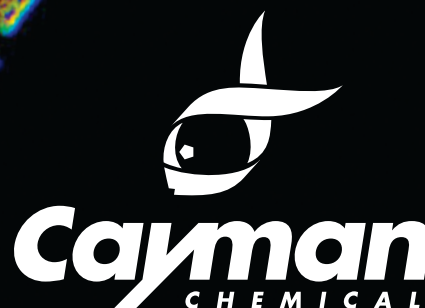


# Forensic Chemistry & Toxicology



# Forensic Chemistry & Toxicology

Cayman Chemical is a licensed and accredited provider of analytical reference standards for misused psychoactive substances and their metabolites. Our catalog includes a diverse range of controlled and designer drugs that are used for forensic drug testing, clinical toxicology analysis, therapeutic drug monitoring, academic research, and analytical instrumentation/device validation.

We have dual accreditation to ISO/IEC 17025 and ISO 17034 for the manufacture of highly qualified materials with documented metrological traceability. These materials offer confidence in the accuracy of analytical results for laboratories that follow a rigorous quality system.

We specialize in the synthesis, purification, and analysis of new psychoactive substances (NPS), working closely with the forensic community to meet emerging needs. We also offer a growing catalog of pharmaceutical compounds and their metabolites for toxicological, clinical, and diagnostic analysis.



## How We Got Here

Cayman was founded as a supplier of highly pure lipids and has nearly four decades of experience in the synthesis, purification, and characterization of biochemicals for biomedical research. In 2008, our background in analytical chemistry and cannabinoid receptor research led us to analyze an unknown herbal tobacco sample containing an unidentifiable substance, which was later revealed to be a synthetic cannabinoid. This discovery underscored the need for authentic reference standards for emerging drug compounds and launched our endeavor to serve the forensic community.

**Cayman Forensics** aims to quickly make analytical reference standards available to help **identify, confirm, and quantify** drugs of abuse.

## Cayman Chemical Forensic Division

- **Headquarters:**  
Ann Arbor, MI
- **Founded:** 1980
- **Staff Scientists:** 30+
- **Distribution:** Worldwide
- **Accreditations:**  
ISO/IEC 17025:2017  
ISO 17034:2016



# Quality & Certifications

Cayman is committed to ensuring and maintaining quality in all aspects of our reference material production. Our quality management system is implemented and maintained by trained staff to meet the requirements set forth by ISO/IEC 17025 and ISO 17034. This quality management system is applicable to all staff and activities associated with the manufacture and testing of reference materials and certified reference materials in our ISO-accredited laboratory.

## ISO/IEC 17025

ISO/IEC 17025 ensures Cayman is carrying out tests and calibrations to the highest degree of quality and reliability while characterizing reference materials and certified reference materials.

## ISO 17034

ISO 17034 recognizes Cayman for its competence in carrying out standardized production, storage, and distribution of reference materials.



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

Our **ISO-accredited** Reference Materials and Certified Reference Materials **provide assurance** in the consistency and reliability of your results.



# Capabilities

Our forensic chemistry group includes a team of highly skilled synthetic organic, analytical, and quality control chemists who synthesize hundreds of analytical standards each year. This group synthesizes and qualifies a wide range of chemical substances at varying quantities, giving them unparalleled expertise in complex multi-step synthesis. They also develop and validate new methodology to analyze, quantify, and purify small molecules.

## Custom Organic Synthesis

- Comprehensive Characterization (HPLC, MS, NMR, etc.)
- Deuterium and  $^{13}\text{C}$  Labeling
- Isomer and Metabolite Synthesis
- Multi-Component Mixtures
- DEA Exempt Formulations
- Process Scale-Up (milligram to gram sizes)
- ISO 17034 Accredited Reference Material Production

## NPS Metabolism: Probable Metabolite Identification

- Human Liver Microsomal (HLM) Assays
- Schrödinger Computational Simulations
  - QSAR Modeling
  - Molecular Dynamics Simulations
  - P450 Metabolism Predictions

## Custom Analytical Chemistry Services

- Unknown Identification by High Resolution MS/MS, NMR, and GC-MS
- MS, NMR, GC-MS, HPLC, Optical Rotation, and HPLC Purification
- Preparative Scale Purification from Complex Mixtures



# Tools & Resources

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Cayman is committed to sharing its expertise and offers various resources specifically developed for the forensic and toxicology communities. These resources include the Cayman Spectral Library, GC-MS search tools, and guides to help educate forensic analysts in naming conventions, MS fragmentation patterns, and metabolic routes to help understand and identify drugs of abuse.

All our tools can be freely accessed on our website at [www.caymanchem.com/forensics](http://www.caymanchem.com/forensics).

A background image of several jellyfish, primarily in shades of purple and pink, with some orange and yellow tones. The jellyfish are out of focus, creating a soft, ethereal effect.

**Cayman Spectral Library**

**GC-MS Search Tool**

**Synthetic Cannabinoid Flipbook**

**Laboratory Guide Posters**

**Application Notes**

**Metabolism Monographs**

**Scientific Posters**

**Forensic News**

## Collaborations & Scientific Contributions

Our scientists welcome the opportunity to exchange ideas and learn, teach, and grow as scientists. We actively participate in research and partner with the scientific community.

- Academic and government research collaborations
- Published peer-reviewed journal articles
- Workshops and lectures at meetings and conferences
- Scientific poster presentations
- Organized symposia and other events

Join our [email list](#) to receive regular updates about new psychoactive substances, tools, resources, and more.

# Product Categories

Through direct communication with forensic toxicologists, crime labs, and health labs who are tasked with the identification of unknown samples, our product line is constantly evolving to meet the needs of the analytical testing communities. When a new psychoactive substance or pharmaceutical of interest is identified, Cayman's synthetic chemists work to quickly make a reference standard available for analysis. This includes the synthesis of compounds across various pharmacological and chemical classes as well as their metabolites and internal standards.

## Types

- Parent Compounds
- Isotopically Labeled Standards
- Metabolites
- Single- & Multi-Component Standards
- Compound Libraries & Screening Panels

## Grades

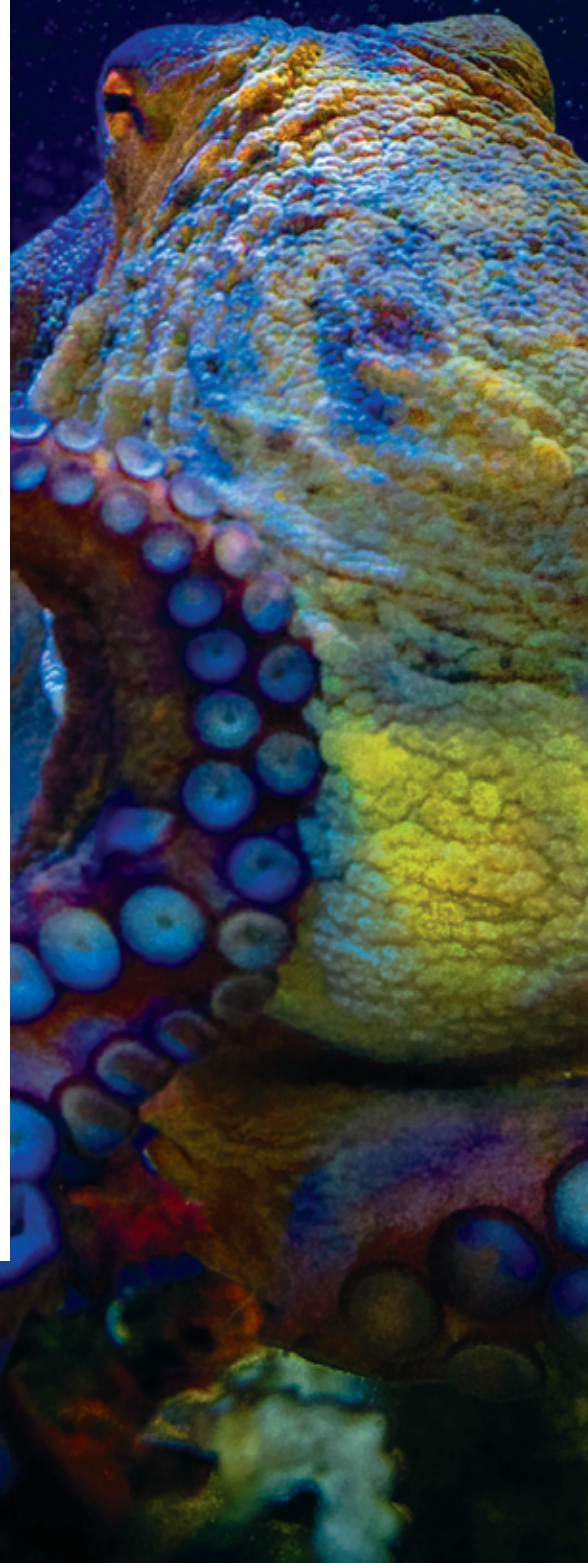
- Analytical Reference Standards
- ISO 17034 Reference Materials
- ISO 17034 Certified Reference Materials

## Formulations

- DEA Exempt
- DEA Not Scheduled
- DEA Scheduled

## Categories

- Additives & Precursors
- Amphetamines
- Antidepressants
- Arylcyclohexylamines
- Barbiturates
- Benzodiazepines
- Cannabinoids (Synthetic & Plant-Based)
- Cathinones
- Cocaine & Tropanes
- Hallucinogens
- Lysergamides
- Nootropics
- Opioids (Synthetic & Plant-Based)
- Performance-Enhancing Drugs
- Phenethylamines
- Stimulants
- Terpenoids & Terpenes
- Tryptamines







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