.
- ¹⁴“Kratom Resources,” *Department of Cellular and Systems Pharmacology, College of Pharmacy, University of Florida*, Accessed July 11, 2026, <https://csp.pharmacy.ufl.edu/research/kratom/>.
- ¹⁵Teresa Berry and Sayorn Chin, “The Unregulated Rise of Kratom Drinks: Emerging Challenges and Policy Recommendations,” *Public Health Reports, Association of Schools and Programs of Public Health*, January 12, 2026, <https://pmc.ncbi.nlm.nih.gov/articles/PMC12799471/> and https://pmc.ncbi.nlm.nih.gov/articles/PMC12799471/pdf/10.1177_00333549251403378.pdf.
- ¹⁶“Kratom: What You Need to Know About This ‘Natural Opioid’” *University of Utah*, November 3, 2025, <https://healthcare.utah.edu/healthfeed/2025/11/kratom-what-you-need-know-about-natural-opioid>.
- ¹⁷Eduardo Cinosi et al., “Following ‘The Roots’ of Kratom (*Mitragyna speciosa*): The Evolution of an Enhancer from a Traditional Use to Increase Work and Productivity in Southeast Asia to a Recreational Psychoactive Drug in Western Countries,” *BioMed Research International*, Volume 2015, Article ID 968786, October 15, 2015, <https://onlinelibrary.wiley.com/doi/10.1155/2015/968786>.

¹⁸Dana Sparks, "Home Remedies: Does Kratom Work for Opioid Withdrawal?" *Mayo Clinic*, May 31, 2018, <https://newsnetwork.mayoclinic.org/discussion/home-remedies-does-kratom-work-for-opioid-withdrawal/>.

¹⁹Meeri Kim, "What You Should Know About Kratom," *Consumer Reports*, October 3, 2025, <https://www.consumerreports.org/health/supplements/kratom-herbal-supplement-what-to-know-a5001833075/>.

²⁰Oliver Grundmann, MeShell Green, Erin Berthold, Saunjoo Yoon, and Diane Ray, "Prevalence and Use Patterns of Kratom (*Mitragyna speciosa* Korth.) in a US Nationally Representative Sample," *Journal of Psychoactive Drugs*, March 1, 2025, <https://pubmed.ncbi.nlm.nih.gov/40022554/>.

²¹"FDA and Kratom," *U.S. Food and Drug Administration*, Current as of December 2, 2025, <https://www.fda.gov/news-events/public-health-focus/fda-and-kratom>.

²²"DEA Announces Intent to Schedule Kratom," *Drug Enforcement Administration*, August 30, 2016, <https://www.dea.gov/press-releases/2016/08/30/dea-announces-intent-schedule-kratom> and <https://www.federalregister.gov/documents/2016/08/31/2016-20803/schedules-of-controlled-substances-temporary-placement-of-mitragynine-and-7-hydroxymitragynine-into>.

²³"Withdrawal of Notice of Intent to Temporarily Place Mitragynine and 7-Hydroxymitragynine into Schedule I," *Drug Enforcement Administration*, October 13, 2016, and *Federal Register*, <https://www.federalregister.gov/documents/2016/10/13/2016-24659/withdrawal-of-notice-of-intent-to-temporarily-place-mitragynine-and-7-hydroxymitragynine-into>.

²⁴"Kratom," *Drug Enforcement Administration*, April 2020, https://www.dea.gov/sites/default/files/2020-06/Kratom-2020_0.pdf.

²⁵Eleanor Towers, Ynhi Thomas, Christopher Holstege, and Rita Farah, "Increases in Kratom-Related Reports to Poison Centers—National Poison Data System, United States, 2015-2025," *Centers for Disease Control and Prevention (CDC), Morbidity and Mortality Weekly Report (MMWR)*, March 26, 2026, 75(11);139-145, <https://www.cdc.gov/mmwr/volumes/75/wr/mm7511a1.htm>.

²⁶"Image of Feel Free from <https://www.beernow.us/products/botanic-tonics-feel-free-classic-tonic-12-pk-free-shipping?srsltid=AfmBOorqfPtEWRIJSSiGwjwagz90v2QYbls5QAudn2nlkyTOVSP-OoTH>.

²⁷Claretta Bellamy, "On TikTok, Warnings Spread About the Herbal Tonic 'Feel Free,'" *NBC News*, August 10, 2025, <https://www.nbcnews.com/health/health-news/tiktok-warnings-spread-herbal-tonic-feel-free-rcna223179>.

²⁸"Drinks with Kratom Are Growing in Popularity—But Are They Safe?" *Green Matters*, August 15, 2025, <https://www.greenmatters.com/health-and-wellness/drinks-with-kratom>.

²⁹"Information on Reddit - Quitting Feel Free subreddit," <https://www.reddit.com/r/Quittingfeelfree/>.

³⁰Eleanor Towers, Ivy Williams, Christopher Holstege, and Rita Farah, "Increase in Poison Center Reports Linked to Kratom-Containing Kava Products—National Poison Data System, United States, 2000-2025," *Centers for Disease Control and Prevention (CDC), Morbidity and Mortality Weekly Report (MMWR)*, April 2, 2026, 75(12);157-163, <https://www.cdc.gov/mmwr/volumes/75/wr/mm7512a1.htm>.

³¹"FDA Warns Health Care Professionals about 7-OH," *U.S. Food and Drug Administration (FDA)*, July 29, 2025, <https://www.fda.gov/media/187898/download?attachment>.

³²C. Michael White, "A Safety Comparison of Synthetic 7-OH to Natural Kratom," Accessed July 17, 2026, <https://www.getsmartaboutdrugs.gov/sites/default/files/2026-03/Safety-Comparison-Concentrated-Synthetic-7-OH-Natural-Leaf-Kratom.pdf>.

³³Abhishek Gour et al., "From Kratom to Semi-Synthetic Opioids: The Rise and Risks of MGM-15," *Drug Testing and Analysis*, July 26, 2025, 17: 2384-2389, <https://analyticalsciencejournals.onlinelibrary.wiley.com/doi/abs/10.1002/dta.3952>.

³⁴Kirsten Smith, Edward Boyer, Oliver Grundmann, Christopher McCurdy, and Abhishek Sharma, "The Rise of Novel, Semi-Synthetic 7-Hydroxymitragynine Products," *Addiction*, December 3, 2024, Volume 120, Issue 2, pages 378-388, <https://onlinelibrary.wiley.com/doi/10.1111/add.16728>.

³⁵"Serious Illnesses Associated with 7-OH Use," *Texas Department of State Health Services*, September 2, 2025, <https://www.dshs.texas.gov/news-alerts/serious-illnesses-associated-7-oh-use>.

- ³⁶Paula Brown, Michael Chan, Xiaohui Zhang, and Thomas Brendler, "Elevated 7-Hydroxymitragynine Levels Found in Products Misbranded as Kratom," *Journal of AOAC International, An International Journal of Analytical Sciences*, October 9, 2025, 109(1): 124-130, <https://pmc.ncbi.nlm.nih.gov/articles/PMC12733965/>.
- ³⁷Amanda Watford, "Kratom Faces Increasing Scrutiny from States and the Feds," *Stateline*, August 11, 2025, <https://stateline.org/2025/08/11/kratom-faces-increasing-scrutiny-from-states-and-the-feds/>.
- ³⁸"Preventing the Next Wave of the Opioid Epidemic: What You Need to Know About 7-OH," *U.S. Food and Drug Administration (FDA)*, July 29, 2025, <https://www.fda.gov/media/187913/download?attachment>. (images on pages 1 and 5)
- ³⁹"Emerging Use of Kratom in US: Kratom Use Disorder Experts Propose Decision-Making Algorithm for Clinicians," *John Hopkins Medicine*, February 2025, <https://www.hopkinsmedicine.org/news/articles/2025/02/emerging-use-of-kratom-in-us-kratom-use-disorder-experts-propose-decision-making-algorithm-for-clinicians>.
- ⁴⁰"Heroin Drug Profile," *European Union Drugs Agency (EUDA)*, Accessed July 17, 2026, https://www.euda.europa.eu/publications/drug-profiles/heroin_en.
- ⁴¹"Heroin," *Science Direct Summary*, from *xPharm: The Comprehensive Pharmacology Reference*, 2008, Accessed July 17, 2026, <https://www.sciencedirect.com/topics/chemistry/heroin> and <https://www.sciencedirect.com/science/chapter/referencework/abs/pii/B9780080552323638917>.
- ⁴²"Heroin (Diacetylmorphine): Laboratory and Clinical Evaluation of its Effectiveness and Addiction Liability," *United Nations Office on Drugs and Crime*, January 1, 1953, https://www.unodc.org/unodc/en/data-and-analysis/bulletin/bulletin_1953-01-01_2_page010.html.
- ⁴³Dan Keating and Samuel Granados, "See How Deadly Street Opioids Like 'Elephant Tranquilizer' Have Become," *The Washington Post*, October 25, 2017, <https://www.washingtonpost.com/graphics/2017/health/opioids-scale/>.
- ⁴⁴Teri Sforza, "'Gas Station Heroin' Can Be Deadly, But It's Just a Mouse Click Away," *The Seattle Times*, May 2, 2026, <https://www.seattletimes.com/nation-world/gas-station-heroin-can-be-deadly-but-its-just-a-mouse-click-away/>.
- ⁴⁵"Trends, Analysis, and Threats Webinar Summary," *Overdose Response Strategy (ORS)*, March 4, 2026, https://orsprogram.org/wp-content/uploads/2026/03/Mar2026_ORs_TAT_Summary.pdf and information from staff at DEA's South Central Laboratory via email correspondence about vapes on April 9, 2026.
- ⁴⁶Kevin Schichlein, Hye-Young Kim, Ned Porter, and Ilona Jaspers, "7-OH and Kratom Vaping Products: An Emerging Public Health Threat," *Toxicological Sciences: A Journal of the Society of Toxicology*, Volume 209, Issue 2, February 2026, <https://academic.oup.com/toxsci/article-abstract/209/2/kfaf169/8378313?redirectedFrom=fulltext>.
- ⁴⁷Jasmine Law, "What is 7-OH? Experts Warn of Emerging Opioid Threat," *Newsweek*, June 8, 2026, <https://www.newsweek.com/what-is-7-oh-experts-warn-of-emerging-opioid-threat-12043763>.
- ⁴⁸"Dihydro-7-Hydroxy Mitragynine (MGM-15) – Test Purchase," *Center for Forensic Science Research and Education (CFSRE)*, May 2026, https://www.cfsre.org/images/content/reports/public_alerts/Dihydro-7-Hydroxy_Mitragynine_MGM-15_NPS_Discovery_050626.pdf.
- ⁴⁹Benjamin Zohar, "MGM-16, MGM-15, and 7-OH: Understanding the New Generation of Semi-Synthetic Opioids," *International Society of Substance Use Professionals*, July 1, 2026, <https://www.issup.net/node/70086>.
- ⁵⁰"HHS, FDA Commend DEA Actions Against Dangerous Enhanced 7-OH Products," July 1, 2026, <https://www.hhs.gov/press-room/hhs-fda-support-dea-7-oh-scheduling.html>.
- ⁵¹"Mitragynine Pseudoindoxyl," *Center for Forensic Science Research and Education (CFSRE)* November 2025, <https://www.cfsre.org/nps-discovery/monographs/mitragynine-pseudoindoxyl>.
- ⁵²Liz Tung, "As Kratom and 7-OH Use Grows, Clinicians Are Developing Protocols for Addiction Treatment," *WHYY*, May 5, 2026, <https://geiselmed.dartmouth.edu/news/2026/as-kratom-and-7-oh-use-grows-clinicians-are-developing-protocols-for-addiction-treatment-why/> and https://whyy.org/articles/kratom-7-oh-addiction-treatment/?utm_source=DARTMOUTH+MEDIA+HIGHLIGHTS&utm_campaign=1206fb4dfb-EMAIL_CAMPAIGN_2026_05_06_03_33&utm_medium=email&utm_term=0_-1206fb4dfb-537423295.

- ⁵³"Health Advisory: Serious Illnesses Associated with 7-OH Use," *America's Poison Centers*, August 12, 2025, <https://poisoncenters.org/news-alerts/13531044>.
- ⁵⁴Sara Post, Henry Spiller, Thitphalak Chounthirath, and Gary Smith, "Kratom Exposures Reported to United States Poison Control Centers," *Clinical Toxicology* 2019, Volume 57, No. 10, 847-854, February 21, 2019, <https://pubmed.ncbi.nlm.nih.gov/30786220/>.
- ⁵⁵Emily Wells, Barnali Paul, Nokomis Ramos-Gonzalez, and Susruta Majumdar, "Atypical Respiration Patterns of Kratom Alkaloids," *The Journal of Pharmacology and Experimental Therapeutics*, Volume 393, Issue 5, May 2026, <https://www.sciencedirect.com/science/article/pii/S0022356526005252>.
- ⁵⁶"LAC DPH Health Alert: Fatal Overdoses Associated with 7-Hydroxymitragynine (7-OH) in Los Angeles County," *L.A. Care Health Plan*, Accessed July 18, 2026, <https://www.lacare.org/providers/news/health-advisories/fatal-overdoses-7-OH> and associated alerts issued on September 12, 2025, http://publichealth.lacounty.gov/eprd/lahealth/alerts/LAHAN_FatalOverdosesAssociatedwith7OH091225.pdf and on October 10, 2025, <http://publichealth.lacounty.gov/phcommon/public/media/mediapubhpdetail.cfm?prid=5156>.
- ⁵⁷"Schedules of Controlled Substance: Temporary Placement of 7-Hydroxymitragynine Above a Specified Threshold in Schedule I," *Drug Enforcement Administration, Federal Register – A Daily Journal of the United States Government*, July 6, 2026, <https://www.federalregister.gov/documents/2026/07/06/2026-13580/schedules-of-controlled-substance-temporary-placement-of-7-hydroxymitragynine-above-a-specified>.
- ⁵⁸Stephanie Black, D.O., "What is 7-OH and What Do I Need to Know About It?" *University of Washington Psychiatry and Addictions Case Conference, University of Washington Medicine, Psychiatry and Behavioral Sciences*, March 26, 2026, https://ictp.uw.edu/wp-content/uploads/2026/03/UW-PACC-2026_03_26-7OH-compressed.pdf.
- ⁵⁹Shyam Kamble et al., "Metabolism of a Kratom Alkaloid Metabolite in Human Plasma Increases Its Opioid Potency and Efficacy," *ACS Pharmacology and Translation Service*, 2020, 3, 1063-1068. Accessed July 18, 2026, <https://pmc.ncbi.nlm.nih.gov/articles/PMC7737207/>.
- ⁶⁰Justin Brower, Donna Papsun, and William Schroeder, "From Leaf to Lab, Kratom-Related Deaths in an Evolving Kratom Alkaloid Landscape," *NMS Labs*, Accessed July 18, 2026, <https://nmslabs.com/resources/educational-resources/webinars/leaf-lab-kratom-related-deaths-evolving-alkaloid-landscape>.
- ⁶¹"Reports of Addiction Death Continue to Emerge as DEA Cracks Down on 'Monster' Drug 7-OH," *WKRC Local 12 News*, July 18, 2026, <https://local12.com/news/nation-world/reports-of-addiction-and-deaths-linked-to-synthetic-7-oh-monster-products-grow-as-families-share-losses-federal-officials-target-concentrated-kratom-compounds-with-new-enforcement-and-health-warnings-across-the-country-cincinnati-nicholas-campagna>.
- ⁶²Mark Gold, Nicole Avena, Rajendra Badgaiyan, Panayotis Thanos, and Kenneth Blum, "A Call to Colleagues on Concentrated Synthetic 7-OH," *Substance Abuse and Rehabilitation*, February 26, 2026, <https://pmc.ncbi.nlm.nih.gov/articles/PMC12951852/>.
- ⁶³"What Did My Patient Actually Take? An Overview of Kratom Alkaloids in Clinical Practice," *Aegis Sciences Corporation*, November 10, 2025, <https://www.aegislabs.com/clinical-update/what-did-my-patient-actually-take-an-overview-of-kratom-alkaloids-in-clinical-practice/>.
- ⁶⁴Robin Koller, "Does Kratom Show Up on A Drug Screening?" *Altiscreen*, June 4, 2026, <https://altiscreen.com/blog/does-kratom-show-up-on-drug-screening>.
- ⁶⁵Benjamin Zohar, "7-OH Rehab: Withdrawal, Treatment and FAQ," *International Society of Substance Use Professionals*, July 7, 2026, <https://www.issup.net/node/70138>.
- ⁶⁶Zach Miller, "Does 7OH Show Up on a Drug Test?" *Orlando Treatment Solutions*, November 17, 2025, <https://orlandotreatmentsolutions.com/does-kratom-show-up-on-a-drug-test/>.
- ⁶⁷"Understanding the Half-Life of 7-Hydroxymitragynine," *California Coastal Recovery Centers*, Accessed July 19, 2026, medically reviewed by Dr. Courtney Scott, MD, <https://californiacoastalrecoverycenters.com/how-long-7-hydroxymitragynine-last-in-body/>.
- ⁶⁸"Information provided by staff at the Texas Department of State Health Services on July 22, 2026.
- ⁶⁹"Kratom: Summary of State Laws," *Legislative Analysis and Public Policy Association*, January 2026, <https://legislativeanalysis.org/wp-content/uploads/2026/02/Kratom-Summary-of-State-Laws.pdf>.

⁷⁰"US Kratom Legality Map," Accessed on July 20, 2026, from speciosa.org website.

⁷¹"Attorney General Paxton Sues Kratom Retailers for Deceptively Marketing and Selling Products Containing Nearly Fifty Times the Legal Limit of Potentially Deadly Substance," *Ken Paxton, Attorney General of Texas, Press Release*, February 9, 2026, <https://www.texasattorneygeneral.gov/news/releases/attorney-general-paxton-sues-kratom-retailers-deceptively-marketing-and-selling-products-containing> and see also <https://www.texasattorneygeneral.gov/sites/default/files/files/press/S-Petition.pdf>.

⁷²"Attorney General Paxton Sues Kratom Retailers for Deceptively Marketing and Selling Products Containing Nearly Fifty Times the Legal Limit of Potentially Deadly Alkaloid Known as 7-OH," *Ken Paxton, Attorney General of Texas, Press Release*, April 21, 2026, <https://www.texasattorneygeneral.gov/news/releases/attorney-general-paxton-sues-kratom-retailers-selling-products-containing-nearly-fifty-times-legal> and see also <https://www.texasattorneygeneral.gov/sites/default/files/images/press/Order.PDF>.

⁷³"Attorney General Hanaway Announces Update in Efforts Against Opioid Manufacturers, Retailers, and Distributors," *Catherine L. Hanaway, Missouri Attorney General, Press Release*, June 10, 2026, <https://ago.mo.gov/attorney-general-hanaway-announces-update-in-efforts-against-opioid-manufacturers-retailers-and-distributors/> and see also <https://ago.mo.gov/wp-content/uploads/State-v-RRR-Trading-Clean-to-file.pdf>.

⁷⁴"American Shaman Agrees to Suspend Sales of Kratom and 7-OH in Missouri," *Catherine L. Hanaway, Missouri Attorney General, Press Release*, June 4, 2026, <https://ago.mo.gov/american-shaman-agrees-to-suspend-sales-of-kratom-and-7-oh-in-missouri/>.

⁷⁵"Attorney General Hanaway Expands Kratom Investigation to Target Supply Chain," *Catherine L. Hanaway, Missouri Attorney General, Press Release*, April 7, 2026, <https://ago.mo.gov/attorney-general-hanaway-expands-kratom-investigation-to-target-supply-chain/>.

⁷⁶Brittany Taylor, "4 Montgomery County Smoke Shops Busted in Undercover THC Vape Sales to Minors," *Click2Houston*, January 2, 2026, <https://www.click2houston.com/news/local/2026/01/02/4-montgomery-county-smoke-shops-busted-in-undercover-thc-vape-sales-to-minors/>.

⁷⁷Rayan Graham and Gage Goulding, "Poof...Texas Vape Ban Vaporizes Customer Choices and Business Sales," *Click2Houston*, September 2, 2025, <https://www.click2houston.com/news/local/2025/09/02/poof-texas-vape-ban-vaporizes-customer-choices-and-business-sales/>.

⁷⁸"California Leads the Nation in Cracking Down on Deadly Kratom Goods – The Feds are Now Following Our Lead," *Office of Governor Gavin Newsom*, July 15, 2026, <https://www.gov.ca.gov/2026/07/15/california-leads-the-nation-in-cracking-down-on-deadly-kratom-goods-the-feds-are-now-following-our-lead/>.

⁷⁹"Governor Gavin Newsom – Facebook Post, July 15, 2026, <https://www.facebook.com/CAGovernor/posts/early-this-year-my-administration-ordered-the-removal-of-goods-containing-harmfu/1641194267364432/>.

⁸⁰"Attorney General James Uthmeier Files Emergency Rule; Immediately Removing Dangerous 7-OH from Store Shelves," *Office of Attorney General James Uthmeier*, August 13, 2025, <https://www.myfloridalegal.com/newsrelease/attorney-general-james-uthmeier-files-emergency-rule-immediately-removing-dangerous-7>.

⁸¹"Attorney General James Uthmeier Signs Emergency Rule Immediately Scheduling Dangerous 7-OH and Related Compounds as Schedule I Controlled Substances," *Office of Attorney General James Uthmeier*, June 22, 2026, <https://www.myfloridalegal.com/newsrelease/attorney-general-james-uthmeier-signs-emergency-rule-immediately-scheduling-dangerous-7>.

⁸²"FDA Takes Steps to Restrict 7-OH Opioid Products Threatening American Consumers," *U.S. Food and Drug Administration (FDA)*, July 29, 2025, <https://www.fda.gov/news-events/press-announcements/fda-takes-steps-restrict-7-oh-opioid-products-threatening-american-consumers>.

⁸³"FDA Issues Warning Letters to Firms Marketing Products Containing 7-Hydroxymitragynine," *U.S. Food and Drug Administration (FDA)*, July 15, 2025, <https://www.fda.gov/news-events/press-announcements/fda-issues-warning-letters-firms-marketing-products-containing-7-hydroxymitragynine>.

⁸⁴"My Smoke Wholesale Warning letter," *U.S. Food and Drug Administration (FDA)*, June 25, 2025, <https://www.fda.gov/inspections-compliance-enforcement-and-criminal-investigations/warning-letters/my-smoke-wholesale-710314-06252025>.

- ⁸⁵"FDA Commissioner on the Dangers of the Kratom-Derived Opioid 7-OH," *CNBC TV YouTube Short*, July 30, 2025, <https://www.youtube.com/shorts/FASORMqLRZE>.
- ⁸⁶"DEA to Temporarily Schedule 7-OH and Related Substances to Protect Public Safety," *Drug Enforcement Administration Press Release*, July 1, 2026, <https://www.dea.gov/press-releases/2026/07/01/dea-temporarily-schedule-7-oh-and-related-substances-protect-public> and see also *Federal Register*, <https://www.federalregister.gov/documents/2026/07/06/2026-13581/schedules-of-controlled-substances-temporary-placement-of-mitragynine-pseudoindoxyl-mgm-15-and>.
- ⁸⁷"Schedules of Controlled Substances: Placement of Tianeptine in Schedule I," *Federal Register-A Daily Journal of the United States Government*, July 8, 2026, <https://www.federalregister.gov/documents/2026/07/08/2026-13821/schedules-of-controlled-substances-placement-of-tianeptine-in-schedule-i>.
- ⁸⁸"FDA Warns Consumers Not to Purchase or Use Any Tianeptine Product Due to Serious Risks," *U.S. Food and Drug Administration*, May 8, 2025, <https://www.fda.gov/drugs/drug-alerts-and-statements/fda-warns-consumers-not-purchase-or-use-any-tianeptine-product-due-serious-risks>.
- ⁸⁹Matthew Adams, "Army Bans Kratom Use, Underscoring Pentagon's Prohibition of the Drug," *Stars and Stripes*, July 1, 2026, <https://www.stripes.com/branches/army/2026-07-01/army-bans-kratom-use-22139186.html>.
- ⁹⁰"R 141735Z JAN 26 MID180038529025U, Subject: Prohibition of the Use of Kratom, Mitragynine, and 7-Hydroxymitragynine Products," *U.S. Navy*, January 26, 2026, <https://www.mynavyhr.navy.mil/Portals/55/Messages/ALNAV/ALN2026/ALN26003.pdf?ver=8Mtl6A5uBA8smuk9C-1qxQ%3D%3D>.
- ⁹¹"AEDC Drug Demand Reduction Program Team Warns Against Kratom Use," *Digital Visual Information Distribution System (DVIDS)*, Accessed July 22, 2026, <https://www.dvidshub.net/image/9613707/aedc-drug-demand-reduction-program-team-warns-against-kratom-use>. (image)
- ⁹²"Memorandum for Chief of the National Guard Bureau Assistant Secretaries of the Military Departments for Manpower and Reserve Affairs, Subject: Adoption of Punitive General Orders or Regulations to Address the Use of Kratom, Mitragynine, and 7-Hydroxymitragynine Products," *Department of Defense*, September 15, 2025, https://www.opss.org/sites/default/files/downloadable/Memorandum%20to%20the%20Services_Kratom%20Prohibition_15Sep2025.pdf.
- ⁹³"RFK on Combating 'Dangerous Opioid 7-OH,'" *Fox 29 Philadelphia*, July 29, 2025, <https://www.youtube.com/watch?v=ax4UvW-1Olo>.
- ⁹⁴"Make America Healthy Again (MAHA)," *U.S. Department of Health and Human Services*, Accessed July 24, 2026, <https://www.hhs.gov/maha/index.html>.
- ⁹⁵"My Experience Using SR 17108 While Getting Off 7-OH," *Reddit*, Accessed on July 25, 2026, https://www.reddit.com/r/DrugWithdrawal/comments/1pgzge2/my_experience_using_sr17018_while_getting_off_7oh/.
- ⁹⁶"SR-17018," *Wikipedia*, Accessed on July 25, 2026, <https://en.wikipedia.org/wiki/SR-17018>.
- ⁹⁷"Schedule of Controlled Substances: Temporary Placement of 5,6 Dichloro Brorphine, 5,6 Dichloro Desmethychlorphine, and Spirochlorphine in Schedule I of the Controlled Substances Act," *Federal Register*, July 1, 2026, <https://www.federalregister.gov/documents/2026/07/01/2026-13364/schedules-of-controlled-substances-temporary-placement-of-56--dichloro-brorphine-56-dichloro>.