



N-Ethylpentylone

(Street Names: bath salts, plant fertilizer, plant food, legal high, research chemicals)

December 2019

Introduction:

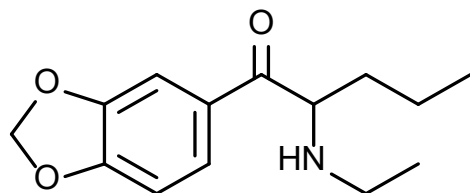
N-Ethylpentylone is a designer drug of the phenethylamine class and it is structurally and pharmacologically similar to cathinone (schedule I), methcathinone (schedule I), mephedrone (schedule I), methylone (schedule I), pentylone (schedule I), MDPV (schedule I), methamphetamine (schedule II), MDMA (schedule I), and other related substances. Evidence indicates that *N*-ethylpentylone, like these schedule I and II substances, is abused for its psychoactive effects. *N*-ethylpentylone produces stimulant-like effects similar to those of methcathinone, methamphetamine, and other schedule I and II phenethylamine substances. Abuse of *N*-ethylpentylone has resulted in emergency department visits and fatal overdoses.

Licit Uses:

N-Ethylpentylone is not approved for medical use in the United States.

Chemistry:

N-Ethylpentylone (chemical name: 1-(1,3-benzodioxol-5-yl)-2-(ethylamino)pentan-1-one; CASRN (hydrochloride salt) 17763-02-9) is a phenethylamine substituted with a carbonyl group at its beta position, a propyl group at its alpha position, a 3,4-methylenedioxy ring on its phenyl ring, and an ethyl group on the nitrogen.



Molecular Formula C₁₄H₁₉NO₃

Pharmacology and Toxicology:

N-Ethylpentylone, similar to schedule I synthetic cathinones (e.g., pentylone, mephedrone, methylone, and MDPV) and well-known sympathomimetic agents (e.g., cocaine, methamphetamine, and MDMA), causes stimulant related psychological and somatic effects. The pharmacological effects of *N*-ethylpentylone on the central nervous system are like those of mephedrone, MDPV, cathinone and methcathinone, which are schedule I substances with high potential for abuse. In laboratory studies investigating the effects of drugs on monoaminergic systems, *N*-ethylpentylone inhibited the uptake of the monoamine neurotransmitters dopamine, serotonin and norepinephrine. Administration of *N*-ethylpentylone in mice

has been shown to increase locomotor activity. In drug discrimination studies, *N*-ethylpentylone fully substitutes for the discriminative stimulus effects produced by methamphetamine and cocaine. Adverse effects associated with *N*-ethylpentylone abuse include diaphoresis, insomnia, mydriasis, hyperthermia, vomiting, agitation, disorientation, paranoia, abdominal pain, cardiac arrest, respiratory failure, coma, and death.

Illicit Uses and Distribution:

N-Ethylpentylone, like other synthetic cathinone substances, is being perceived as a 'legal' alternative to drugs of abuse like MDMA, methamphetamine, and cocaine. Evidence indicates that the main users of *N*-ethylpentylone, similar to schedule I synthetic cathinones and MDMA, are youths and young adults.

Illicit distribution of *N*-ethylpentylone has been documented in the United States. The National Forensic Laboratory Information System (NFLIS) is a DEA database that collects scientifically verified data on drug items and cases submitted to and analyzed by state and local forensic laboratories. According to NFLIS, *N*-ethylpentylone report/drug exhibits began appearing in 2014 (1 report) and exponentially increased to 2,252 in 2016, 6,237 in 2017, and 9,552 in 2018.

The System To Retrieve Information from Drug Evidence (STRIDE) is a federal database for the drug samples analyzed by DEA forensic laboratories. On October 1, 2014, the DEA implemented STARLiMS (a web-based, commercial laboratory information management system) to replace STRIDE as its laboratory drug evidence data system of record. From January 2015 to December 2018, the STRIDE/STARLiMS databases registered a total of 660 drug exhibits pertaining to the trafficking, distribution and abuse of *N*-ethylpentylone. Seizures of *N*-ethylpentylone are indicative of illicit activity involving this substance.

However, after being controlled in August 2018, preliminary estimates indicate the number of seizures substantially decreased to roughly 1,300 drug exhibits for 2019.

Control Status:

On August 31, 2018, *N*-ethylpentylone, its salts, isomers, and salts of isomers were temporarily controlled in schedule I of the Controlled Substances Act (CSA) (83 FR 44474).

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 571-362-4250, Telephone 571-362-3249, or E-mail DPE@usdoj.gov.