

# Phytocannabinoid Analytical Standards



Over 150 structurally and physiologically distinct cannabinoid compounds are unique to *Cannabis*, known collectively as phytocannabinoids. Cayman provides authentic reference standards for more than 120 unique phytocannabinoids for identification, detection, and quantification. Cayman also offers a suite of ISO 17034-produced multi-component CRM mixtures designed and engineered to the highest industry standards to streamline the quantitation of multiple phytocannabinoids.

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

## More than 140 Phytocannabinoid Standards for:

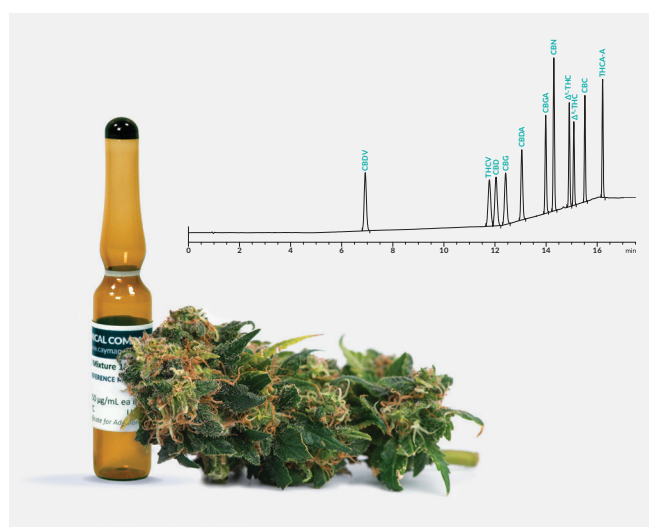
- Primary Constituents
- THC Isomers
- Clinical Metabolites
- CBD & THC Homologs
- Acids & Neutrals
- Degradants

## PRE-MADE CRM MIXTURES

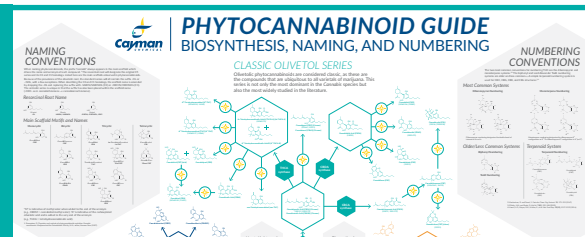
### Discover the Difference with Cayman's Multi-component Reference Materials

- Streamline Your Workflow
- Quantify Up to 11 Phytocannabinoids Simultaneously
- Reduce Consumable Cost, Variability, & Time
- Improve Quantitation Accuracy
- Available for Neutrals, Acids, Metabolites, & More

**NOW MORE THAN 10 MIXTURES AVAILABLE**  
**LEARN MORE INSIDE!**

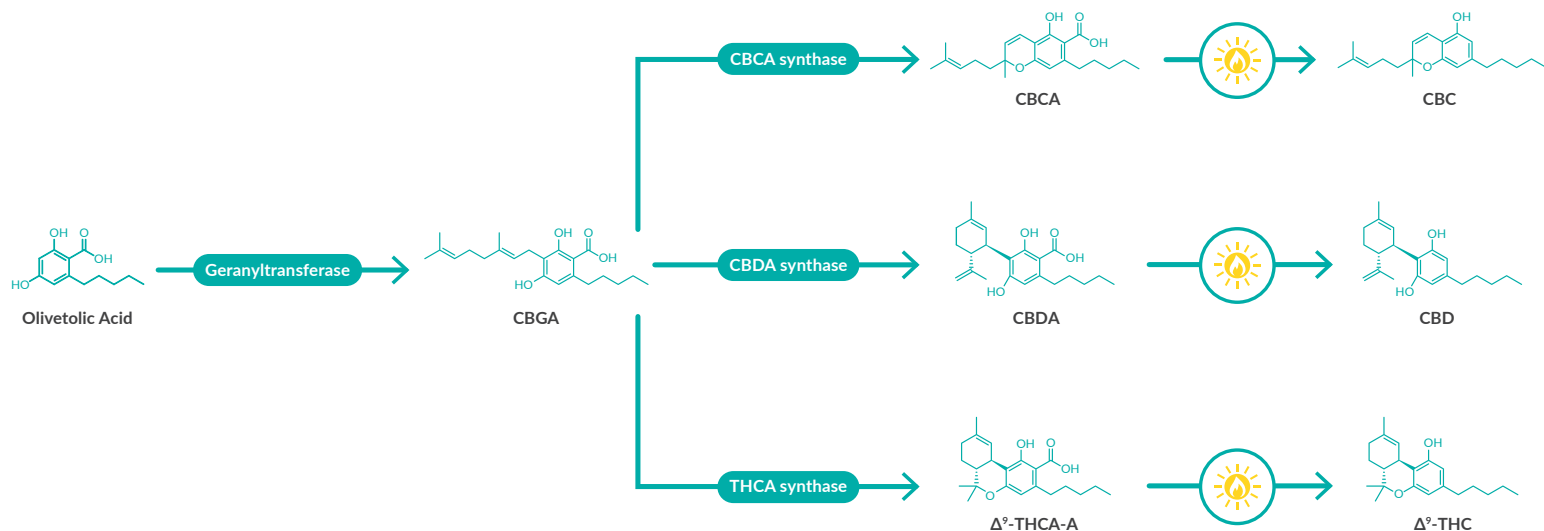


Download PDF or request a copy of the Phytocannabinoid Guide: Biosynthesis, Naming, and Numbering wall poster at [www.caymanchem.com/phytoposter](http://www.caymanchem.com/phytoposter)



Custom Quantities, Formulations, and Mixtures Available  
Email [sales@caymanchem.com](mailto:sales@caymanchem.com) to discuss your specific project needs

# Acidic & Neutral (Decarboxylated) Phytocannabinoids



Synthesis and decarboxylation of phytocannabinoid acids into their neutral forms.

Phytocannabinoid Acids	Neutral Phytocannabinoids	Available as Item No.	
		Acid	Neutral
Cannabigerovarinic Acid (CBGVA)	Cannabigerovarin (CBGV)	29787	29117
(±)-Cannabichromevarinic Acid (CBCVA)	(±)-Cannabichromevarin (CBCV)	32718	21974
Cannabidivarinic Acid (CBDVA)	Cannabidivarin (CBDV)	30245	20165
$\Delta^9$ -Tetrahydrocannabivarinic Acid A ( $\Delta^9$ -THCVA-A)	$\Delta^9$ -Tetrahydrocannabivarin ( $\Delta^9$ -THCV)	21259	18091
$\Delta^8$ -Tetrahydrocannabivarinic Acid A ( $\Delta^8$ -THCVA-A)	$\Delta^8$ -Tetrahydrocannabivarin ( $\Delta^8$ -THCV)	28580	27322
	Cannabivarin (CBV)		21664
Cannabidibutolic Acid (CBDBA)	Cannabidibutol (CBDB)	29032	32719
	$\Delta^9$ -Tetrahydrocannabutol ( $\Delta^9$ -THCB)		33078
Cannabigerolic Acid (CBGA)	Cannabigerol (CBG)	20019	20164
(±)-Cannabichromenic Acid (CBCA)	(±)-Cannabichromene (CBC)	37558	ISO60163
Cannabidiolic Acid (CBDA)	Cannabidiol (CBD)	18090	ISO60156
$\Delta^9$ -Tetrahydrocannabinolic Acid A ( $\Delta^9$ -THCA-A)	$\Delta^9$ -Tetrahydrocannabinol ( $\Delta^9$ -THC)	ISO60175	ISO60157
$\Delta^8$ -Tetrahydrocannabinolic Acid A ( $\Delta^8$ -THCA-A)	$\Delta^8$ -Tetrahydrocannabinol ( $\Delta^8$ -THC)	25271	ISO60158
Cannabinolic Acid (CBNA)	Cannabinol (CBN)	21734	ISO60183
	Cannabinodiol (CBND)		9002479
	Cannabicitran (CBT)		21295
(±)-Cannabicyclolic Acid (CBLA)	(±)-Cannabicyclol (CBL)	35745	22036
Cannabidiphorolic Acid (CBDPA)	Cannabidiphorol (CBDP)	36237	33611
$\Delta^9$ -Tetrahydrocannabiphorolic Acid ( $\Delta^9$ -THCPA-A)	$\Delta^9$ -Tetrahydrocannabiphorol ( $\Delta^9$ -THCP)	36239	33691

**EXPLORE CRM MIXTURES TO DIFFERENTIATE ACIDS & NEUTRALS ON THE NEXT PAGE**

Phytocannabinoid Acids Mixture 6 - Item No. 35470

Phytocannabinoid Neutrals Mixture 8 - Item No. 34043

# Which Pre-made Mixture is Right for You?

## Quantify Up to 11 Prevalent Phytocannabinoids

Analytes Included in Mixtures	Mixture 11 (Item Nos. 21306, 32841, 32842)	Mixture 10 (Item No. 21305)	Mixture 6 (Item No. 25077)	Mixture 5 (Item No. 25076)	Mixture 3 (Item No. 23251)
CBD	✓	✓	✓	✓	✓
$\Delta^9$ -THC	✓	✓	✓	✓	✓
CBN	✓	✓	✓	✓	✓
$\Delta^9$ -THCA-A	✓	✓	✓	✓	
CBDA	✓	✓	✓	✓	
CBG	✓	✓	✓		
CBC	✓	✓			
CBDV	✓	✓			
CBGA	✓	✓			
$\Delta^8$ -THC	✓	✓			
$\Delta^9$ -THCV	✓				

Our Phytocannabinoid Mixture 11 (CRM) is available in three different concentrations to simplify your calibration protocol

## Differentiate Acids & Neutrals

Analytes Included in Mixtures		Acids Mixture 6 (Item No. 35470)	Neutrals Mixture 8 (Item No. 34043)
Acids	Neutrals		
CBDA	CBD	✓	✓
CBGA	CBG	✓	✓
CBCA	CBC	✓	✓
CBDVA	CBDV	✓	✓
$\Delta^9$ -THCVA	$\Delta^9$ -THCV	✓	✓
$\Delta^9$ -THCA-A	$\Delta^9$ -THC	✓	✓
	$\Delta^8$ -THC		✓
	CBN		✓

## Quantify THC Metabolites

Analytes Included in Mixture	$\Delta^9$ -THC Metabolite Mixture (Item No. 33167)
$\Delta^9$ -THC	✓
( $\pm$ )-11-hydroxy- $\Delta^9$ -THC	✓
( $\pm$ )-11-nor-9-carboxy- $\Delta^9$ -THC	✓

Explore our range of CRM mixtures designed to simplify testing workflows at [www.caymanchem.com/phytomix](http://www.caymanchem.com/phytomix)

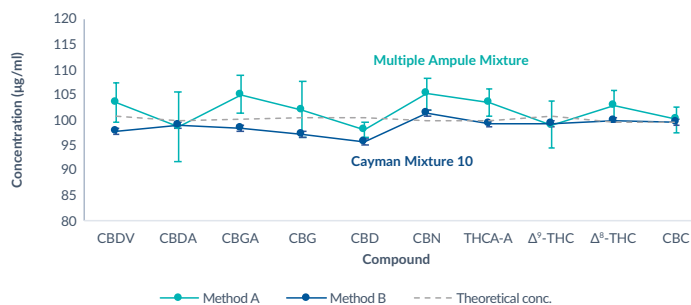
## Improve Quantitation Accuracy & Reproducibility Using Pre-made, Multi-component Mixtures

We compared two methods to generate a standard curve to quantitate 10 phytocannabinoids and found pre-made CRM mixtures improve efficiency and eliminate pipetting errors.



DOWNLOAD THE APP NOTE:  
[www.caymanchem.com/accuratemix](http://www.caymanchem.com/accuratemix)

### 100 $\mu$ g/ml Method Comparison



# Primary Constituents & Related Novel Phytocannabinoids

## Primary Constituents

Item No.	Product Name
ISO60156	Cannabidiol (CRM)
ISO60158	$\Delta^8$ -THC (CRM)
ISO60157	$\Delta^9$ -THC (CRM)

See all deuterated standards, acetates, and methyl esters at [www.caymanchem.com](http://www.caymanchem.com)

## Hydrogenated Phytocannabinoids

Item No.	Product Name
27500	9(R)-Hexahydrocannabinol
27501	9(S)-Hexahydrocannabinol
36346	9(R)-Hexahydrocannabiphorol
36347	9(S)-Hexahydrocannabiphorol
36350	1(R)-THD (1(R)-H4-CBD)
36351	1(S)-THD (1(S)-H4-CBD)



Learn how our standards were used to characterize products resulting from  $\Delta^8$ - or  $\Delta^9$ -THC hydrogenation at [www.caymanchem.com/HHCposter](http://www.caymanchem.com/HHCposter)

## Phytocannabinoid Acetates

Item No.	Product Name
36412	Cannabinol Acetate
35368	9(R)-Hexahydrocannabinol Acetate
36743	$\Delta^8$ -THC Acetate (exempt preparation)
33784	$\Delta^9$ -THC Acetate (exempt preparation)

## Metabolites & Degradants

### CBD & CBN Metabolites

Item No.	Product Name
27576	(-)-6 $\alpha$ -hydroxy Cannabidiol
33076	(-)-7-hydroxy Cannabidiol (CRM)
36661	Cannabielsoin (CRM)
34591	11-hydroxy Cannabinol

### THC Metabolites

Item No.	Product Name
34023	(-)-11-hydroxy- $\Delta^8$ -THC (CRM)
34024	(-)-11-nor-9-carboxy- $\Delta^8$ -THC (CRM)
37635	8 $\beta$ -hydroxy- $\Delta^9$ -THC
21667	( $\pm$ )-11-hydroxy- $\Delta^9$ -THC (CRM)
20754	( $\pm$ )-11-nor-9-carboxy- $\Delta^9$ -THC (CRM)

## THC Isomers

Item No.	Product Name
33011	(6aR,9R)- $\Delta^{10}$ -THC (CRM)
33012	(6aR,9S)- $\Delta^{10}$ -THC (CRM)
33013	9(R)- $\Delta^{6a,10a}$ -THC (CRM)
33014	9(S)- $\Delta^{6a,10a}$ -THC (CRM)
36898	exo-THC (CRM)
34076	9(R)- $\Delta^7$ -THC
34077	9(S)- $\Delta^7$ -THC
37046	(9,10a)-anti- $\Delta^{6a,7}$ -THC
37047	(9,10a)-syn- $\Delta^{6a,7}$ -THC
27074	( $\pm$ )-cis- $\Delta^9$ -THC
33864	$\Delta^8$ -iso-THC
33863	$\Delta^{4(8)}$ -iso-THC

## CBD & THC Homologs

Item No.	Product Name	Alkyl Chain Length
20165	CBDV (CRM)	3
32719	CBDB (CRM)	4
34185	CBDH (CRM)	6
33611	CBDP (CRM)	7
18091	THCV (CRM)	3
33078	$\Delta^9$ -THCB (CRM)	4
34186	$\Delta^9$ -THCH (CRM)	6
33691	$\Delta^9$ -THCP (CRM)	7

See all CBD & THC homologs at [www.caymanchem.com](http://www.caymanchem.com)

### $\Delta^9$ -THC Metabolite Mixture (CRM)

Item No. 33167

A mixture of  $\Delta^9$ -THC metabolites in a methanolic solution intended for HPLC-UV or LC- or GC-MS applications

## Degradants/Oxidative Byproducts

Item No.	Product Name
30846	( $\pm$ )-CBCQ
36872	CBDVQ
31772	CBGAQ
30862	CBGQ
30863	CBNQ
10005673	HU-331