Drug Enforcement Administration
Office of Diversion Control
Drug & Chemical Evaluation Section

N-BENZYLPIPERAZINE
(Street Names: BZP, A2, Legal E or Legal X)

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DEA/OD/ODE

Introduction:

N-Benzylpiperazine (BZP) was first synthesized in 1944 as a potential antiparasitic agent. It was subsequently shown to possess antidepressant activity and amphetamine-like effects, but was not developed for marketing. The amphetamine-like effects of BZP attracted the attention of drug abusers. Since 1996, BZP has been abused by drug abusers; as evidenced by the encounters of this substance by law enforcement officials in various states and the District of Columbia. The Drug Enforcement Administration (DEA) placed BZP in schedule I of the Controlled Substances Act (CSA) because of its high abuse potential and lack of accepted medical use or safety.

Licit Uses:

BZP is used as an intermediate in chemical synthesis. It has no known medical use in the United States.

Chemistry and Pharmacology:

BZP is an N-monosubstituted piperazine derivative available as either base or the hydrochloride salt. The base form is a slightly yellowish-green liquid. The hydrochloride salt is a white solid. BZP base is corrosive and causes burns. The salt form of BZP is an irritant to eyes, respiratory system and skin.

Both animal studies and human clinical studies have demonstrated that the pharmacological effects of BZP are qualitatively similar to those of amphetamine. BZP has been reported to be similar to amphetamine in its effects on chemical transmission in brain. BZP fully mimics discriminative stimulus effects of amphetamine in animals. BZP is self-administered by monkeys indicating reinforcing effects. Subjective effects of BZP were amphetamine-like in drug-naive volunteers and in volunteers with a history of stimulant dependence. BZP acts as a stimulant in humans and produces euphoria and cardiovascular effects, namely increases in heart rate and systolic blood pressure. BZP is about 10 to 20 times less potent than amphetamine in producing these effects. Experimental studies demonstrate that the abuse, dependence potential, pharmacology and toxicology of BZP are similar to those of amphetamine. Public health risks of BZP are similar to those of amphetamine.

Illicit Uses:

BZP is often abused in combination with 1-[3-(trifluoro-methyl)phenyl]piperazine (TFMPP), a noncontrolled substance. This combination has been promoted to the youth population as a substitute for 3,4-methylenedioxymethamphetamine (MDMA) at raves (all-night dance parties). However, there are no clinical studies that directly compared the behavioral effects of BZP to those of MDMA. BZP may also be abused alone for its stimulant effects. BZP is generally administered orally as either powder or tablets and capsules. Other routes of administration included smoking and snorting. In 2001, a report from University in Zurich, Switzerland described the death of a young female which was attributed to the combined use of BZP and MDMA.

User Population:

Youth and young adults are the main abusers of BZP.

Illicit Distribution:

According to DEA's System to Retrieve Information from Drug Evidence (STRIDE) and National Forensic Laboratory Information System (NFLIS), the number of reports submitted to federal, state, and local forensic laboratories and identified as BZP increased 149% from 6,088 in 2008 to 15,170 in 2009. In 2010, the number of BZP reports decreased to 8,708 and in 2011, it decreased to 5,288. In the first quarter of 2012, there were 836 reports of BZP.

Illicit distributions occur through smuggling of bulk powder through drug trafficking organizations with connections to overseas sources of supply. The bulk powder is then processed into capsules and tablets. BZP is encountered as pink, white, off-white, purple, orange, tan, and mottle orange-brown tablets. These tablets bear imprints commonly seen on MDMA tablets such as housefly, crown, heart, butterfly, smiley face or bull's head logos and are often sold as "ecstasy." BZP has been found in powder or liquid form which is packaged in small convenience sizes and sold on the Internet.

Control Status:

BZP was temporarily placed into schedule I of the CSA on September 20, 2002 (67 FR 59161). On March 18, 2004, the DEA published a Final Rule in the Federal Register permanently placing BZP in schedule I.

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.