



Memorandum

DATE: July 21, 2010

TO: Mike Huggins, City Manager

FROM: Richard Thoune, Director/Health Officer

SUBJECT: Summary of Health Effects and Concerns Related to Herbal Incense Products (Street names K2, Spice, etc.) and Synthetic Cannabinoids

The Health Department has searched information sources via the Internet on the health effects and concerns associated with herbal incense products that may be intentionally contaminated with synthetic cannabinoids.

Our summary is as follows:

The Street Product:

1. Contains one or more herbs. Herbs that could be included: *Canavalia rosea*, *Clematis vitalba*, *Nelumbo nucifera*, *Pedicularis grandifolia*, *Heimia salicifolia*, *Leonurus sibiricus*, or *Ledum palustre*.
2. The most frequently identified active synthetic cannabinoid ingredient reported in the literature is JWH 018, an analgesic chemical that binds with cannabinoid receptors in the human brain. Other synthetic cannabinoid compounds include JWH-073, HU-210, TFMPP, BZP, CP 47,497.
3. JWH-018 is not currently controlled under the federal Controlled Substances Act (CSA), but it is listed as a “drug and chemical of concern”, according to Customs and Border Protection.
4. JWH-018 is useful in basic scientific research to identify cannabinoid receptors in the brain and to study the mechanisms of action of Tetrahydrocannabinol (THC), the psychoactive chemical compound in marijuana.
5. JWH-018 is not categorized as a THC substance, and tests for THC in urine will not detect it. It can be identified in product samples using gas chromatography/mass spectrometry testing.
6. HU-210 is a controlled listed drug on Schedule I of the CSA. Products containing it are controlled within the U.S. and subject to U.S. Customs and Border Protection seizure.
7. Ingredients typically listed on packages of K2 or Spice are all herbs, with no mention of synthetic cannabinoids. Some packages are labeled “not for human consumption.”



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Health Effects and Concerns:

1. Based on anecdotal reports and some published scientific articles, synthetic cannabinoids are between 3 and 100¹ times more potent than tetrahydrocannabinol (THC)², the psychoactive chemical compound in marijuana, but with a longer duration of action.
2. When smoked, synthetic cannabinoid products mimic the hallucinogenic effects of marijuana. Adverse effects reported³ include:
 - panic attacks
 - rapid heart beat (in the range of 110 to 150 beats/minute)
 - anxiety
 - numbness and tingling
 - hallucinations (which can be intense)
 - agitation
 - elevated blood pressure (in the 140-160/100-110 range)
 - pallor
 - vomiting (which can be severe and may require sedation)
 - In some cases, tremors, and seizures

Note: The source of the above reported adverse effects has not been validated and/or researched by the National Drug Intelligence Center, U.S. Department of Justice.

3. At least one case of psychological dependence has been reported by a user who consumed JWH-018 daily for eight months.⁴ Withdrawal symptoms were similar to those experienced as a result of cannabis dependence.
4. There are no published scientific research articles on the adverse effects of these products on human health.
5. The true toxicity of synthetic cannabinoids is not known because few reports are available. There is no research on the long-term effects of use. There may be acute and long-term toxicity. All of the possible effects of these drugs may not become known for a long time.
6. Synthetic cannabinoids have not been tested as a drug by the FDA, and cannot be considered safe.
7. In February 2010, Missouri reported 12 cases of K2 synthetic marijuana product exposure among teens in hospital emergency departments across the state, prompting the Director of the Missouri Department of Health and Senior Services to issue a health advisory.⁵
8. Based on the signs and symptoms reported, the Missouri Regional Poison Center is concerned that K2 may be contaminated with other unrecognized chemicals, in addition to the synthetic cannabinoid-like substance. Missouri also reported that K2 is reportedly being used together with other legal and illegal substances. These factors may complicate patient evaluation and management for health care providers.
9. In June 2010, an 18-year-old central Iowa teen that smoked K2 product is reported to have suffered an acute panic attack and committed suicide, prompting the Iowa Office of Drug Control Policy Coordinator to issue a cautionary news release about K2/Spice.⁶

¹ Nicoll RA, Alger BE (2004). "The brain's own marijuana". *Sci. Am.* 291 (6): 68–75. doi:10.1038/scientificamerican1204-68. PMID 15597982.

² <http://en.wikipedia.org/wiki/Tetrahydrocannabinol>

³ <http://www.justice.gov/ndic/pubs41/41193/sw0006p.pdf>

⁴ <http://en.wikipedia.org/wiki/JWH-018>

⁵ http://www.dhss.mo.gov/BT_Response/HAd/HAd3-5-2010.pdf

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10. In Eau Claire County, hospitalization of one young adult has been reported by a family after use of K2 or Spice herbal product.⁷

Conclusions:

1. Information from legitimate federal and state sources, and one medical professional at a poison control center, document the potential acute adverse health effects that are possible among users who smoke the product, as well as other potential associated fatal consequences, such as suicide. The adverse health effects associated with product use constitute a health hazard.
2. The reported adverse effects of product use could be expected to leave a user temporarily incapacitated and unable to function without supervision. The user could harm themselves or other members of the public when under the influence of the product, creating a public safety hazard.
3. Long term health effects and acute and long term toxicity of the products remains unknown at this time.
4. Information collected to date on adverse health effects remains mostly anecdotal.

⁶ <http://www.iowa.gov/odcp/docs/NewsReleaseSpiceAlert61610.pdf>

⁷ Individual Family Report to Eau Claire City Council Member D. Wachs