



## PHENAZEPAM

(Street Names: Bonsai, Soviet Benzo, Fenaz, Panda)

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### Introduction

Phenazepam belongs to a class of substances known as benzodiazepines. Benzodiazepines are a class of drugs that produce central nervous system (CNS) depression and are commonly used to treat insomnia and anxiety. Phenazepam is currently a prescription medication in Russia and other Commonwealth of Independent States (CIS) countries but has recently emerged on the illicit drug market in the United Kingdom and United States.

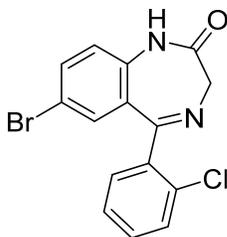
Phenazepam is usually encountered in powder form, in solution contained in dropper bottles or in tablet form. Phenazepam has also been observed in combination with synthetic cannabinoids laced on smoke-able herbal products and spiked onto blotter papers.

### Licit Uses

Benzodiazepines are widely prescribed drugs, however phenazepam does not currently have an accepted medical use in the United States. Phenazepam was developed in the Soviet Union and has been used as a prescribed medication since 1978 to treat neurological conditions such as epilepsy, anxiety, alcohol withdrawal syndrome and sleep disorders. It is available as 0.5 mg and 1.0 mg tablets, 0.1% and 0.3% injectable solutions or transdermal patches in countries where it is marketed for clinical use.

### Chemistry

Like other benzodiazepines, phenazepam (7-bromo-5-(2-chlorophenyl)-1,3-dihydro-1,4-benzodiazepin-2-one) is composed of a benzene ring fused to a seven-membered 1,4-diazepine ring. A 2-chlorophenyl ring is attached at the 5-position and a bromine is attached at the 7-position. Phenazepam has a molecular formula of  $C_{15}H_{10}BrClN_2O$  and a molecular weight of 349.6 g/mol. The structure of phenazepam is shown below:



### Pharmacology

Phenazepam is an agonist of the gamma-aminobutyric acid-A ( $GABA_A$ ) receptor and produces CNS depression. In plus-maze and conflict tests in male rats, superlow doses of phenazepam showed an anxiolytic effect. Phenazepam in conventional doses acts as a potent tranquilizer. Phenazepam has been shown to fully substitute for

pentobarbital in adult rats trained to discriminate pentobarbital vs saline. In the antagonism tests, the discriminative effects of phenazepam were fully antagonized by the selective benzodiazepine antagonist flumazenil. Phenazepam has a half-life of up to 60 hours and onset of effects is approximately 2-3 hours following oral administration; due to this, there is a potential for users to re-dose prior to the observation of its effects. 3-Hydroxyphenazepam, a metabolite of phenazepam, is also a  $GABA_A$  receptor agonist. This pharmacokinetic data suggests that phenazepam would have a high overdose potential.

Adverse effects of phenazepam overdose include loss of coordination, retrograde amnesia, dizziness and drowsiness with the potential to cause respiratory depression and coma. Death from phenazepam ingestion alone, like other benzodiazepines, is rare. Death can occur if phenazepam is ingested with another CNS depressant that has synergistic effects, such as an opioid or alcohol.

### User Population

Although it is a legitimate pharmaceutical in Russia and other CIS countries, phenazepam is used as a recreational benzodiazepine in the United States. Information suggests that phenazepam is used by several population groups including youths, young adults and older adults.

### Illicit Distribution

Phenazepam is sold over the Internet and at local retail shops where it is promoted as a "research chemical." It has been sold as a powder, in tablet form and in solution sold in dropper bottles or as an "air freshener." 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 state and local forensic laboratories. The System to Retrieve Information from Drug Evidence (STRIDE) provides information on drug seizures reported to and analyzed by DEA laboratories. According to NFLIS and STRIDE, three drug reports were found to contain phenazepam in 2008. This number peaked at 97 reports in 2011 and then decreased to 64 reports in 2013. A total of 284 drug reports from 31 states contained phenazepam from 2008 to 2013.

### Control Status

Phenazepam is not currently controlled under the Controlled Substances Act.

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