

Central Nervous System (CNS) Stimulants

Updated: February 13, 2014.

OVERVIEW

Central nervous system stimulants used for attention deficit disorder, narcolepsy or excessive sleepiness include methylphenidate, atomoxetine, modafinil, armodafinil and the amphetamines. Stimulants that are no longer used for medical conditions, but that are abused, include cocaine and ecstasy or methylenedioxymetamphetamine (MDMA). The individual agents discussed include the following:

The following links are to individual drug records.

- [Amphetamines](#) (including ecstasy or methylenedioxymetamphetamine)
- [Armodafinil](#)
- [Atomoxetine](#)
- [Cocaine](#)
- [Methylphenidate](#)
- [Modafinil](#)

PRODUCT INFORMATION

REPRESENTATIVE TRADE NAMES

Dextroamphetamine – Generic, Adderall®, Dexedrine®

Dextroamphetamine and Amphetamine – Generic, Adderall®

Lisdexamfetamine – Vyvanse®

Methamphetamine – Generic, Desoxyn®

COMPLETE LABELING [Dextroamphetamine]

Product labeling at DailyMed, National Library of Medicine, NIH

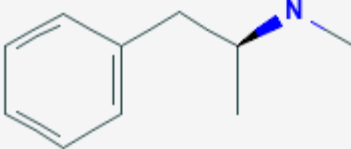
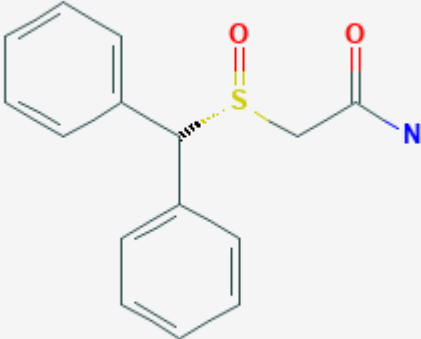
CHEMICAL FORMULAS AND STRUCTURES

DRUG	CAS REGISTRY NUMBER	MOLECULAR FORMULA	STRUCTURE

Table continued from previous page.

Dextroamphetamine	51-64-9	C9-H13-N	 <p>The chemical structure of Dextroamphetamine is shown. It consists of a benzene ring attached to a two-carbon chain. The second carbon of this chain is bonded to a methyl group and a nitrogen atom. The nitrogen atom is highlighted in blue and has a dashed bond to the carbon, indicating its stereochemistry.</p>
Lisdexamfetamine	608137-32-2	C15-H25-N3-O	 <p>The chemical structure of Lisdexamfetamine is shown. It features a benzene ring connected to a two-carbon chain. The second carbon of this chain is bonded to a methyl group (represented by a wedge) and a nitrogen atom (highlighted in blue). This nitrogen is part of a secondary amine group that is linked to a carbonyl group (C=O, with the oxygen in red). The carbonyl carbon is further bonded to a nitrogen atom (highlighted in blue), which is part of a primary amine group attached to a four-carbon alkyl chain.</p>

Table continued from previous page.

Methamphetamine	537-46-2	C10-H15-N	 <p>The chemical structure of Methamphetamine is shown. It consists of a benzene ring attached to a two-carbon chain. The second carbon of this chain is also bonded to a methyl group and a nitrogen atom with a methyl group attached. The nitrogen atom is highlighted in blue.</p>
Armodafinil	112111-43-0	C15-H15-N-O2-S	 <p>The chemical structure of Armodafinil is shown. It features a central carbon atom bonded to two phenyl rings and a sulfur atom. The sulfur atom is double-bonded to an oxygen atom and single-bonded to a methylene group, which is further bonded to a carbonyl group (C=O) and a nitrogen atom. The sulfur atom is highlighted in yellow, and the nitrogen atom is highlighted in blue.</p>