



## D-LYSERGIC ACID DIETHYLAMIDE (Street Names: LSD, Acid, Blotter Acid, Window Pane)

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DEA/OD/ODE

### Introduction:

Lysergic acid diethylamide (LSD), commonly referred to as "acid", is a synthetic hallucinogen. LSD is very potent, only microgram amounts are required to produce overt hallucinations. LSD has been abused since the 1960s. LSD's availability has declined significantly since 2001.

### Licit Uses:

There is no legitimate medical use for LSD in the United States.

### Chemistry and Pharmacology:

LSD is manufactured from lysergic acid, which is found in ergot, a fungus that grows on rye and other grains. LSD's physiological effects are mediated primarily through the serotonergic neuronal system.

LSD induces a heightened awareness of sensory input that is accompanied by an enhanced sense of clarity, but reduced ability to control what is experienced. The LSD trip is made up of perceptual and psychic effects. A user may experience the following perceptual effects: visual distortion in the size and shape of objects, movements, color, sound, touch, and the user's own body image. The user may report "hearing colors" or "seeing sounds." The psychic effects experienced by the user may include a feelings of obtaining true insight, intensified emotions, sudden and dramatic mood swings, impairment of attention, concentration and motivation, distortion of time, and depersonalization.

The adverse effects experienced with LSD use are dependent on the dose taken by the users. Some of the adverse effects reported are dilated pupils, raised body temperature, increased heart rate and blood pressure, profuse sweating, loss of appetite, sleeplessness, dry mouth and tremors.

High doses of LSD can induce a "bad trip" characterized by intense anxiety or panic, confusion, and combative behaviors. After a LSD trip, a user may also experience fatigue, acute anxiety, or depression for 12 to 24 hours.

### Illicit Uses:

LSD is abused for its hallucinogenic effects. LSD is sold in a variety of forms, tablets, capsules, and liquid. The average effective oral dose is from 20 to 80 micrograms. Following ingestion, effects occur within 30 to 60 minutes and last 10 to 12 hours.

The 2012 Monitoring the Future (MTF) report indicated that the annual prevalence of LSD use among students in 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> grades was 0.8%, 1.7% and 2.4%, respectively. According to the American Association of Poison Control Centers, 301 case mentions, 174 single exposures, and 7 major medical outcomes related to LSD were reported to the National Poison Data System in 2010. The 2011 National Survey on Drug Use and Health (NSDUH) indicated that 23.0 million people in the U.S. population, aged 12 and older, used LSD in their lifetime. The Drug Abuse Warning Network (DAWN ED) reports that an estimated 3,817 emergency department visits were associated with LSD in 2010.

### User Population:

LSD is abused by teenagers and young adults in connection with "raves," nightclubs, and concert settings.

### Illicit Distribution:

According to the DEA System to Retrieve Information from Drug Evidence (STRIDE), the number of LSD items seized decreased dramatically in 2002 due to the seizure of a large LSD lab in Kansas City in 2000. With the arrest of clandestine chemists and with the dismantling of their laboratory, the availability of LSD in the U.S. was reduced by 95% within 2 years. In subsequent years, seizures of LSD increased, and most recently, seizures have once again decreased.

According to the National Forensic Laboratory Information System (NFLIS) and the System to Retrieve Information from Drug Evidence (STRIDE), 1,155 LSD reports were indicated from Federal, state and local forensic laboratories in 2011. From January to June 2012, there were 446 LSD reports from forensic laboratories.

LSD is odorless, colorless and tasteless. It is sold in a variety of formulations. Some of the street names include acid, battery acid, blotter, window pane, microdots, Loony toons, Sunshine, and Zen. Prices range from \$2 to \$5 per unit or "hit."

LSD is most commonly found in the form of small squares of paper called blotter; that is generally decorated with artwork or designs, perforated, soaked in liquid LSD solution, and dried. Each square represents one dose of LSD. There have been some instances of blotter paper being found impregnated with hallucinogens other than LSD. The hallucinogens, 2,5-dimethoxyamphetamine (DMA), 4-bromo-2,5-dimethoxyamphetamine (DOB), 4-iodo-2,5-dimethoxyphenethylamine (2C-I), and 4-iodo-2,5-dimethoxyamphetamine (DOI) have been found on blotter paper passed off as LSD.

Other forms of LSD include tablets (known as microdots), gelatin squares (known as window pane), and impregnated sugar cubes. LSD has also been available in gel wraps which look like "bubble-wrap" packing material, and is blue in color. LSD is also distributed in liquid form which often is packaged in small bottles typically sold as breath drops. Additionally, LSD has been embedded in candy such as "Gummy Worms," "Sweet Tarts," "Smartie," and "Pez." The most common venues for retail LSD distribution are "raves," dance clubs, and concerts.

### Control Status:

Lysergic acid diethylamide acid is in schedule I of the Controlled Substances Act (CSA). Its two precursor's lysergic acid and lysergic acid amide are both in schedule III of the CSA. The LSD precursors, ergotamine and ergonovine, are List I chemicals.

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 202-353-1263, telephone 202-307-7183, or Email ODE@usdoj.gov.