

***N*-Ethylpentylone**

December 2022

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

Introduction:

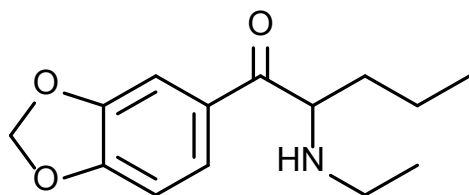
N-Ethylpentylone is a designer drug of the phenethylamine class and it is structurally and pharmacologically similar to cathinone (schedule I), methcathinone (schedule I), mephedrone (schedule I), methylone (schedule I), pentylone (schedule I), 3,4-methylenedioxypyrovalerone (MDPV) (schedule I), methamphetamine (schedule II), 3,4-methylenedioxymethamphetamine (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:

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 increasing the concentrations of these monoamines in the synaptic cleft. An increase in

monoamine concentrations in the central nervous system is thought to be involved in the pharmacological effects of these substances. Administration of *N*-ethylpentylone in mice increased 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.

User Population:

Evidence indicates that the main users of *N*-ethylpentylone, similar to schedule I synthetic cathinones and MDMA, are youths and young adults.

Illicit Uses and Distribution:

N-Ethylpentylone, like other synthetic cathinone substances, was being perceived as a 'legal' alternative to drugs of abuse like MDMA, methamphetamine, and cocaine. Illicit distribution of *N*-ethylpentylone has been documented in the United States.

According to the DEA's National Forensic Laboratory Information System (NFLIS) Drug database, which collects scientifically verified data on drug items and cases submitted to and analyzed by federal, state and local forensic drug laboratories, the first report of *N*-ethylpentylone was in 2014. The number of annual reports increased to 2,393 in 2016, 6,637 in 2017, and 10,250 in 2018, at its peak. After being controlled in 2018, the number of annual reports decreased to 1,753 in 2019, 314 in 2020, and 110 in 2021.

Control Status:

N-Ethylpentylone, including its salts, isomers, and salts of isomers, is controlled in schedule I of the Controlled Substances Act.

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@dea.gov.