Drug Enforcement Administration
Diversion Control Division
Drug & Chemical Evaluation Section

1-(1,3-Benzodioxol-5-yl)-2-(ethylamino)butan-1-one (Eutylone)

["Bath salt," bk-EBDB]

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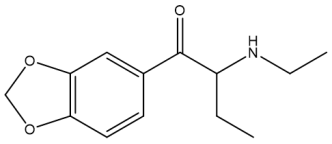
Introduction

1-(1,3-Benzodioxol-5-yl)-2-(ethylamino)butan-1-one (eutylone) is a designer drug of the phenethylamine class. Eutylone is a synthetic cathinone with chemical structural and pharmacological similarities to schedule I and II amphetamines and cathinones such as to 3,4-methylenedioxymethamphetamine (MDMA), methylone, and pentylone. Evidence indicates that eutylone, like other schedule I synthetic cathinones, is abused for its psychoactive effects.

Licit Uses

Eutylone is not approved for medical use in the United States.

Chemistry



Eutylone
Molecular Formula $C_{13}H_{17}NO_3$

Pharmacology

Based on the structure of eutylone, it is predicted that eutylone will cause stimulant related psychological and somatic effects similar to schedule I synthetic cathinones (e.g., methylone and pentylone) and schedule I and II substances such as cocaine, methamphetamine, and MDMA. Adverse effects associated with synthetic cathinone abuse include agitation, hypertension, tachycardia, and death. Online chat rooms discussed pleasant and positive effects of eutylone when used for recreational purposes.

Experimental evidence demonstrates that eutylone has pharmacological effects on the central nervous system that are similar to those of schedule I or II substances such as methylone, pentylone, cocaine, methamphetamine, and MDMA which have high potential for abuse. In *in vitro* laboratory studies investigating the effects of drugs on monoaminergic systems, eutylone, similar to methylone, pentylone, methamphetamine, MDMA, and cocaine, binds to the dopamine, serotonin, and norepinephrine transporters and inhibited the reuptake of the monoamine neurotransmitters, dopamine, serotonin, and norepinephrine, respectively. Methamphetamine, MDMA, methylone, and cocaine have been shown to increase one or more of the monoamine concentrations in the central nervous system and these increases are thought to be involved in the pharmacological effects of these schedule I and II substances. Users of eutylone anecdotally reported taking up to 200 mg in small doses of 50 mg or less per session. One user reported having effects lasting eight hours after administration. Users have reported administering eutylone by oral, intravenous, and nasal routes. Effects reported by users of eutylone include warm tingling sensations, increased focus, changes in vision, euphoria, and an intense high. In general, synthetic cathinones have been reported to cause a number of stimulant-like adverse effects including tachycardia, hypertension, hyperthermia, palpitations, hyponatremia, tremor, seizures, vomiting, sweating, headache, and rhabdomyolysis. Recreational effects reported by abusers of synthetic cathinones include euphoria, sense of well-being, increased sociability, energy, empathy, increased alertness, improved concentration and focus.

User Population

Eutylone, like other synthetic cathinones, is a recreational drug. Evidence indicates that the main users of eutylone, similar to schedule I synthetic cathinones and MDMA, are youths and young adults.

Illicit Distribution

Law enforcement has encountered eutylone in the United States and around the world in Europe and Asia. 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 federal, state and local forensic laboratories in the United States. Recent law enforcement encounters of eutylone as reported by NFLIS have markedly escalated. According to the NFLIS data, eutylone emerged on the United States' illicit drug market in 2014. There were 29, 182, and 3,958 reports for eutylone in 2017, 2018, and 2019, respectively. The increase in eutylone reports from 2018 to 2019 was particularly sharp.

Control Status

As a positional isomer of pentylone, eutylone 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@usdoj.gov.

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