

Stimulant Analytical Standards

Stimulants belong to a diverse group of psychoactive drugs whose function exerts a constant contribution to hyperactivity and impulse control. Illegal stimulant derivatives including amphetamines, arylcyclohexylamines, cathinones, cocaine/tropanes, phenethylamines, and piperazines are among the most widely abused across the US and Europe. However, the popularity of each substance, particularly in party culture settings, is frequently changing. Cayman offers more than 700 analytical standards for the identification of stimulants and is dedicated to working with the forensic community to quickly make reference standards available for new psychoactive substances (NPS). A library of mass spectral data containing many of Cayman's emerging stimulant standards is freely available for download at www.caymanchem.com/CSL.



ACCREDITED
ISO/IEC 17025 #AT-1773
ISO 17034 #AR-1774

More than 700 Stimulant Standards Available for

- Amphetamines
- Arylcyclohexylamines
- Cathinones
- Cocaine & Tropanes
- Indanes
- Phenethylamines
- Piperazines
- And More

Tools to Rapidly Screen for Major Controlled Stimulants

Cocaine/Heroin/Methamphetamine Mixture (CRM)

Item No. 9002662

A CRM mixture of cocaine, heroin, and methamphetamine (1 mg/ml of each)

GC-MS Drug Standard Mixture 4

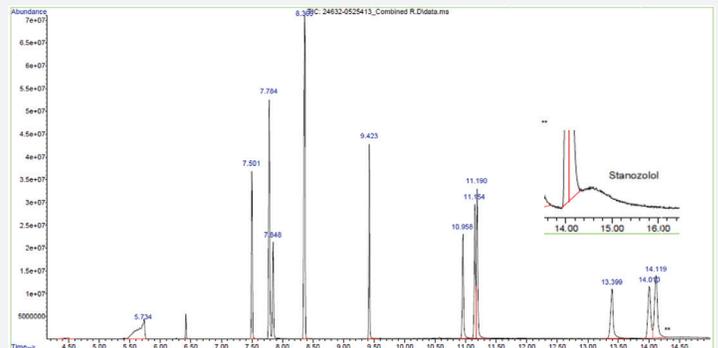
Item No. 24632

A mixture of common stimulants, opioids, and steroids as well as a synthetic cannabinoid and a benzodiazepine (250 µg/ml of each)

Chlorpseudoephedrine (hydrochloride)/Chloroephedrine (hydrochloride) Mixture

Item No. 9002346

A mixture of two diastereomer contaminants produced during the illicit manufacture of (+)-methamphetamine from pseudoephedrine or ephedrine



Representative chromatogram of the compounds included in the GC-MS Drug Standard Mixture 4

Peak order from left to right: α -Pyrrolidinobutiophenone, α -Pyrrolidinopentiophenone, bk-MDEA, Butylone, Tenocyclidine, PCP, Cocaine, Nandrolone, (S)-5-fluoro ADB, Heroin, Alprazolam, Furanyl fentanyl, Furanyl fentanyl 3-furancarboxamide isomer, Stanozolol

Custom Stimulant Mixtures, Screening Libraries, and Plates Available

Email sales@caymanchem.com to discuss your specific project needs

Amphetamines

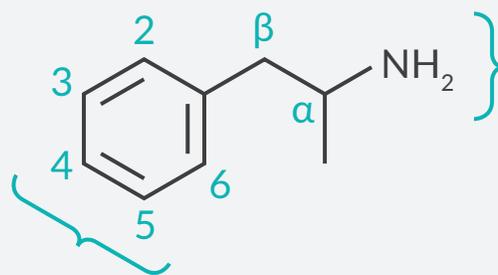
Amphetamine is a synthetic derivative of phenylethylamine, a naturally occurring substance found in chocolate, cheeses, and some wines that looks similar in structure to dopamine. The addition of a methyl group attached to the α -carbon of the phenylethylamine side chain protects amphetamine from degradation by monoamine oxidases, which enables the effects of amphetamine to persist. While variations of the amphetamine scaffold have been developed by pharmaceutical companies for treatment of ADHD, appetite suppression, or to slow the progression of Parkinson's disease (e.g., Adderall, phentermine, and selegiline), designer drug chemists attempting to skirt DEA regulations have also made modifications to the basic amphetamine structure.

Parent Compounds

Item No.	Product Name
27889	N-Acetylmethamphetamine
ISO60188	(\pm)-Amphetamine (hydrochloride) (CRM) *
11079	6-APB (hydrochloride)
11456	5-APDB (hydrochloride)
13868	Cathine
26596	α -ethyl 2C-D (hydrochloride)
27184	N-benzyl-3,4-DMA (hydrochloride)
29859	N-(1-methylpentyl)-3,4-DMA (hydrochloride)
13885	DOI (hydrochloride)
27747	DOPR (hydrochloride)
25266	2-Fluoroethamphetamine (hydrochloride)
25811	4-Fluoroethamphetamine (hydrochloride)
14109	5-MAPB (hydrochloride)
ISO60189	(\pm)-MDA (hydrochloride) (CRM) *
ISO60190	3,4-MDMA (hydrochloride) (CRM) *
9001944	6-chloro-MDMA (hydrochloride)
9002345	N-hydroxy MDMA (hemioxalate)
ISO60168	(\pm)-Methamphetamine (hydrochloride) (CRM) *
26615	(+)-Methamphetamine (hydrochloride) (CRM) *
26616	(-)-Methamphetamine (hydrochloride) (CRM) *
11161	Methiopropamine (hydrochloride)
14205	N-Propylamphetamine (hydrochloride)

* Compound also available as a neat solid

Common Modifications of the Amphetamine Core



Amino group can be:

- Mono-alkylated (with methyl, ethyl, etc.) to form a secondary amine
- Di-alkylated (symmetrically or asymmetrically) with alkyl groups to form a tertiary amine

Phenyl ring can be:

- Mono-substituted or multi-substituted with alkyl groups, alkoxy groups, halogens, etc.
- Fused with another ring system such as methylenedioxy, furan, pyrrole, etc.

Metabolites

Item No.	Product Name
9001830	4-hydroxy Amphetamine (hydrochloride)
9002853	4-hydroxy Amphetamine Glucuronide (trifluoroacetate salt)
19208	N-Formylamphetamine (CRM)
14195	HMMA (hydrochloride)
9002128	4-Hydroxymethamphetamine (hydrochloride)
14196	4-hydroxy-3-Methoxyamphetamine (hydrochloride)
9001345	4-Methylmethamphetamine (hydrochloride)
15915	Ritalinic Acid
22604	3-Trifluoromethylamphetamine (hydrochloride)

Discover Our Article Series: Stimulant Use and Abuse: From Past to Present
www.caymanchem.com/amphetamines

Cathinones

Parent Compounds

Alkylated Cathinones

Item No.	Product Name
27728	α -Butylaminohexanophenone (hydrochloride)
18912	4-Chloroethcathinone (hydrochloride)
24432	4-chloro-N,N-Dimethylcathinone (hydrochloride)
20661	α -Ethylaminohexanophenone (hydrochloride)
15609	4-methyl- α -Ethylaminopentiophenone (hydrochloride)
27327	N-ethyl Heptedrone (hydrochloride)
19383	4-chloro Pentedrone (hydrochloride)
25670	4-methyl Pentedrone (hydrochloride) (CRM) *

* Compound also available as a neat solid

Methylenedioxy Cathinones

Item No.	Product Name
20801	N,N-Diethylpentylone (hydrochloride)
29672	Eutylone (hydrochloride) (CRM) *
25315	N-ethyl Hexylone (hydrochloride)
27078	N-propyl Hexylone (hydrochloride)
27240	bk-MDEA (hydrochloride) (CRM) *
9001330	3,4-Methylenedioxy-N-benzylcathinone (hydrochloride)
20891	Methylone (hydrochloride) (CRM) *
26701	N-butyl Pentylone (hydrochloride)
24337	N-ethyl Pentylone (hydrochloride) (CRM) *
27082	N-isobutyl Pentylone (hydrochloride)

* Compound also available as a neat solid

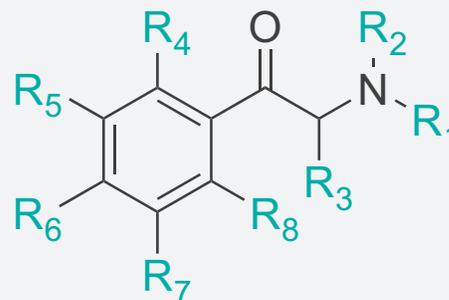
Pyrrolidinyl-Substituted Cathinones

Item No.	Product Name
16361	3,4-Methylenedioxy- α -Pyrrolidinohexanophenone (hydrochloride)
14762	PV8 (hydrochloride)
18818	4'-fluoro- α -Pyrrolidinohexanophenone (hydrochloride)
21682	α -Pyrrolidinohexanophenone (hydrochloride)
22808	α -Pyrrolidinopentiophenone (hydrochloride) (CRM) *
9002179	4'-chloro- α -Pyrrolidinopropiophenone (hydrochloride)
28879	4'-chloro- α -Pyrrolidinovalerophenone (hydrochloride) (CRM) *

* Compound also available as a solid

Discover Our Article Series: Stimulant Use and Abuse: From Past to Present at www.caymanchem.com/cathinones

Functional Group Additions to Cathinone Core



- R_1 = hydrogen, alkyl group, or incorporated in cyclic structure with R_2
- R_2 = hydrogen, alkyl group, or incorporated in cyclic structure with R_1
- R_3 = any alkyl or alkoxy group
- R_4 - R_8 = hydrogen, one or multiple substitutions, including halide, haloalkyl, alkoxy, alkyl, or incorporated in a ring structure

Metabolites

Item No.	Product Name
14756	Mephedrone metabolite (hydrochloride) ((\pm)-Ephedrine stereochemistry)
9001434	Mephedrone metabolite (hydrochloride) ((\pm)-Pseudoephedrine stereochemistry)
10518	3,4-Methylenedioxy Pyrovalerone metabolite 1 (hydrochloride)
14758	4-Methylethcathinone metabolite (hydrochloride) ((\pm)-Ephedrine stereochemistry)
9001436	4-Methylethcathinone metabolite (hydrochloride) ((\pm)-Pseudoephedrine stereochemistry)
14093	α -Pyrrolidinopentiophenone metabolite 1 (trifluoroacetate salt)

Isotopically Labeled Standards

Item No.	Product Name
22487	Bupropion- d_9 (hydrochloride) (CRM) *
28819	Butylone- d_3 (hydrochloride) (CRM) *
26246	Mephedrone- d_3 (hydrochloride) (CRM)
10679	3,4-Methylenedioxy Pyrovalerone- d_8 (hydrochloride)
18732	Methylone- d_3 (hydrochloride) (CRM)
19204	α -Pyrrolidinopentiophenone- d_8 (hydrochloride) (CRM) *

* Compound also available as a neat solid

Phenethylamines, Arylcyclohexylamines, & More

Phenethylamines

Item No.	Product Name
18351	5-AEDB (hydrochloride)
11734	2C-B (hydrochloride)
14141	3,4-Dimethoxyphenethylamine (hydrochloride)
29754	N,N-Dimethylphenethylamine (hydrochloride)
14107	Escaline (hydrochloride)
21351	Homarylamine (hydrochloride)
22239	N-methyl Homarylamine (hydrochloride)
21626	Hordenine
19927	Metaescaline (hydrochloride)
15967	25B-NBF (hydrochloride)
15969	25C-NBF (hydrochloride)
14066	25I-NBF (hydrochloride)
18328	25B-NBOH (hydrochloride)
14815	25C-NBOH (hydrochloride)
14909	25I-NBOH (hydrochloride)
11946	25D-NBOMe (hydrochloride)
14065	25G-NBOMe (hydrochloride)
ISO60135	25H-NBOMe (hydrochloride) (CRM) *
9001991	25P-NBOMe (hydrochloride)
19926	Proscaline (hydrochloride)

* Compound also available as a neat solid

Piperazines

Item No.	Product Name
25523	BZP (hydrochloride) (CRM) *
14793	2C-B-BZP (hydrochloride)
29116	1-(2-Chloro-3-fluorophenyl)piperazine (hydrochloride)
14296	2,3-Dichlorophenylpiperazine (hydrochloride)
21954	1-(2-Fluorophenyl)piperazine (hydrochloride)
11204	1-(4-Fluorophenyl)piperazine (hydrochloride)
11736	MBZP (hydrochloride)
11205	1-(3-Trifluoromethylphenyl)piperazine (hydrochloride)
18165	Trimetazidine (hydrochloride)

* Compound also available as a neat solid

Arylcyclohexylamines & Metabolites

Item No.	Product Name
11737	Benocyclidine
25688	Deschloroketamine (hydrochloride) (CRM) *
19786	2-fluoro Deschloroketamine (hydrochloride)
26401	Deschloronorketamine (hydrochloride)
29118	2-fluoro Deschloronorketamine (hydrochloride)
19389	Ketamine (hydrochloride) (CRM) *
26316	(R)-Ketamine (hydrochloride) (CRM) *
26317	(S)-Ketamine (hydrochloride) (CRM) *
14105	deschloro-N-ethyl-Ketamine (hydrochloride)
26877	3-hydroxy PCE (hydrochloride)
9001355	3-methoxy PCE (hydrochloride)
ISO60194	PCP (hydrochloride) (CRM) *
14421	3-hydroxy PCP (hydrochloride)
28958	3-methoxy PCP (hydrochloride) (CRM) *
11136	4-methoxy PCP (hydrochloride)
20563	1-(1-Phenylcyclohexyl)-4-hydroxypiperidine
20565	<i>trans</i> -4-phenyl-4-Piperidinocyclohexanol
19263	Rolicyclidine (hydrochloride)
17014	Tenocyclidine (hydrochloride)
19794	Tiletamine (hydrochloride)

* Compound also available as a neat solid

Cocaine, Tropanes, & Metabolites

Item No.	Product Name
ISO60186	Benzoylcegonine (CRM) *
20860	Benzoylcegonine-d ₃ (CRM)
28820	Cocaethylene (CRM)
ISO60176	Cocaine (CRM) *
19423	Cocaine-d ₃ (CRM)
20062	2'-hydroxy Cocaine
18057	3- <i>p</i> -FBT (hydrochloride)
17977	RTI-31
14108	Scopolamine (hydrobromide)

* Compound also available as a neat solid

View a complete list of stimulants at www.caymanchem.com/forensics