



Chromatography Products for the Cannabis Industry

**Products for Decontamination, Purification,
Separation, and Analytical Testing**

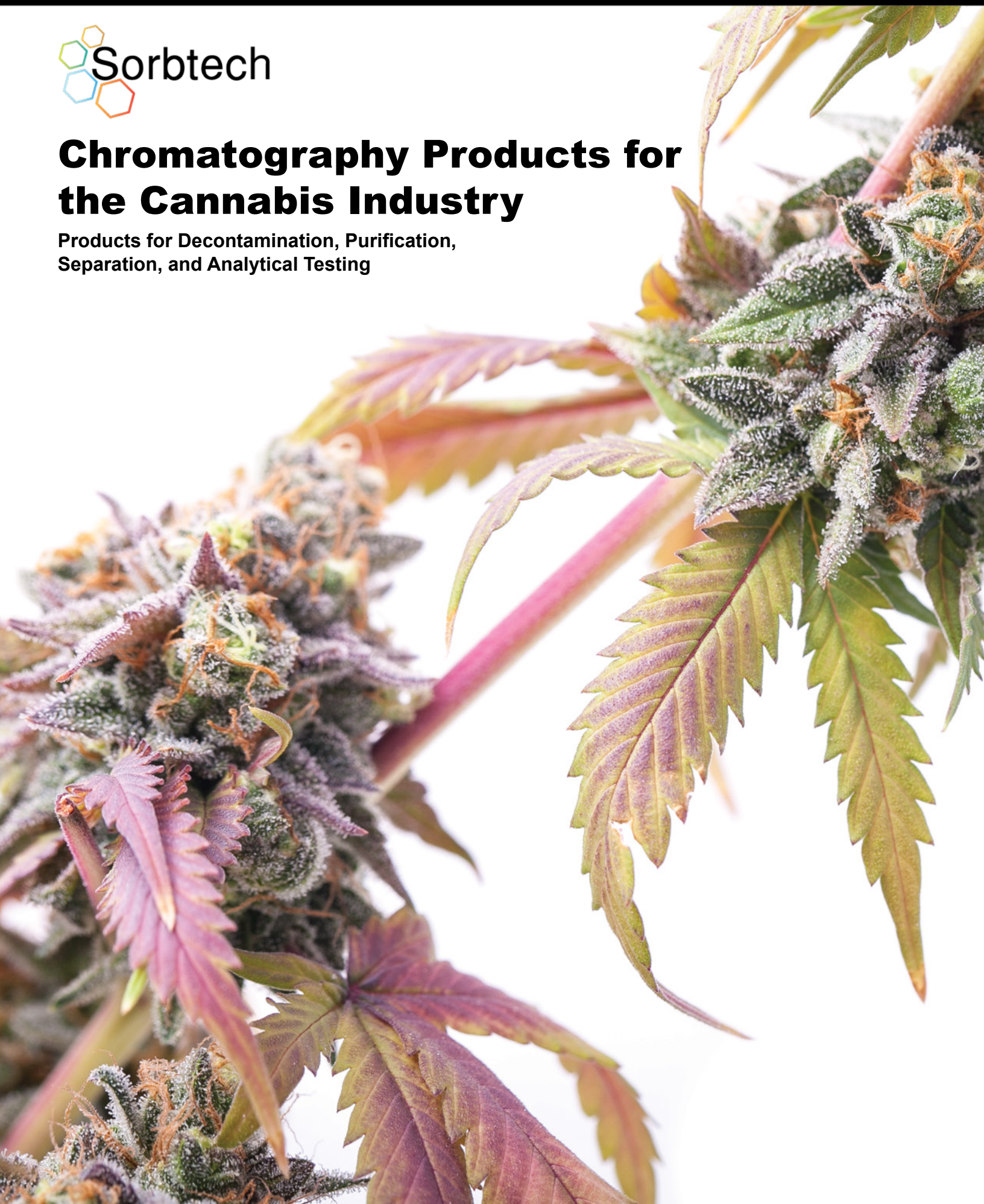


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Cannabis Industry Challenges

As legalization of medical and recreational cannabis continues to grow, cannabis testing standards are being mandated to ensure consumer safety. This requires chromatographic testing for residual solvents, pesticides, and other harmful contaminants, and cannabinoid potency for concentrations of THC and CBD.

Elimination of toxic contaminants from cannabis extracts, and terpenes, while maintaining high purity and yield of valuable cannabinoids, has become one of today's most important manufacturing challenges. Sorbtech will help you meet these challenges head-on.

Cannabis Testing and Purification

Since 2000, Sorbent Technologies has specialized in products for chromatography and purification. We assist chemists with method development and optimization—from analytical methods to full-scale production with both standard and complex chemistries.

Today, we are the cannabis industry chromatography experts, providing the products, technical knowledge, support and customer commitment you need to achieve successful cannabis analyses and production.

Sorbtech is dedicated to your success. We'll help you find the most efficient, cost-saving solutions for your applications to dramatically reduce lab and manufacturing costs—and save valuable time.

This brochure presents a summary of the chromatography products that we offer for the constantly evolving cannabis industry for decontamination, separation of cannabinoids, purification, and analytical testing:

- **Analytical Chromatography Products:**

- TLC, HPLC, GC, SPE

- **Production Chromatography Products:**

- Flash Cartridges, Bulk Adsorbents—Silica Gel, Alumina, C18, Florisil PR



Cannabis Decontamination, Purification & Separation

Adsorbents

Decontamination of pesticides, fungicides, herbicides and other harmful contaminants from valuable extract is today's hot challenge for production. We are 110% committed to solving this complex issue.

Sorbtech presented the industry's first webinar, partnering with *LC/GC Magazine*, to introduce Part I of **Successful Methods to Eliminate Toxic Contaminants from Cannabis Extracts**. You can find a link to the webinar on page 14. To download your free eBook, email us at cannabis@sorbtech.com. Below are products for decontamination, purification, and separation.

Cat No	Description	Part Dist.	Size (cm)
09500-20	Florisil, PR Grade	60x100 mesh	20kg
52500-25	Premium Rf Silica Gel, 60 Å	40-75 µm	25kg
40930-25	Silica Gel, 60Å	40-63 µm	25kg
52700-25	Silica Gel, Premium Rf, 60Å	75-200 µm	25kg
452546M-1	C18 Silica Gel, Premium Grade, 60 Å	40-63 µm	1kg
63546-1	C18 Spherical Silica Gel, Premium Rf, 100Å	40-75 µm	1kg
15640-25	Alumina, Basic, Act. I	50-200 µm	25kg
15740-25	Alumina, Neutral, Act. I	50-200 µm	25kg
15600-25	Alumina, Acid, Act. I	50-200 µm	25kg

Check our website www.sorbtech.com for a complete selection of bulk adsorbents and packaging sizes.



Flash Chromatography - Prepacked Cartridges

Sorbtech's Purity™ flash cartridges start with the highest quality bulk adsorbents with the most reproducible packing. These rugged cartridges offer the best speed, resolution, and greater loading capacity—with increased durability to withstand higher pressures (up to 300 psi).

Packed with Premium Rf™ silica gel, Purity flash cartridges offer tighter particle distribution and minimal fines, keeping back pressure low.

Purity flash cartridges are compatible with the Sorbtech EZ Flash System, Teledyne Isco™, Biotage™, Interchim™, and Buchi™ systems. Whether you prefer to pack your own, or use pre-packed cartridges, we offer an array of choices for your lab that improve purification efficiency.

Purity flash cartridges are available packed with spherical and granular silica gel 20-45um MPLC and 40-75um flash, C18, and other phases upon request. Cartridge sizes available are 4g, 12g, 25g, 40g, 80g, 120g, 240g, 330g, 800g, 1.6kg and 3.0 kg.

Cat No	Description	Part Dist.	Size/Quantity
CFC-52500-004-20	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	4g, 20/pk
CFC-52500-012-18	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	12g, 18/pk
CFC-52500-025-12	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-63 µm	25g, 12/pk
CFC-52500-040-12	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	40g, 12/pk
CFC-52500-080-10	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	80g, 10/pk
CFC-52500-120-10	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	120g, 10/pk
CFC-52500-220-6	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	220g, 6/pk
CFC-52500-330-5	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	330g, 5/pk
CFC-52500-800-3	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	800g, 3/pk
CFC-52500-1600-2	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	1600g, 2/pk
CFC-52500-3000-1	Purity Flash Cartridges, Granular Silica Gel, Premium Rf, 60Å	40-75 µm	3000g, 1/pk

Check our website www.sorbtech.com for complete selection.



Cannabis Decontamination, Purification & Separation

Flash Chromatography - Empty Cartridge Housing

Sorbtech offers a wide selection of empty flash cartridges for method development and process.

Cat No	Description	Sample Volume	Size/Quantity
FCSTLL-4-20	Flash Cartridge, Screw Top, Luer Lock end fittings, includes top and bottom frit, o-ring, dispersing insert, PP	5ml	12g/18 pk.
FCSTLL-12-18	Flash Cartridge, Screw Top, Luer Lock end fittings, includes top and bottom frit, o-ring, dispersing insert, PP	19ml	4g/20 pk.
FCSTLL-25-12	Flash Cartridge, Screw Top, Luer Lock end fittings, includes top and bottom frit, o-ring, dispersing insert, PP	32ml	25g/12 pk.
FCSTLL-40-12	Flash Cartridge, Screw Top, Luer Lock end fittings, includes top and bottom frit, o-ring, dispersing insert, PP	48ml	40g/12 pk.
FCSTLL-60-12	Flash Cartridge, Screw Top, Luer Lock end fittings, Includes top and bottom frit, o-ring, dispersing insert, PP	104ml	60g/12 pk.
FCSTLL-80-10	Flash Cartridge, Screw Top, Luer Lock end fittings, includes top and bottom frit, o-ring, dispersing insert, PP	108ml	80g/10 pk.
FCSTLL-100-6	Flash Cartridge, Screw Top, Luer Lock end fittings, Includes top and bottom frit, o-ring, dispersing insert, PP	176ml	100g/6 pk.
FSTLL-120-10	Flash Cartridge, Screw Top, Luer Lock end fittings, includes top and bottom frit, o-ring, dispersing insert, PP	160ml	120g/10 pk.
FCSTLL-220-6	Flash Cartridge, Screw Top, Luer Lock end fittings, includes top and bottom frit, o-ring, dispersing insert, PP	303ml	220g/6 pk.
FCSTLLv2-330-5	Flash Cartridge ver. 2, Screw Top, Luer Lock end fittings, Includes top and bottom frit, o-ring, dispersing insert, PP, 330g, 539ml, 5/pk	420ml	330g/5 pk.

Check our website www.sorbtech.com for a complete selection.



Flash Systems and Equipment

We offer a comprehensive selection of affordable laboratory supplies, systems and equipment, including modular systems for advanced flash chromatography.

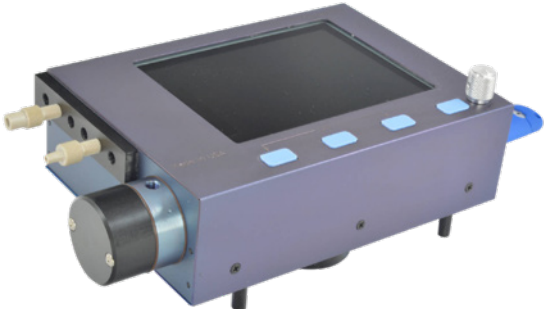
Cat No	Description
EZMFP	EZ mini flash pump, isocratic single head positive displacement piston, 100mL/min, 250psi, inlet tubing w/filter, post for rack mount
EZMFP2	Lab Alliance pack in a box, portable HPLC column packing system, includes: CP class 24 ML/MIN 10,000 PSI; stainless; no-flush; constant pressure; aqueous seal (SS); inlet (1/8" OD flex tubing); outlet (1/16" OD SS tubing, 2 empty column assemblies, column
EZ Luer Kit	EZ luer kit for using male/female luer columns. Kit contains tubing for connecting EZ Mini Pump to cartridge and tubing for connecting cartridge to EZ Fraction Collector.
EZRD2	2-channel preparative flash chromatography detector
EZRD4	4-channel preparative flash chromatography detector
EZRD4-I	4-channel preparative flash chromatography detector - industrial capacity
EZFC1	Fraction collector with diverter valve; collect up to 100 ml/min in 1 rack with a maximum of (144) 13mm tube collection; includes ,(1) rack for 13mm tubes
EZFC2	Fraction collector with diverter valve; collect up to 100 ml/min in 2 racks with a max. of (288) 13mm tube collection; racks with RFID sensors for fast and error free setup; includes ,(2) racks for 13mm tubes

Check our website www.sorbtech.com for a complete selection.

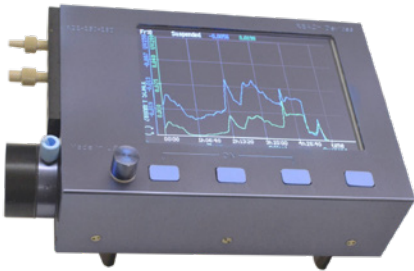
EZ Mini Flash Pump



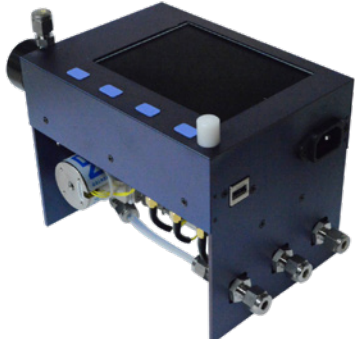
EZ Fraction collector



EZRD4



EZRD2



EZRD4-I

Analytical Products

Thin Layer Chromatography

A faster, simpler, and more cost-effective alternative analytical method, TLC identifies the presence of contaminants in cannabinoid extracts. We provide a comprehensive variety of TLC products, including TLC plates with silica gel, alumina, C18, and more phases.

Our TLC accessories include: TLC cutter, development chambers, and kits.

Cat No	Description	Thickness (µm)	Size (cm)	Quantity/Box
4815190	Silica HD TLC Plates, w/UV254, Glass Backed	250	2.5x7.5	500
4815126	Silica HD TLC Plates, w/UV254, Glass Backed	250	20x20	25
1624126	Silica G TLC Plates, Plastic Backed, w/UV254	200	20x20	25
1634126	Silica G TLC Plates, Aluminum Backed, w/UV254	200	20x20	25
0115198	Alumina TLC Plates, Glass Backed, w/UV254	250	2.5x7.5	100
2715197	C18-W Silica TLC Plates, Glass Backed, w/UV254	250	2.5x7.5	50
TLC-Cutter	TLC Glass Cutter			1
TLC-Rocket	TLC Development Chamber			1
814022	Glass Capillaries for TLC, 1ul			3 bx of 50
814102	Rubber Caps for Capillaries			2

Check Website: www.sorbtech.com for a complete TLC product listing.



TLC Plate Cutter

Achieve a lower cost per analysis while gaining more flexibility in your research using the Sorbtech TLC plate cutter to cut expensive plates into sizes that accommodate a small sample run. Simply score the back of a coated plate and snap off the exact size you need. Advantages in using the Sorbtech TLC plate cutter:

- Saves money by eliminating the purchase of high-priced pre-cut plates
- Operates easily and cuts plates precisely
- Eliminates waste—use exactly the size plate you need for your work
- Scores any coated glass plate and cuts to any size

TLC Rocket Development Chamber

The new Sorbtech Rocket is a robust, uniquely designed TLC small-scale development chamber that delivers more efficient, effective, and safer handling of TLC. It's an innovative, patented design that saves labs effort, time, and money.

The 'fire and forget' functionality allows you to set up the chamber and leave it unattended. Its unique design ensures that plates will not slip—it stays in place. You can walk away, leave it overnight if needed, and return when you're ready to review results.

To use the Sorbtech Rocket:

- Remove the lid and dispense a small amount of solvent
- Place your TLC plate in the solvent trough and cover
- Review results at your convenience

Advantages in using the TLC Rocket Development Chamber:

- Solvent consumption is reduced by 80-85%
- Rf overruns are eliminated using reduced solvent
- Overall operational time is faster
- Results are far more consistent test to test
- The TLC plate is always kept in the same orientation
- Rocket shape and white background provide easy visualization
- Designed for 2.5 x 7.5 cm (1in. X 3in.) TLC plates
- Used with glass, plastic or aluminum backed plates

You can learn more about the Sorbtech Rocket by visiting www.sorbtech.com/Blast, or by contacting us at 770-936-0323. Make sure to ask about our current promotion, or about a TLC plate/Rocket bundle.



The Sorbtech Rocket reduces solvent consumption by 80-85%

Cat No	Description	Designed for
TLC-Rocket	TLC Development Chamber	2.5x7.5 TLC Plates

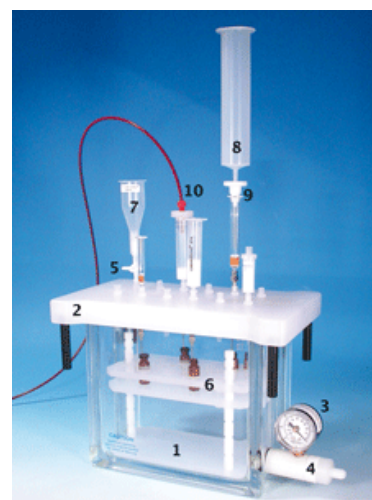
Analytical Products

Solid Phase Extraction

The oily nature of cannabis plant extracts makes it more difficult to test for contaminants and compounds such as THC, CBD, and others. Sample prep experts and analytical chemists typically recommend QuEChERS and SPE sample prep techniques for decontamination to optimize analytics and instrument performance.

Cat No	Description	Weight	Size (cm)	Quantity
730070	Silica Gel	500mg	6ml	30
730014	C18ec	500mg	6ml	30
730165	Activated Carbon	500mg	6ml	30
730457	Florisil	200mg	3ml	50
730642	PSA on Silica	500mg	3ml	50

Additional SPE solutions are available at www.sorbtech.com.



Chromabond® Vacuum Manifold

Designed for the simultaneous preparation of up to 12, 16 or 24 samples, the Chromabond complete vacuum manifold handles columns and cartridges used in solid phase extraction. Replacement parts and accessories for special applications are available.

Cat No	Description
730150	Chromabond Vacuum Manifold for up to 12 cartridge
730360	Chromabond Vacuum Manifold for up to 16 columns
730151	Chromabond Vacuum Manifold for up to 24 cartridges
730173	Chromabond Glass Chamber for 12 columns
730174	Chromabond Glass Chamber for 24 columns
730175	Chromabond Lid with Gasket for 12 columns
730176	Chromabond Lid with Gasket for 24 columns
730177	Chromabond Gaskets for Lid for 12 columns
730178	Chromabond Gaskets for Lid for 24 columns

QuEChERS

Sorbtech offers QuEChERS for determination of pesticide residues in cannabis samples by GC-MS or LC-MS, allowing rapid and inexpensive clean-up of strongly matrix-contaminated samples.

Cat No	Description	Size/Quantity
730970	Chromabond QuEChERS, Mix I Citrate extraction mix	50/pk
730971	Chromabond QuEChERS, Mix II Acetate extraction mix	50/pk
730972	Chromabond QuEChERS, Mix III Diamino clean-up mix	50/pk
730973	Chromabond QuEChERS, Mix IV Diamino/Carbon clean-up mix	50/pk
730974	Chromabond QuEChERS, Mix VI Diamino/C18 ec clean-up mix	50/pk
730975	Chromabond QuEChERS, Mix V Diamino/Carbon clean-up mix	50/pk
730561	Chromabond Columns Diamino	3 ml 200 mg
730562	Chromabond Columns Diamino	6 ml 500 mg
730653.20	Chromabond Sorbent Diamino	20 g
730653	Chromabond Sorbent Diamino	100 g
730843.2	Diamino/Carbon/C18 ec clean-up mix, 2ML, Mix XLVII	150 mg MgSO4 50 mg Diamino 50 mg Carbon 50 mg C18 ec
730845	Diamino/Carbon/C18 ec clean-up mix, 15 mL, Mix XLVII	1200 mg MgSO4 400 mg Diamino 400 mg Carbon 400 mg C18 ec
730850.2	Diamino/Carbon clean-up mix, 2 mL, Mix IV	150 mg MgSO4 25 mg Diamino 2.5 mg Carbon

Visit www.sorbtech.com for a comprehensive listing of QuEChERS solutions.



Analytical Products

High Performance Liquid Chromatography

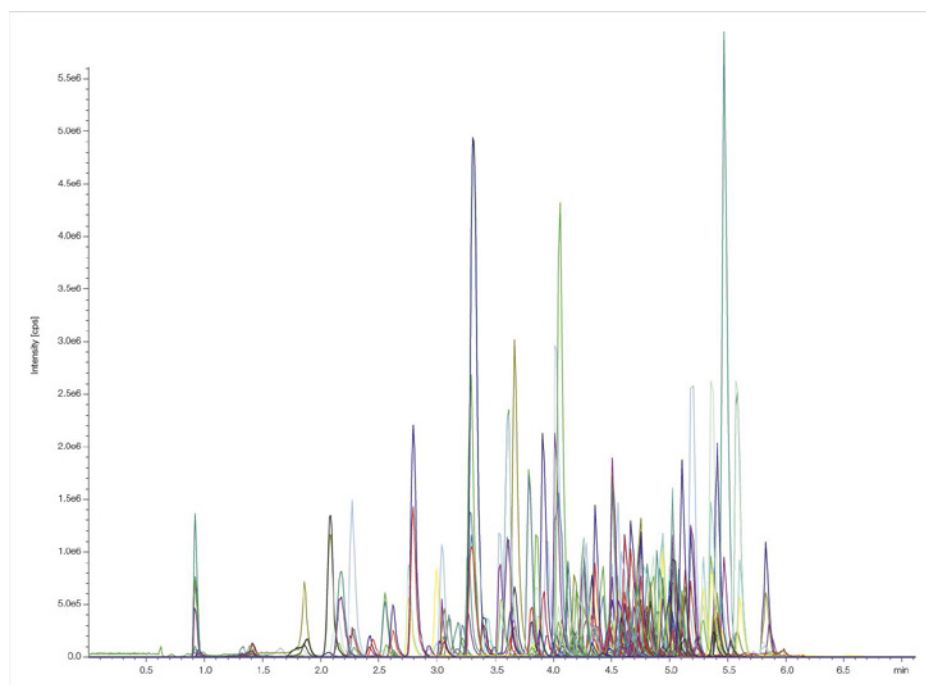
HPLC is the most commonly used method for testing THC and CBD and other cannabinoids, such as terpenes in cannabis products. It delivers the ability to test for THCA—undetectable in other methods. Our full range of analytical, semi-prep, and preparative products provide excellent separation, reproducibility, reliability, and scalability.

New MN Bluebird RP Columns are excellent for cannabinoids and pesticides. A special C18 core-shell phase with hydrophilic endcapping is available. These are excellent for LC/MS and 100% aqueous mobile phase. Available in ID 2, 3, 4 and 4.6 mm and length 50, 75, 100, 125 and 150 mm.

Cat No	Description	Part. Size	Pore Size	IDxL
10302046-2x50	Premium Pure C18 Silica Gel	3µm	100Å	2x50 mm
10303046-4.6x250	Premium Pure C18 Silica Gel	5µm	100Å	4.6x250 mm
10303048-4.6x250	Premium Pure C18 AQ Silica Gel	5µm	100Å	4.6x250 mm
763432.20	NUCLEOSHELL® Bluebird RP 18	3µm	90Å	2x50 mm
763432.46	NUCLEOSHELL® Bluebird RP 18	2.7 µm	90Å	4.6x150 mm
763434.40	NUCLEOSHELL® Bluebird RP 18	3µm	90Å	4.0x100 mm
763436.46	NUCLEOSHELL® Bluebird RP 18	3µm	90Å	4.6x150 mm

Visit www.sorbtech.com for more information regarding HPLC solutions.

Chromatographic conditions for pesticides



Chromatographic conditions

Column: EC 50/4.6 NUCLEOSHELL® Bluebird RP 18, 2.7 µm

MN REF: 763432.46

Eluent A: 0.1 % formic acid in water

Eluent B: 0.1 % formic acid in methanol

Gradient: in 5 min from 5 % to 100 % B, hold for 1.0 min, in 0.1 min to 5 % B, hold 5 % B for 3.9 min.

Flow rate: 0.7 mL/min

Temperature: 30 °C

Detection: MS, SMRM

Injection: 20 µL

Concentration

2 ng/mL for each analyte in water – acetonitrile (4:1, v/v)

Sample pretreatment according to MN Appl. No. 306590

- Dispersive solid phase extraction (EN 15662)
- QuEChERS Mix I (MN REF 730970) and QuEChERS Mix III (MN REF 730972)
- Sample matrix: red grape

Guard Column Connector

Guard columns can substantially increase the lifetime of an analytical column. It filters the eluent, holds back impurities from the sample, dampens pressure pulses, and reduces the action of corrosive eluent additives.

Sorbtech offers convenient, economical guard columns you can install directly in a suitable column head (built-in type) or mount in a separate holder and connect to the column via a capillary. Built-in guard columns reduce dead volume, improve separation efficiency, and are recommended when possible.

Cat No	Description	Quantity/Box
721359	MN Guard Column Connector for EC columns	1ea
718987	MN Fitting Adapter for EC columns	1ea
718988	MN EC Column Head (nut)	1ea
718992	MN PTFE Sealing Ring for EC columns	4/pk
718998	MN 3 Part Sealing Combination for EC columns	5/pk

Gas Chromatography

GC is used to test cannabis to isolate various chemical compounds—cannabinoids, pesticides, and other contaminants—in flower, extractions, and/or edibles. Optima 5 MS is recommended for analysis of cannabinoids, terpenes, and pesticides.

- 5% diphenyl – 95% dimethylpolysiloxane – USP G27/G36
- Nonpolar phase with low bleeding
- Suited for GC/MS and ECD applications and general analyses at trace level
- Nonpolar phase with low bleeding
- Perfect inertness for basic compounds
- Maximum temperature for isothermal operation 340°C
- Maximum temperature for short isotherms in a temperature program 360°C

Cat No	Description	IDmm	Length	Film Thickness
726216.10	Optima 5 MS	0.10mm	10m	0.10 µm
726216.15	Optima 5 MS	0.10mm	15m	0.10 µm
726210.20	Optima 5 MS	0.18mm	20m	0.18 µm
726215.20	Optima 5 MS	0.18mm	20m	0.36 µm
726220.30	Optima 5 MS	0.25mm	30m	0.25 µm
726225.30	Optima 5 MS	0.25mm	30m	0.50 µm
726523.30	Optima 5 MS	0.53mm	30m	0.50 µm
726541.30	Optima 5 MS	0.53mm	30m	1.0 µm

Derivatization reagents are available at www.sorbtech.com.

Successful Methods to Eliminate Toxic Contaminants from Cannabis Extracts

Rose Habib¹, David Schurer, and Robert R. Kerr²

A1 Extrax (Portland, Oregon)¹ and Sorbent Technologies (Norcross, Georgia)²



Sorbtech Cannabis Decontamination Webinar

Commercial producers of cannabis extracts and purified cannabinoids are facing an incredibly difficult challenge: how to efficiently, cost effectively remove contaminants from their products for therapeutic and recreational use while maintaining yield and purity of valuable cannabinoids and terpenes.

Decontamination of cannabis extracts is very complex chemistry and there's no defined accepted methodology. Additionally, we've noticed that in the cannabis industry systematic knowledge of chemistry seems to be more rare than frequent. We're addressing this problem in this webinar, the first in a series.

Watch the Webinar

The primary goal that's addressed in the webinar is how to eliminate toxic contaminants (pesticides, herbicides, fungicides, synergists) from contaminated cannabis extracts with simple procedures in a cost-effective manner.

You can follow this link to watch the webinar:

<https://www.sorbtech.com/cannabis-webinar>

Cannabis Chromatography with Confidence

About Sorbent Technologies

Established in 2000, Sorbent Technologies has specialized in products for chromatography and purification. We assist universities, government labs, and industry—Pharma, Cannabis, Biofuel, Materials, Food and Beverage, CMOs and CROs—with method development and optimization.

Sorbtech provides one of the industry's broadest product lines and the scientific expertise to assist our clients with projects ranging from analytical methods to full-scale process with both standard and complex chemistries. We deliver solutions for small, large and bio-molecules, synthetic and natural products.

Sorbtech and Cannabis Purification

For the past five years we've worked with companies in the cannabis industry to assist in extracting high quality CBD from hemp, in separating cannabinoids, providing analytical products for testing and now for delivering solutions for the very challenging process of decontamination of cannabis extracts in production.

As the cannabis industry continues to grow and becomes legal in more states, our customers increasingly are relying on our guidance in helping them decontaminate cannabis extracts. Sorbtech is committed to offering the best solutions to purification and decontamination challenges.



This brochure provides a sampling of our offerings.

Contact us at **(770) 936-0323** to speak with a technical representative or visit **www.sorbtech.com** for a comprehensive product list.



Sorbtech

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