

# Opioid Analytical Standards

Cayman Chemical is dedicated to working with the forensic community to quickly make authentic reference standards available from our ISO/IEC 17025 and ISO 17034 laboratories. In response to the opioid epidemic, our catalog has expanded to now contain more than 600 opioid standards to help identify, confirm, and quantify these drugs of abuse. This includes a wide collection of fentanyls and other emerging synthetic opioids as well as plant-derived opiates and their metabolites and internal standards. A library of mass spectral data containing many of Cayman's emerging opioid standards is freely available for download at [www.caymanchem.com/CSL](http://www.caymanchem.com/CSL).



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

## More than 600 Opioid Standards for

- Synthetic Opioids
  - Fentanyls
  - Utopioids
  - AH-, MT-45, & W-Series
  - Nitazenes
  - Emerging Classes
- Opiates & Natural Products
  - Prescription Drugs
  - Semi-Synthetic Opiates
  - Opioid Antagonists

## Tools to Rapidly Screen for Prevalent Opioids

### Synthetic Opioid Mixtures

#### GC-MS Opioid Mixture 1

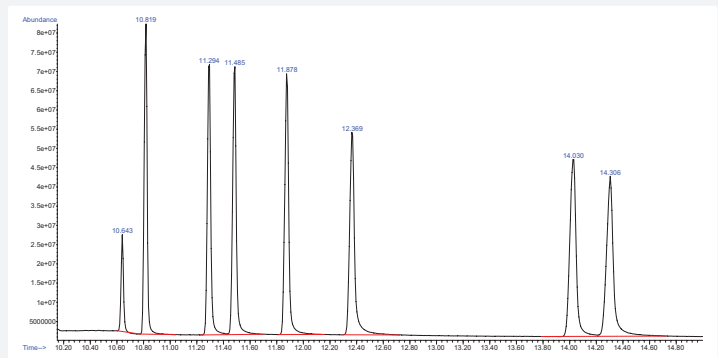
Item No. 23629

A mixture of 7 common synthetic opioids (1 mg/ml of each): acetyl fentanyl, acrylfentanyl, butyryl fentanyl, cyclopropyl fentanyl, fentanyl, furanyl fentanyl, and U-47700

#### GC-MS Opioid Mixture 2

Item No. 23876

A mixture of 8 common synthetic opioids (1 mg/ml of each): cyclopentyl fentanyl, methoxyacetyl fentanyl, ( $\pm$ )-*cis*-3-methyl fentanyl, tetrahydrofuran fentanyl, *ortho*-fluorofentanyl, FIBF, U-48800, and U-49900



Representative chromatogram of the compounds included in the GC-MS Opioid Mixture 2

Peak order from left to right: U-48800, U-49900, FIBF, *ortho*-fluorofentanyl, ( $\pm$ )-*cis*-3-methyl fentanyl, methoxyacetyl fentanyl, cyclopentyl fentanyl, tetrahydrofuran fentanyl

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# Fentanyl

The basic fentanyl scaffold can be modified in four different regions leading to a myriad of new fentanyl varieties. Cayman now offers more than 380 standards for the identification, confirmation, and quantification of fentanyl and their metabolites. Our scientists have also developed a naming convention to help provide a more unambiguous way to describe substituent placement on the fentanyl scaffold. Read more about the standardized naming of substituted fentanyl at [www.caymanchem.com/fentanylnaming](http://www.caymanchem.com/fentanylnaming).

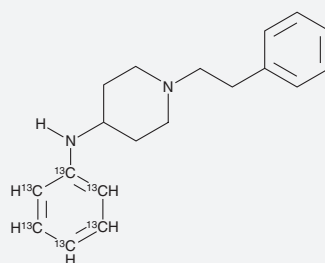
## Parent Compounds

Item No.	Product Name
ISO60128	Acetyl fentanyl (hydrochloride) (CRM) *
23060	Acrylfentanyl (hydrochloride) (CRM) *
25936	Benzyl fentanyl (hydrochloride) (CRM) *
19734	Butyryl fentanyl (hydrochloride) (CRM) *
19884	Carfentanil (CRM)
26637	Crotonyl fentanyl (CRM) *
23603	Cyclopropyl fentanyl (hydrochloride) (CRM) *
ISO60197	Fentanyl (hydrochloride) (CRM) *
25615	$\beta$ -methyl Fentanyl (hydrochloride) (CRM) *
21676	( $\pm$ )-cis-3-methyl Fentanyl (hydrochloride) (CRM) *
19795	FIBF (hydrochloride) (CRM) *
19826	<i>para</i> -Fluorobutyryl fentanyl (hydrochloride) (CRM) *
19633	Furanyl fentanyl (hydrochloride) (CRM) *
22750	<i>para</i> -fluoro Furanyl fentanyl (hydrochloride)
26050	<i>meta</i> -methoxy Furanyl fentanyl
23540	Methoxyacetyl fentanyl (hydrochloride) (CRM) *
19635	Ocfentanil (hydrochloride) (CRM) *
25887	Phenyl fentanyl (hydrochloride) (CRM) *
22429	Remifentanil (hydrochloride) (CRM) *
22802	Thiophene fentanyl (hydrochloride)
19798	Valeryl fentanyl (CRM) *

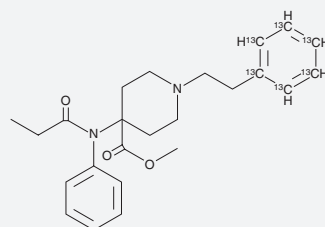
\* Compound also available as a neat solid

Request a copy of our  
Fentanyl Laboratory Guide wall poster  
at [www.caymanchem.com/literature](http://www.caymanchem.com/literature)

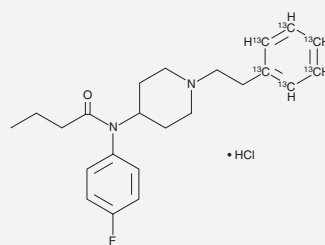
## <sup>13</sup>C-Labeled Internal Standards



4-ANPP-<sup>13</sup>C<sub>6</sub> (CRM)  
Item No. 26313



Carfentanil-<sup>13</sup>C<sub>6</sub> (CRM)  
Item No. 26904



*para*-Fluorobutyryl  
fentanyl-<sup>13</sup>C<sub>6</sub>  
(hydrochloride) (CRM)  
Item No. 26614

View a complete list of our isotopically labeled standards  
at [www.caymanchem.com/forensics](http://www.caymanchem.com/forensics)

## Metabolites

Item No.	Product Name
ISO60130	Acetyl norfentanyl (hydrochloride) (CRM) *
22700	4-ANPP (CRM) *
19561	Butyryl norfentanyl (hydrochloride) (CRM) *
25078	Cyclopropyl norfentanyl (hydrochloride) (CRM) *
26427	Despropionyl <i>ortho</i> -Fluorofentanyl (CRM) *
26428	Despropionyl <i>para</i> -Fluorofentanyl (CRM) *
20789	$\beta$ -hydroxy Fentanyl (hydrochloride)
19559	Furanyl norfentanyl (hydrochloride) (CRM) *
22182	Norcarfentanil (hydrochloride) (CRM) *
ISO60195	Norfentanyl (CRM) *
9001142	Norsufentanil
21926	Remifentanil Acid (trifluoroacetate salt)

\* Compound also available as a neat solid

# Non-Fentanyl Synthetic Opioids

## Utopioids & Metabolites

Item No.	Product Name
27925	UF-17 (hydrochloride)
27924	Furanyl UF-17 (hydrochloride)
19397	U-47700 (CRM) *
24289	N,N-didesmethyl U-47700 (trifluoroacetate salt) (CRM) *
28689	3,4-difluoro U-47700
29561	3,4-difluoro Isopropyl U-47700
29560	3,4-difluoro-N-desmethyl U-47700 (hydrochloride)
24263	Isopropyl U-47700
20530	U-47931E
29563	4-fluoro U-47931E
25522	U-48800 (hydrochloride) (CRM) *
29564	2,4-difluoro U-48800 (hydrochloride)
23999	U-49900 (CRM) *
29148	U-50488 (hydrochloride) (CRM) *
29566	3,4-difluoro U-50488 (hydrochloride)
24264	U-51754 (hydrochloride) (CRM) *

\* Compound also available as a neat solid

## AH-, MT-45, & W-Series Opioids & Metabolites

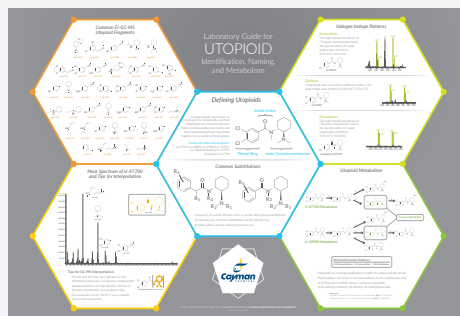
Item No.	Product Name
19732	AH 7921 (CRM) *
20280	N-desmethyl AH 7921 (hydrochloride)
19336	AH 8533
19737	MT-45 (hydrochloride) (CRM) *
25288	2-fluoro MT-45 (hydrochloride)
25290	4-fluoro MT-45 (hydrochloride)
19482	W-15 (CRM) *
20413	W-15-d <sub>4</sub> (CRM)
19483	W-18 (CRM) *
20366	W-18-d <sub>4</sub> (CRM)
19713	nor-W-18
20317	nor-W-18-d <sub>4</sub>
19484	W-19 (hydrochloride)
19487	W-19-d <sub>4</sub> (hydrochloride)

\* Compound also available as a neat solid

## Utopioid Lab Guide Wall Poster

In this guide to the identification, naming, and metabolism of U-type opioids:

- Common EI-GC-MS Utopioid Fragments
- Mass Spectrum of U-47700
- Tips for GC-MS Interpretation
- Halogen Isotope Patterns
- Utopioid Metabolism



Request a physical copy of this wall poster at [www.caymanchem.com/literature](http://www.caymanchem.com/literature)

## Nitazenes & Other Synthetic Opioids & Metabolites

Item No.	Product Name
27816	Brorphine (hydrochloride)
ISO60143	EDDP (perchlorate) (CRM)
27255	Isotonitazene
19406	Meperidine (hydrochloride) (CRM)
ISO60145	(±)-Methadone (hydrochloride) (CRM) *
26398	Metonitazene
20899	Normeperidine (hydrochloride) (CRM) *
15912	(-)-Pentazocine
26335	Piperidylthiambutene (hydrochloride)
ISO60184	(+)-Propoxyphene (hydrochloride) (CRM)
18660	Tapentadol (hydrochloride) (CRM) *
25950	Tianeptine (sodium salt)
ISO60149	cis-Tramadol (hydrochloride) (CRM) *
18751	O-Desmethyl-cis-tramadol (hydrochloride) (CRM) *

\* Compound also available as a neat solid

Be the first to know about novel synthetic opioids showing up in casework. Subscribe to our forensic emails at [www.caymanchem.com/register](http://www.caymanchem.com/register)

# Opiates & Natural Products

## Parent Compounds & Precursors

Item No.	Product Name
ISO60178	Buprenorphine (hydrochloride) (CRM) *
28625	Butorphanol (tartrate) (CRM) *
ISO60140	Codeine (CRM) *
29917	Codeinone
18052	Codeine-d <sub>3</sub> (CRM)
15126	Desomorphine
ISO60142	Dihydrocodeine (CRM) *
ISO60187	Heroin (CRM) *
24549	Heroin-d <sub>9</sub> (CRM)
ISO60144	Hydrocodone (CRM) *
18567	Mitragynine (CRM) *
18930	Mitragynine-d <sub>3</sub> (CRM) *
ISO60147	Morphine (CRM) *
24514	Morphine-d <sub>3</sub> (CRM)
ISO60148	Oxycodone (CRM) *
ISO60203	Oxycodone-d <sub>3</sub> (CRM) *
22024	Thebaine (CRM) *

\* Compound also available as a neat solid

## Cayman Spectral Library

The **Cayman Spectral Library** is a searchable GC-MS database that contains 70eV EI mass spectral data of hundreds of Cayman Chemical's emerging forensic drug standards. This library is being provided as a free service to assist forensic labs in the identification of emerging synthetic drugs of abuse.

- Updated quarterly
- Available in Agilent MSD ChemStation and NIST formats

Visit [www.caymanchem.com/CSL](http://www.caymanchem.com/CSL) to download the searchable database

## Metabolites

Item No.	Product Name
19418	6-Acetylmorphine (CRM) *
25518	6-Acetylmorphine-d <sub>6</sub> (CRM)
25986	Dihydromorphine (CRM) *
25668	6β-Hydrocodol (CRM) *
21535	6β-Hydrocodol N-oxide
25669	6β-Hydromorphol (CRM) *
ISO60146	Hydromorphone (CRM) *
13114	7-hydroxy Mitragynine
20127	Norbuprenorphine (CRM) *
23816	Norcodeine
22661	Norhydrocodone (hydrochloride) (CRM) *
22662	Norhydrocodone-d <sub>3</sub> (hydrochloride) (CRM) *
20407	Noroxycodone (CRM) *
20408	Noroxycodone-d <sub>3</sub> (CRM)
15903	Noroxymorphone
25938	6α-Oxycodol (CRM) *
21539	6α-Oxycodol N-oxide
24939	nor-6α-Oxycodol (CRM) *
25939	6β-Oxycodol (CRM) *
21541	6β-Oxycodol N-oxide
25987	nor-6β-Oxycodol (CRM) *
25940	6α-Oxymorphol (CRM) *
25941	6β-Oxymorphol (CRM) *
ISO60171	Oxymorphone (CRM) *

\* Compound also available as a neat solid

## Opioid Antagonists & Metabolites

Item No.	Product Name
22716	6α-Naloxol (CRM) *
22717	6β-Naloxol (CRM) *
ISO60191	Naloxone (hydrochloride) (CRM) *
18274	Naloxone-d <sub>5</sub> (CRM) *
18790	6β-Naltrexol (CRM) *
20396	6β-Naltrexol-d <sub>3</sub> (CRM) *
19323	Naltrexone-d <sub>3</sub> (CRM) *
9000705	Naltrindole (hydrochloride)

\* Compound also available as a neat or crystalline solid