Drug Enforcement Administration
Diversion Control Division
Drug & Chemical Evaluation Section

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Carisoprodol
(Trade Name: Soma®)

Introduction:

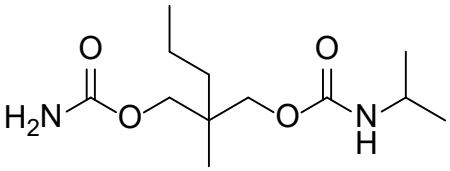
Carisoprodol is a centrally acting muscle relaxant approved for medical use by the Food and Drug Administration (FDA) in 1959. People generally abuse carisoprodol for its relaxation and sedative effects. The diversion and abuse of carisoprodol peaked in 2010.

Licit Uses:

Carisoprodol is marketed as Soma® and available as a generic medication. It is used as an adjunct to rest, physical therapy and other measures for relief of acute, painful musculoskeletal conditions. It is available as single-entity tablets containing 250 mg or 350 mg carisoprodol, and as combination tablets containing 200 mg carisoprodol, 325 mg aspirin and 16 mg codeine phosphate. The standard dosage for adults is 250 mg to 350 mg three times daily and at bedtime. Use in patients under age 12 is not recommended. According to IQVIA National Prescription Audit™, total prescriptions dispensed in the United States for all products containing carisoprodol were approximately 11.1 million in 2010, 6.1 million in 2015, 2.1 million in 2020, and 1.3 million in 2024.

Chemistry:

Carisoprodol [CAS: 78-44-4; *N*-isopropyl-2-methyl-2-propyl-1,3-propanediol dicarbamate], is both structurally and pharmacologically related to its active metabolite meprobamate, a schedule IV substance. It has a chemical structure that gives rise to two optical isomers and is typically found as an equal combination of both, which is referred to as a racemic mixture. Below is the chemical structure of carisoprodol:



Pharmacology:

Carisoprodol does not directly affect skeletal muscle in humans. The skeletal muscle relaxant action of carisoprodol may be related to its sedative properties. The onset of action of carisoprodol is rapid and effects last 4 to 6 hours. It is metabolized in the liver and excreted through the kidneys. The major metabolic pathway of carisoprodol involves its conversion to meprobamate, a drug with substantial barbiturate-like biological actions.

Animal studies conducted under the directive of the National Institute on Drug Abuse indicate that subjective effects of carisoprodol are similar to other central nervous system (CNS) depressants such as meprobamate, pentobarbital, and chlordiazepoxide.

Human behavioral studies further support that carisoprodol shares abuse liability-related effects with other known abusable drugs including CNS sedatives and barbiturates.

Adverse reactions include CNS-related effects such as drowsiness, dizziness, vertigo, ataxia, tremors, agitation, irritability, headache, depressive reactions, syncope, and insomnia. Carisoprodol also adversely affects cardiovascular (tachycardia, postural hypotension and facial flushing), gastrointestinal (nausea, vomiting, hiccup and epigastric distress), and hematologic systems. It may cause idiosyncratic symptoms including extreme weakness, transient quadriplegia, difficulty in speech, temporary loss of vision, double vision, dilated pupils, agitation, euphoria, confusion, and disorientation. Carisoprodol overdose has resulted in stupor, coma, shock, respiratory depression, and death. Continuous carisoprodol abuse also causes tolerance and dependence. Carisoprodol abuse is usually combined with other substances like opioids and benzodiazepines, this combined use can increase the risk of developing tolerance, dependence, and withdrawal syndromes.

Illicit Uses:

The National Survey on Drug Use and Health indicated that among people aged 12 years or older, approximately 671,000 individuals (0.2% of the population) reported use of Soma® in 2023 and increased to 697,000 individuals (0.2% of the population) in 2024. However, reported Soma® misuse decreased from 158,000 (0.1% of the population) in 2023 to 36,000 (<0.1% of the population) in 2024.

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 has received over 61,340 reports of carisoprodol with its initial 19 reports in 1997 and a peak of 5,172 reports in 2010. Carisoprodol reports have declined since then with only 307 reports in 2024.

Control Status:

Carisoprodol is a schedule IV substance under 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@dea.gov.