



KETAMINE

(Street Names: Special K, K, Kit Kat, Cat Valium, Super Acid,
Special La Coke, Purple, Jet, and Vitamin K)

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Introduction:

Ketamine is a dissociative anesthetic that has gained popularity as a drug of abuse. Slang for experiences related to ketamine or effects of ketamine include "K-land," "K-hole," "baby food," and "God."

Licit Uses:

Since the 1970s, ketamine has been marketed in the United States as an injectable short-acting anesthetic for use in humans and animals. It is imported into the United States and formulated into dosage forms for distribution under the trade names Ketalar, Ketaset, Ketajet, Ketavet, Vetamine, Vetaket, and Ketamine Hydrochloride Injection. There were 19,071 prescriptions dispensed for ketamine in the U.S. in 2016, and 22,391 dispensed/sold in 2017. For 2018, there were a total of 19,859 prescriptions for ketamine sold in the U.S. (IQVIA™ formerly known as IMS Health™). The S-enantiomer of ketamine gained FDA approval in March 2019 for the treatment of treatment-resistant depression.

Chemistry and Pharmacology:

Ketamine hydrochloride, 2-(2-chlorophenyl)-2-(methylamino)-cyclohexanone hydrochloride, is a white crystalline powder, which is soluble in water. It is a rapid-acting non-barbiturate dissociative anesthetic, structurally and pharmacologically similar to phencyclidine (PCP). Like PCP, ketamine has activity at N-methyl-d-aspartate (NMDA) receptors. It also binds to mu opioid and sigma/phencyclidine receptors. Ketamine produces sedation, immobility, amnesia, and marked analgesia. At low doses and upon emergence from anesthesia, it produces changes in mood, body image, and hallucination. Relative to PCP, ketamine is less potent as an anesthetic, has a faster onset and shorter duration of action.

Illicit Uses:

Ketamine distorts perceptions of sight and sound and makes the user feel disconnected and not in control. The subjective effects, including hallucinogenic effects are relatively short in duration compared to LSD or PCP, lasting approximately 30 to 60 minutes as opposed to several hours.

Ketamine powder is usually snorted, mixed in drinks or smoked. Liquid ketamine is injected, applied on a smokeable material or consumed in drinks. Most abusers of ketamine take small lines or "bumps". An average dose is 100 mg.

User Population:

Ketamine is abused by many teenagers and young adults. The 2011 Monitoring the Future (MTF) study reported the annual use of ketamine among 8th, 10th, and 12th graders is 0.8%, 1.2% and 1.7%, respectively. MTF reports that in 2017, 1.2% of 12th graders used ketamine; past year use for 8th and 10th graders was not reported. And, in 2018, the past year use or prevalence, among 12th graders, continued to decrease to 0.7%; with no reporting for 8th and 10th graders. The American Association of Poison Control Centers (AAPCC) 2016 Annual Report indicates that there were 260 exposures related to ketamine (140 single substance exposures) in that year. In 2017, the reporting from the AAPCC was relatively stable with 250 case exposures and 129 single substance exposures from

ketamine. No deaths were associated with ketamine in 2016 or 2017.

Illicit Distribution:

DEA reports indicate that Mexico is a major supplier of illicit ketamine in the United States. Despite DEA and Mexican law enforcement dismantling the major drug ring of illicit ketamine in the United States in September 2002, Mexico continues to supply large amounts of ketamine into the United States. In November 2005, DEA successfully dismantled a large ketamine distribution organization operating throughout Los Angeles, Riverside and Orange counties in California. At that time, approximately 35,000 dosage units of ketamine smuggled from Mexico were seized.

Law enforcement information indicated that another source was an international pharmaceutical drug organization. This organization was smuggling ketamine from India into the United States. In April 2005, that organization was dismantled and 108 kilograms of Indian ketamine was seized with an estimated street value of approximately \$1.62 million.

Ketamine is distributed as a dried powder or as a liquid in small vials or bottles. It is snorted, smoked, ingested orally or injected. Powdered ketamine is formed from pharmaceutical ketamine by evaporating the liquid off.

Ketamine is mainly found in isolation; however, it has also been found in combination with MDMA, amphetamine, methamphetamine, cocaine, or carisoprodol. Occasionally, ketamine is found in polydrug "MDMA" (Ecstasy) tablets.

According to the National Forensic Laboratory Information System (NFLIS), federal, state and local forensic laboratories identified 1,397 ketamine drug reports in 2016, 1,855 reports in 2017, and preliminary increased estimates of 2,108 drug reports for 2018.

Control Status:

Ketamine is controlled in schedule III 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 Email DPE@usdoj.gov.