Drug Enforcement Administration
Diversion Control Division
Drug & Chemical Evaluation Section

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DEA/DC/DOE

D-LYSERGIC ACID DIETHYLAMIDE (LSD)

(Street Names: Acid, Blotter Acid, Window Pane, Microdots, Sunshine, Zen)

Introduction:

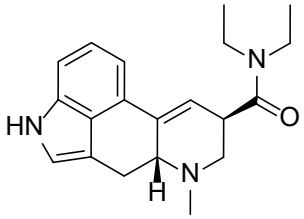
Lysergic acid diethylamide (LSD), commonly referred to as "acid," is a synthetic hallucinogen. LSD is very potent; only microgram amounts are required to produce overt hallucinations. LSD has been abused since the 1960s. LSD's availability has increased significantly in the last decade.

Licit Uses:

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

Chemistry:

The molecular formula for LSD is $C_{20}H_{25}N_3O$ with a molecular weight of 323.43 g/mol. The chemical structure for LSD is shown below:



Pharmacology:

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 psychological 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 psychological effects experienced by the user may include feelings of obtaining true insight, intensified emotions, sudden and dramatic mood swings, impairment of attention, concentration and motivation, distortion of time, and depersonalization.

The likelihood to experience adverse effects experienced with LSD increase with higher doses. 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.

LSD can induce a challenging experience, otherwise known as a "bad trip," that is characterized by intense anxiety or panic, confusion, and combative behaviors. After an 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, impregnated on tabs or blotter paper, tablets, capsules, and liquid. Following ingestion, effects occur within 30 to 60 minutes and last 10 to 12 hours.

According to the American Association of Poison Control Centers' National Poison Data System, LSD was related to 630 case mentions, 313 single exposures, 14 major medical outcomes, and 0 deaths in 2022. In addition, the 2023 National Survey on Drug Use and Health indicated that 30.2 million people in the U.S. population, aged 12 and older, used LSD in their lifetime and 1.7 million indicated past year use. More recently, the 2024 Monitoring the Future Study indicated that the previous 12-month prevalence of LSD use among students in 8th, 10th, and 12th grades was less than 1%.

User Population:

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

Illicit Distribution:

According to the Drug Enforcement Administration (DEA), the number of LSD items seized decreased dramatically in 2002. This was due to the seizure of a large LSD lab in Kansas City in 2000. With the arrest of clandestine chemists and the dismantling of their laboratory, the availability of LSD in the United States was reduced by 95% within 2 years. In subsequent years, seizures of LSD increased, and most recently, seizures have once again decreased.

DEA's National Forensic Laboratory Information System (NFLIS) Drug database collects scientifically verified data on drug items and cases submitted to and analyzed by participating federal, state, and local forensic drug laboratories. NFLIS-Drug received 4,863 reports of LSD in 2020, which have since declined to 3,883 in 2021; 2,676 in 2022; 1,893 in 2023; and 1,233 in 2024 (reports still pending).

LSD is odorless, colorless, and tasteless. It is sold in a variety of formulations. LSD is most commonly found in the form of small squares of paper called blotter paper. Blotter paper is generally decorated with artwork or designs, perforated, soaked in liquid LSD solution, and dried. Each square represents one dose of LSD. In some instances, blotter paper has been found impregnated with hallucinogens other than LSD. Some controlled (schedule I) and non-controlled hallucinogens—such as 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 that look like "bubble-wrap" packing material and is blue in color. LSD is also distributed in liquid form that is often 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:

LSD is controlled in schedule I of the Controlled Substances Act (CSA). Its two precursors, lysergic acid and lysergic acid amide, are both schedule III substances under 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 571-362-4250, Telephone 571-362-3249, or Email DPE@dea.gov.