SPEX CertiPrep®

Inorganic and Organic Certified Reference Materials

禹重科技® ÜZONGLAB

成分分析仪器|表面测试仪器|样品前处理仪器

2017

NEW

Product Supplement

- Cannabis
- Pesticide Mixes
- Pesticide Standards
- Speciation Standards
- US EPA Semivolatiles
- US EPA Volatiles
- USP <233> & <2232>
- Carbon Black
- Custom Standards

禹重科技® ÜZONGLAB

成分分析仪器 | 表面测试仪器 | 样品前处理仪器

上海市闵行区春申路2525号芭洛商务大楼　　邮编：201104，China

电话：021-8039 4499　传真：021-5433 0867　邮箱：shanghai@uzong.cn

上海|北京|沈阳|太原|长沙|广州|成都|香港

全国销售和售后服务电话：400-808-4598　　更多信息请访问：www.uzong.cn

了解我们　　微信公众号

SPEXperience
Going Above & Beyond

At SPEX CertiPrep, we go above and beyond to make you our priority!

It's not only what we do, it's how we do it. We have been manufacturing Inorganic and Organic Certified Reference Materials and Calibration Standards for the Analytical Spectroscopy and Chromatography communities since 1954. Our passion for science and dedication to the analytical community drives us to go above and beyond for you. We want to provide you with the customer experience you deserve and can rely on. We do this by making sure you are our priority in everything we do.

- Over 60 years experience manufacturing Certified Reference Materials (CRMs)
- Most comprehensive scope of accreditations and certifications in the industry
- Selection of over 4,000 inventoried products
- Stock products ship within 24 hours
- Dedicated technical support to answer your CRM and lab questions
- Custom standards manufactured upon request, based on your individual needs

Table of Contents

CERTIFIED REFERENCE MATERIALS

SPEX CertiPrep is the industry leader for over 60 years in the CRM marketplace, meeting the needs of laboratories worldwide with innovation and research. Accredited by A2LA to ISO/IEC 17025:2005 & ISO Guide 34:2009. Certified by UL-DQS, ISO 9001:2008.

Cannabis

Analytical Standards for Medicinal and Recreational Cannabis Testing

While the legalization of cannabis, for both medicinal and recreational purposes, has been gaining speed, legislation and regulation has not necessarily kept pace. Even so, out of a drive for self-regulation and significant consumer safety concerns, many producers and manufacturers are turning to testing labs in order to ensure that their products are of high quality and free of chemical contaminants. SPEX CertiPrep offers ISO/IEC 17025 and ISO Guide 34 Certified Reference Materials (CRMs) for all of the common contaminants such as pesticide residues, residual solvents and heavy metals, as well as qualitative analysis CRMs, such as terpenes. As the industry demands change and regulations are put into place, we continually update our product offerings.

Designed for Methods: State specific pesticide regulations

• OAR 333-008-11 • HB 3460 • AOAC 2007-01 • EN 15662

For additional product information, please visit www.spexcertiprep.com/cannabis.

Pesticide Residues				
Description	**Concentration**	**Volume**	**Matrix**	**Part #**
Organochlorine Pesticides Mix A, 18 compounds	200 µg/mL	1 mL	Acetone	5252-PA
Organochlorine Pesticides Mix B, 15 compounds	200 µg/mL	1 mL	Acetone	5252-PB
Nitrogen-Phosphorus Pesticides Mix C, 33 compounds	200 µg/mL	1 mL	Methylene chloride	5252-PC
Nitrogen-Phosphorus Pesticides Mix D, 9 compounds	200 µg/mL	1 mL	Acetone	5252-PD
Nitrogen-Phosphorus Pesticides Mix E, 3 compounds	200 µg/mL	1 mL	Acetone	5252-E

Terpenes					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Linalool	78-70-6	1,000 µg/mL	1 mL	Methanol	S-5133
Borneol	507-70-0	1,000 µg/mL	1 mL	Methanol-P&T	S-4570
Eucalyptol	470-82-6	1,000 µg/mL	1 mL	Methanol	S-4352
(R)-(+)-Limonene	5989-27-5	1,000 µg/mL	1 mL	Methanol-P&T	S-4021
alpha-Pinene	80-56-8	1,000 µg/mL	1 mL	Methanol-P&T	S-4172
beta-Pinene	127-91-3	1,000 µg/mL	1 mL	Methanol-P&T	S-3142

Cannabis (cont'd)

Residual Solvents					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Residual Solvent Mix, 24 compounds	Multiple	1,000 µg/mL	1 mL	Dimethyl sulfoxide	USP-RS-C3A
Acetone	67-64-1	1,000 µg/mL	1 mL	Methanol-P&T	S-140
n-Butane	106-97-8	1,000 µg/mL	1 mL	Methanol-P&T	S-605
Ethane	74-84-0	1,000 µg/mL	1 mL	Methanol-P&T	S-1880
Ethanol	64-17-5	1,000 µg/mL	1 mL	Methanol-P&T	S-1885
n-Hexane	110-54-3	1,000 µg/mL	1 mL	Methanol-P&T	S-2190
Methane	74-82-8	1,000 µg/mL	1 mL	Methanol-P&T	S-2379
2-Methylbutane	78-78-4	1,000 µg/mL	1 mL	Methanol-P&T	S-2462
2-Methylpropane	75-28-5	1,000 µg/mL	1 mL	Methanol-P&T	S-2555
n-Pentane	109-66-0	1,000 µg/mL	1 mL	Methanol-P&T	S-2975
Propane	74-98-6	1,000 µg/mL	1 mL	Methanol-P&T	S-3145
2-Propanol	67-63-0	1,000 µg/mL	1 mL	Methanol-P&T	S-3165

Heavy Metals				
Element	**Concentration**	**Volume**	**Matrix**	**Part #**
Heavy Metals Mix, 4 metals	Multiple	125 mL	5% HNO_3	USP-TXM2
Chromium	1,000 µg/mL	125 mL	2% HNO_3	PLCR2-2Y
Nickel	1,000 µg/mL	125 mL	2% HNO_3	PLNI2-2Y
Arsenic	1,000 µg/mL	125 mL	2% HNO_3	PLAS2-2Y
Silver	1,000 µg/mL	125 mL	2% HNO_3	PLAG2-2Y
Cadmium	1,000 µg/mL	125 mL	2% HNO_3	PLCD2-2Y
Mercury	1,000 µg/mL	125 mL	10% HNO_3	PLHG4-2Y
Lead	1,000 µg/mL	125 mL	2% HNO_3	PLPB2-2Y
Thallium	1,000 µg/mL	125 mL	2% HNO_3	PLTL2-2Y

Cannabis (cont'd)

Terpene Mixes - CAN-TERP-MIX1 & CAN-TERP-MIX2

Purchase together as CAN-TERP-KIT and save!

Can-Terp Mix 1 - 21 Compounds

Description	CAS #	Concentration	Volume	Matrix	Part #
Camphor	76-22-2	100 µg/mL	1 mL	Methanol	CAN-TERP-MIX1
beta-Myrcene	123-35-3				
Farnesene (mix of isomers)	502-61-4				
p-Mentha-1,5-diene	99-83-2				
Eucalyptol	470-82-6				
Isoborneol	124-76-5				
Linalool	78-70-6				
trans-Caryophyllene	87-44-5				
Ocimene (mix of isomers)	13877-91-3				
(-)-Caryophyllene oxide	1139-30-6				
(+)-Fenchone	4695-62-9				
Hexahydrothymol	89-78-1				
(-)-alpha-Bisabolol	23089-26-1				
Camphene	79-92-5				
(1S)-(+)-3-Carene	498-15-7				
(+)-Cedrol	77-53-2				
Geranyl acetate	105-87-3				
(-)-Isopulegol	89-79-2				
Nerol	106-25-2				
cis-Nerolidol	3790-78-1				
Valencene	4630-07-3				

Terpene Mixes - CAN-TERP-MIX1 & CAN-TERP-MIX2

Purchase together as CAN-TERP-KIT and save!

Can-Terp Mix 2 - 21 Compounds

Description	CAS #	Concentration	Volume	Matrix	Part #
beta-Pinene	127-91-3	100 µg/mL	1 mL	Methanol	CAN-TERP-MIX2
(R)-(+)-Limonene	5989-27-5				
alpha-Pinene	80-56-8				
L(-)-fenchone	7787-20-4				
(+)-Borneol	464-43-7				
Geraniol	106-24-1				
(+)-Pulegone	89-82-7				
alpha-Humulene	6753-98-6				
alpha-Cedrene	469-61-4				
Terpinolene	586-62-9				
gamma-Terpinene	99-85-4				
alpha-Terpinene	99-86-5				
Guaiol	489-86-1				
Sabinene	3387-41-5				
(-)-Borneol	464-45-9				
(1R)-(+)-Camphor	464-49-3				
(1S)-(-)-Camphor	464-48-2				
(1R)-endo-(+)-Fenchyl alcohol	2217-02-9				
trans-Nerolidol	40716-66-3				
Sabinene hydrate	546-79-2				
Terpineol (mix of isomers)	8000-41-7				

Pesticide Mixes

Premixed Pesticide Multi-Compound CRMs

Build Your Pesticide Library with SPEX CertiPrep Pesticide Mixes!

Chemical pesticides have become an integral part of the agricultural toolbox, offering protection to crops from destructive pests. However, an unfortunate side effect of their uses is the potential leaching of these, oftentimes, harmful chemicals into the environment leading to their eventual presence in the human food chain. As a result, pesticide residue analysis has become a critical testing process for many different types of laboratories.

Unfortunately, pesticide residue testing is a long, expensive and complicated process, covering hundreds of different compounds. Fortunately, as the leader in HPLC, GC, LC/MS, and GC/MS pesticide CRMs, SPEX CertiPrep is happy to assist you with all of your pesticide CRM needs.

For your convenience, we have designed a pesticide residue testing kit which includes 144 of the most commonly analyzed pesticides per EPA, AOAC, FDA and other international testing methods. The kit is structured to maximize stability and solubility, while minimizing unwanted analyte interaction and interference; enjoy shorter calibration times, fewer injections and money savings, as compared to purchasing individual pesticide standards.

For additional product information, please visit www.spexcertiprep.com/products/pesticides/pesticide-mixes.

Description	Compound	CAS #	Concentration	Volume	Part #
Pesticide Kit containing all 10-multi-compound mixes.	Multiple	Multiple	100 µg/mL	1 mL	SPXPR-KIT
Pesticide Mix 1 containing 16 compounds in acetonitrile.	Trifloxystrobin Boscalid Fenoxycarb Piperonyl butoxide Tebufenpyrad Iprodione Imidacloprid Imazalil Aldicarb Aldicarb sulfoxide Thiacloprid Azoxystrobin Acetamiprid Aldicarb sulfone Primicarb Chlorantraniliprole	141517-21-7 188425-85-6 78127-80-3 51-03-6 119168-77-3 36734-19-7 138261-41-3 35554-44-0 116-06-3 1646-87-3 111988-49-9 131860-33-8 135410-20-7 1646-88-4 23103-98-2 500008-45-7	100 µg/mL	1 mL	SPXPR-1

Phone: 1.800.LAB.SPEX • Fax: 732.603.9647

Pesticide Mixes (cont'd)

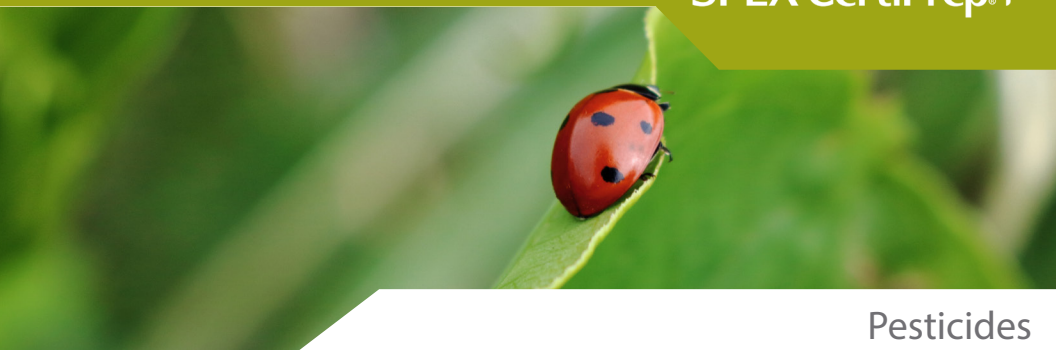
Description	Compound	CAS #	Concentration	Volume	Part #
Pesticide Mix 2 containing 15 compounds in acetonitrile.	Azinphos-methyl Carbophenothion Coumaphos Ethoprophos (Ethoprop) Dimethoate Dicrotophos Terbufos Quinalphos Triazophos Dyfonate (Fonofos) Malathion Phosmet (Imidan) Phosalone Methidathion Hexythiazox	86-50-0 786-19-6 56-72-4 13194-48-4 60-51-5 141-66-2 13071-79-9 13593-03-8 24017-47-8 944-22-9 121-75-5 732-11-6 2310-17-0 950-37-8 78587-05-0	100 µg/mL	1 mL	SPXPR-2
Pesticide Mix 3 containing 15 compounds in acetonitrile.	Propargite (Omite) Carbaryl Myclobutanil (Systhane) Dimethomorph Etoxazole Spirodiclofen Thiamethoxam Flonicamid Etofenprox Phorate Methamidophos Profenofos Monocrotophos Phenthoate Pirimiphos-methyl	2312-35-8 63-25-2 88671-89-0 110488-70-5 153233-91-1 148477-71-8 153719-23-4 158062-67-0 80844-07-1 298-02-2 10265-92-6 41198-08-7 6923-22-4 2597-03-7 29232-93-7	100 µg/mL	1 mL	SPXPR-3
Pesticide Mix 4 containing 15 compounds in acetonitrile.	Epn Dichlorvos Edifenphos Ethion Fenitrothion Ethyl parathion Methyl parathion Acephate Disulfoton Fenthion Diazinon Chlorpyriphos Fipronil Fludioxonil Chlorothalonil	2104-64-5 62-73-7 17109-49-8 563-12-2 122-14-5 56-38-2 298-00-0 30560-19-1 298-04-4 55-38-9 333-41-5 2921-88-2 120068-37-3 131341-86-1 1897-45-6	100 µg/mL	1 mL	SPXPR-4

Pesticide Mixes (cont'd)

Description	Compound	CAS #	Concentration	Volume	Part #
Pesticide Mix 5 containing 14 compounds in acetonitrile.	Baygon (Propoxur) Metalaxyl Methomyl Pymetrozine Pyraclostrobin Oxamyl Paclobutrazol Prochloraz Clofentezine Diuron Linuron Isoproturon Pencycuron Oxydemeton-methyl	114-26-1 57837-19-1 16752-77-5 123312-89-0 175013-18-0 23135-22-0 76738-62-0 67747-09-5 74115-24-5 330-54-1 330-55-2 34123-59-6 66063-05-6 301-12-2	100 µg/mL	1 mL	SPXPR-5
Pesticide Mix 6 containing 15 compounds in acetonitrile.	Fenvalerate (Sanmarton) Pyridaben tau-Fluvalinate Quinoxyfen Alachlor Pendimethalin (Prowl) Kresoxim-methyl Chlorpropham Epoxiconazole Fenpropathrin (mix of isomers) Fenoprop (2, 4, 5-TP) Bentazon Metolachlor Quintozene (Pentachlorobenzene) Captan	51630-58-1 96489-71-3 102851-06-9 124495-18-7 15972-60-8 40487-42-1 143390-89-0 101-21-3 133855-98-8 64257-84-7 93-72-1 25057-89-0 51218-45-2 82-68-8 133-06-2	100 µg/mL	1 mL	SPXPR-6
Pesticide Mix 7 containing 8 compounds in acetonitrile.	Cypermethrin Cyfluthrin (Baythroid) Bifenthrin Tetramethrin Prallethrin (mix of isomers) Permethrin (mix of isomers) Resmethrin (mix of isomers) Pyrethrins (mix of isomers)	52315-07-8 68359-37-5 82657-04-3 7696-12-0 23031-36-9 52645-53-1 10453-86-8 8003-34-7	100 µg/mL	1 mL	SPXPR-7

Pesticide Mixes (cont'd)

Description	Compound	CAS #	Concentration	Volume	Part #
Pesticide Mix 8 containing 15 compounds in acetonitrile.	Hexaconazole Tebuconazole (Folicur) Propiconazole (Tilt) Bifenazate Spiromesifen Spinetoram (J) Abamectin (mix of isomers) Fenobucarb (BPMC) Methiocarb Propazine Isoprocarb (MIPC) Spirotetramat Fenpyroximate Spinosad (as Spinosyn A) Bromacil	79983-71-4 107534-96-3 60207-90-1 149877-41-8 283594-90-1 178166-40-1 71751-41-2 3766-81-2 2032-65-7 139-40-2 2631-40-5 203313-25-1 111812-58-9 131929-60-7 314-40-9	100 µg/mL	1 mL	SPXPR-8
Pesticide Mix 9 containing 16 compounds in acetonitrile: acetone (9:1).	2,4-DB Fenoxaprop Fluometuron Fenhaxamid Trichlorfon (Dylox) Fenamiphos-sulfoxide Fenamiphos-sulfone Molinate 3-Hydroxycarbofuran Thiophanate-methyl Acequinocyl Carbofuran Cyanazine (Bladex) Simazine Atrazine Atrazine-desethyl	94-82-6 95617-09-7 2164-17-2 126833-17-8 52-68-6 31972-43-7 31972-44-8 2212-67-1 16655-82-6 23564-05-8 57960-19-7 1563-66-2 21752-46-2 122-34-9 1912-24-9 6190-65-4	100 µg/mL	1 mL	SPXPR-9
Pesticide Mix 10 containing 15 compounds in acetonitrile.	Aldrin DDE (p-p') DDD (o-p) DDD (p-p') DDE (o-p) DDT (o-p') DDT (p-p') Dieldrin Endrin Endrin aldehyde Endrin ketone Isodrin Chlordecone Metribuzin Mirex	309-00-2 72-55-9 53-19-0 72-54-8 3424-82-6 789-02-6 50-29-3 60-57-1 72-20-8 7421-93-4 53494-70-5 465-73-6 143-50-0 21087-64-9 2385-85-5	100 µg/mL	1 mL	SPXPR-10



Pesticides

Analytical Standards for Pesticide Analysis

There are hundreds of commercial pesticides in use in the world today. From algaecides to virucides, pesticides are used in large quantities in industrial and private agriculture. The concern over human pesticide exposure over the past few decades has led to increased monitoring and oversight of these chemicals. It is essential that testing labs have accurate standard mixes to measure the pesticide levels in the environment. At SPEX CertiPrep, we help streamline your testing process by creating pre-made standards to suit your needs. Several stock pesticide mixes are readily available, along with a large list of over 4,000 individual compounds. In addition, custom pesticide blends can be manufactured to your specifications.

For additional product information, please visit www.spexcertiprep.com/products/pesticides.

Ready-Prep 91 - SOW Matrix Spike					
Compound	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Aldrin	309-00-2	500 µg/mL	1 mL	Methanol	CLPP-MS91H
Dieldrin	60-57-1	1,000 µg/mL			
p,p'-DDT	50-29-3	1,000 µg/mL			
Endrin	72-20-8	1,000 µg/mL			
gamma-BHC	58-89-9	500 µg/mL			
Heptachlor	76-44-8	500 µg/mL			

3/90 - SOW Surrogate Spike					
Compound	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
2,4,5,6-Tetrachloro-m-xylene	877-09-8	200 µg/mL	1 mL	Acetone	CLPP-S90
Decachlorobiphenyl	2051-24-3				

Pesticides (cont'd)

Organochlorine Pesticide Mix					
Description	**CAS #**	**Concentration**	**Volume**	**Matrix**	**Part #**
Aldrin	309-00-2	2,000 µg/mL	1 mL	Benzene	625-PH
alpha-BHC	319-84-6				
beta-BHC	319-85-7				
delta-BHC	319-86-8				
Dieldrin	60-57-1				
Endosulfan I	959-98-8				
Endosulfan II	33213-65-9				
Endosulfan sulfate	1031-07-8				
Endrin	72-20-8				
Endrin aldehyde	7421-93-4				
Endrin ketone	53494-70-5				
gamma-BHC	58-89-9				
Heptachlor	76-44-8				
Heptachlor epoxide (Isomer B)	1024-57-3				
Methoxychlor	72-43-5				
p,p'-DDD	72-54-8				
p,p'-DDE	72-55-9				
p,p'-DDT	50-29-3				

Analytical Standards for Single & Dual Speciation Analysis

Speciation analysis has become common in many testing fields, including the environmental, food and pharmaceutical testing labs. To analyze species in a sample requires Certified Reference Materials (CRMs) for sample verification and method validation. Many speciation standards are available in today's market, but most of them are not certified or analyzed with a state-of-the-art ICP, ICP-MS or LC-ICP-MS. SPEX CertiPrep offers a wide variety of speciation standards, certified to the strictest ISO/IEC 17025 and ISO Guide 34 guidelines, and tested on our own LC-ICP-MS.

For additional product information, please visit www.spexcertiprep.com/knowledge-base/speciation.

Single Speciation Standards				
Description	**Concentration**	**Volume**	**Matrix**	**Part #**
Assurance Grade Arsenic (+3) Speciation Standard	1,000 µg/mL	125 mL	2% HCl	SPEC-AS3
Assurance Grade Arsenic (+3) Speciation Standard	1,000 µg/mL	30 mL	2% HCl	SPEC-AS3M
Assurance Grade Arsenic (+5) Speciation Standard	1,000 µg/mL	125 mL	H_2O	SPEC-AS5
Assurance Grade Arsenic (+5) Speciation Standard	1,000 µg/mL	30 mL	H_2O	SPEC-AS5M
Assurance Grade Chromium (+3) Speciation Standard	1,000 µg/mL	125 mL	2% HNO_3	SPEC-CR3
Assurance Grade Chromium (+3) Speciation Standard	1,000 µg/mL	30 mL	2% HNO_3	SPEC-CR3M
Assurance Grade Chromium (+6) Speciation Standard	1,000 µg/mL	125 mL	H_2O	SPEC-CR6
Assurance Grade Chromium (+6) Speciation Standard	1,000 µg/mL	30 mL	H_2O	SPEC-CR6M
Assurance Grade Selenium (+4) Speciation Standard	1,000 µg/mL	125 mL	2% HNO_3	SPEC-SE4
Assurance Grade Selenium (+4) Speciation Standard	1,000 µg/mL	30 mL	2% HNO_3	SPEC-SE4M
Assurance Grade Selenium (+6) Speciation Standard	1,000 µg/mL	125 mL	H_2O	SPEC-SE6

Speciation (cont'd)

Organic Arsenic Speciation Standards				
Description	**Concentration**	**Volume**	**Matrix**	**Part #**
Dimethylarsinic Acid Sodium Salt	10 µg/mL	30 mL	H_2O	SPEC-AS-DMA
Disodium Methylarsonate Hexahydrate	10 µg/mL	30 mL	H_2O	SPEC-AS-MMA

Unique Features of Dual Speciation Standards

- Standards are each at a total of 20 µg/mL and are optimized to work well for both ICP and ICP-MS (with a one-step dilution)
- Percentages of the species are determined by LC-ICP-MS and reported on our Certificate of Analysis
- An LC Chromatogram is featured on our Certificate of Analysis
- Trace impurities in the final solution are analyzed by ICP-MS and reported on our Certificate of Analysis

Dual Speciation Standards				
Description	**Concentration**	**Volume**	**Matrix**	**Part #**
Dual Arsenic (+3, +5) Speciation Standard	Total As 20 µg/mL	30 mL	H_2O/tr. HCL	SPEC-DUAL-AS
Dual Chromium (+3, +6) Speciation Standard	Total Cr 20 µg/mL	30 mL	H_2O	SPEC-DUAL-CR
Dual Selenium (+4, +6) Speciation Standard	Total Se 20 µg/mL	30 mL	H_2O/tr. HNO_3	SPEC-DUAL-SE

US EPA Semivolatiles

Analytical Standards for Drinking Water, Wastewater and Solid Waste

Single & Multi-Component Standards for GC & GC/MS

Designed for Methods:

600 Series • 8000 Series • CLP Series

For additional product information, please visit www.spexcertiprep.com/organic-standards/semivolatiles.

Method 600 Series					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 604					
Phenolics Mix	2,000 µg/mL	1 mL	Methylene chloride	11	CLPS-A
Polynuclear Aromatic Hydrocarbons	2,000 µg/mL	1 mL	$MeCl_2$:Benzene	16	CLPS-B
Haloethers & Phthalates	2,000 µg/mL	1 mL	Methylene chloride	13	CLPS-C
Chlorinated/Nitrated Hydrocarbons	2,000 µg/mL	1 mL	Methylene chloride	13	CLPS-D
Additional Analytes	2,000 µg/mL	1 mL	Methylene chloride	7	CLPS-G
Base/Neutral Surrogate	1,000 µg/mL	1 mL	$MeCl_2$:Acetone	3	CLPS-SB
Base/Neutral Surrogate	1,000 µg/mL	5 mL	$MeCl_2$:Acetone	3	CLPS-SB5
Base/Neutral Surrogate	5,000 µg/mL	1 mL	$MeCl_2$:Acetone:Benzene	3	CLPS-SBH
Base/Neutral Surrogate (High Level)	5,000 µg/mL	5 mL	$MeCl_2$:Acetone:Benzene	3	CLPS-SBH5
Base/Neutral Surrogate (High Level)	Multiple	5 mL	$MeCl_2$:Acetone:Benzene	4	CLPS-SBH5-TI
Acid Surrogates	2,000 µg/mL	1 mL	Methanol	3	CLPS-SA
Acid Surrogates	2,000 µg/mL	5 mL	Methanol	3	CLPS-SA5
Acid Surrogates	10,000 µg/mL	1 mL	Methanol	3	CLPS-SAH
Acid Surrogates	10,000 µg/mL	5 mL	Methanol	3	CLPS-SAH5

US EPA Semivolatiles (cont'd)

Method 600 Series (cont'd)					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Internal Standards	4,000 µg/mL	1 mL	Methylene chloride	6	CLPS-I
Internal Standards	4,000 µg/mL	5 mL	Methylene chloride	6	CLPS-I5
Internal Standards	2,000 µg/mL	2 mL	Methylene chloride	6	CLPS-I2
Alternate Internal Standard	2,000 µg/mL	1 mL	Methylene chloride	6	CLPS-I90
Acids Matrix Spike	2,000 µg/mL	1 mL	Methanol	5	CLPS-MSA
Acids Matrix Spike	2,000 µg/mL	5 mL	Methanol	5	CLPS-MSA5
Acids Matrix Spike	Multiple	1 mL	Methanol	6	CLPS-MSA15-TI
Base/Neutral Matrix Spike	1,000 µg/mL	1 mL	Methanol	6	CLPS-MSB
Base/Neutral Tinted Matrix Spike	1,000 µg/mL	1 mL	Methanol	7	CLPS-MSB-TI
GC/MS Tuning Standard	2,500 µg/mL	1 mL	Methanol	1	CLPS-T
GC/MS Tuning Standard	2,500 µg/mL	1 mL	Methylene chloride	4	CLPS-T4

Method 8000 Series					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 8100					
Polynuclear Aromatic Hydrocarbons	2,000 µg/mL	1 mL	$MeCl_2$:Benzene	16	CLPS-B
Method 8270C					
Analytes	2,000 µg/mL	1 mL	Methylene chloride	11	CLPS-A
Haloethers & Phthalates	2,000 µg/mL	1 mL	Methylene chloride	13	CLPS-C
Chlorinated/Nitrated Hydrocarbons Mix	2,000 µg/mL	1 mL	Methylene chloride	13	CLPS-D
Additional Analytes	2,000 µg/mL	1 mL	Methylene chloride	7	CLPS-G

The 76 Big Mix

The most routinely analyzed semivolatile compounds in one ampule. All compounds checked on our GC/MS ensuring the highest quality at an affordable price.

Description	Concentration	Volume	Matrix	# of Comp.	Part #
Semivolatile Organics Mix	1,000 µg/mL*	1 mL	Methylene chloride	76	76-BIG-MIX

* 3-Methylphenol and 4-Methylphenol are each at 500 µg/mL

US EPA Semivolatiles (cont'd)

CLP Series					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 8100					
Semivolatile Control Sample, Low Level	2,000 µg/mL	1 mL	Methanol	3	CLPS-LC-ALCS
Alternate Acid Surrogate for CLP SOWs	2,000 µg/mL	1 mL	Methanol	4	CLP90-SA
Alternate Acid Surrogate for CLP SOWs	2,000 µg/mL	5 mL	Methanol	4	CLP90-SA5
High Concentration Acid Surrogates	7,500 µg/mL	1 mL	Methanol	4	CLP90-75SA
High Concentration Acid Surrogates	7,500 µg/mL	5 mL	Methanol	4	CLP90-75SA5
Alternate Acid Surrogates for CLP SOWs	2,000 µg/mL	1 mL	Methanol	3	CLPS-SA
Alternate Acid Surrogates for CLP SOWs	2,000 µg/mL	5 mL	Methanol	3	CLPS-SA5
Alternate High Concentration Acid Surrogates for CLP	10,000 µg/mL	1 mL	Methanol	3	CLPS-SAH
Alternate High Concentration Acid Surrogates for CLP	10,000 µg/mL	5 mL	Methanol	3	CLPS-SAH5
Alternate Base/ Neutral Surrogates for CLP SOWs	1,000 µg/mL	1 mL	$MeCl_2$:Acetone	4	CLP90-SB
Alternate Base/ Neutral Surrogates for CLP SOWs	1,000 µg/mL	5 mL	$MeCl_2$:Acetone	4	CLP90-SB5
High Concentration Base/Neutral Surrogates	5,000 µg/mL	1 mL	$MeCl_2$:Acetone:Benzene	4	CLP90-SBH
High Concentration Base/Neutral Surrogates	5,000 µg/mL	5 mL	$MeCl_2$:Acetone:Benzene	4	CLP90-SBH5
Combination Semivolatile Surrogates for CLP SOW	Multiple	1 mL	$MeCl_2$:Acetone	6	CLPS-SURR
Tinted Indicator Surrogate	Multiple	1 mL	$MeCl_2$:Acetone	9	CLP90-SURR-TI

US EPA Volatiles

Analytical Standards for Drinking Water, Wastewater and Solid Waste

Single & Multi-Component Standards for GC & GC/MS

Designed for Methods:

500 Series • 600 Series • 8000 Series • CLP Series

For additional product information, please visit www.spexcertiprep.com/organic-standards/volatiles.

Method 500 Series					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 502					
Mix B-Purgeable Gases (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	6	5022-BH
Mix B-Purgeable Gases	200 µg/mL	1 mL	Methanol-P&T	6	5022-B
Trihalomethanes (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	4	THM-XH
Trihalomethanes	200 µg/mL	1 mL	Methanol-P&T	4	THM-X
Method 524					
Method 524.3 Mix A	2,000 µg/mL	1 mL	Methanol	6	5243-G
Method 524.3 Supplemental Mix	2,000 µg/mL	1 mL	Methanol	8	5243-A
UCMR-3 Method 524.3 Standard	Multiple	1 mL	Methanol-P&T	9	UCMR-3
Combination Mix - Analyte Mixes A, C & D	2,000 µg/mL	1 mL	Methanol-P&T	54	5242-VCX
EPA Method 524.2 Volatile Calibration Standard	200 µg/mL	1 mL	Methanol-P&T	54	5242-VCX-200
Method 524.2-Rev. 4	200 µg/mL	1 mL	Methanol-P&T	24	5242-R4200
Method 524.2-Rev. 4 (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	24	5242-R4

US EPA Volatiles (cont'd)

Method 500 Series (cont'd)					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 524 (cont'd)					
Fortification Solution	1,000 µg/mL	1 mL	Methanol-P&T	3	5242-F
GC/MS Tuning Standard (BFB)	2,500 µg/mL	1 mL	Methanol-P&T	1	CLPV-TH
4-Bromofluorobenzene	1,000 µg/mL	1 mL	Methanol-P&T	1	S-550
Method 524.3 Mix B	2,000 µg/mL	1 mL	Methanol	69	5243-VCM
Internal Standard	2,000 µg/mL	1 mL	Methanol-P&T	1	5242-I
Surrogate Standard	1,000 µg/mL	1 mL	Methanol-P&T	2	5242-S
Internal Standard	2,000 µg/mL	1 mL	Methanol	3	5243-I
Method 551					
Chlorinated Disinfection By-Products, Solvents and Trihalomethanes	2,000 µg/mL	1 mL	Acetone	15	5511-A
Halogenated Pesticides and Herbicides Mix	2,000 µg/mL	1 mL	Acetone	16	5511-PH
Internal Standard	10,000 µg/mL	1 mL	Acetone	1	5511-I
Laboratory Performance Check Solution	Multiple	1 mL	Methyl tert-butyl ether	7	5511-PC

Method 600 Series					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 601					
Volatile Organics Combination Mix	200 µg/mL	1 mL	Methanol-P&T	23	601-A
Mix B-Purgeable Gases (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	6	5022-BH
Mix B-Purgeable Gases	200 µg/mL	1 mL	Methanol-P&T	6	5022-B
Method 602					
Purgeable Aromatics for Gasoline Identification	2,000 µg/mL	1 mL	Methanol-P&T	11	P-GAS
BTEX Standard (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	6	BTEX-H
BTEX Standard	200 µg/mL	1 mL	Methanol-P&T	6	BTEX

US EPA Volatiles (cont'd)

Method 600 Series (cont'd)					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 602 (cont'd)					
Alternate BTEX Standard	Multiple	1 mL	Methanol-P&T	6	BTEX-2-1H
Internal/Surrogate Standard	200 µg/mL	1 mL	Methanol-P&T	1	602-I
Method 603					
Acrolein and Acrylonitrile	2,000 µg/mL	1 mL	H_2O	2	603-X
Acrolein and Acrylonitrile	2,000 µg/mL	1 mL	Methanol-P&T	2	603-XM
Methanol 624					
Mix A (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	15	CLPV-AH
Mix A	200 µg/mL	1 mL	Methanol-P&T	15	CLPV-A
Mix B-Purgeable Gases (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	5	624-BH
Mix B-Purgeable Gases	200 µg/mL	1 mL	Methanol-P&T	5	624-B
Mix C (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	8	624-CH
Mix C	200 µg/mL	1 mL	Methanol-P&T	8	624-C
Mix D (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	3	624-DH
Mix D	200 µg/mL	1 mL	Methanol-P&T	3	624-D
Combination Mix Analyte Mix A	2,000 µg/mL	1 mL	Methanol-P&T	26	624-A
Internal Standard	1,000 µg/mL	1 mL	Methanol-P&T	3	624-I
Surrogate Standard	1,000 µg/mL	1 mL	Methanol-P&T	3	624-S

US EPA Volatiles (cont'd)

Method 8000 Series					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 8011					
EDB/DBCP (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	2	504-AH
Method 8015					
Alcohols Mix	2,000 µg/mL	1 mL	H_2O	9	8015B-A
Oxygenates Calibration Mix	2,000 µg/mL	1 mL	Methanol	5	8015-OX
Acrolein and Acrylonitrile	2,000 µg/mL	1 mL	H_2O	2	603-X
Acrolein and Acrylonitrile	2,000 µg/mL	1 mL	Methanol-P&T	2	603-XM
Method 8021					
Volatile Organics Combination Mix	2,000 µg/mL	1 mL	Methanol-P&T	54	5242-VCX
EPA Method 524.2 Volatile Calibration Standard	200 µg/mL	1 mL	Methanol-P&T	54	5242-VCX-200
Mix A	2,000 µg/mL	1 mL	Methanol-P&T	10	8020-A
Mix B-Purgeable Gases (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	6	5022-BH
Mix B-Purgeable Gases	200 µg/mL	1 mL	Methanol-P&T	6	5022-B
Internal Standard	200 µg/mL	1 mL	Methanol-P&T	1	602-I
Internal Standard	1,000 µg/mL	1 mL	Methanol-P&T	2	5022-I
Surrogate Standard	1,000 µg/mL	1 mL	Methanol-P&T	1	8021B-S
Method 8260					
Mix A (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	15	CLPV-AH
Mix A	200 µg/mL	1 mL	Methanol-P&T	15	CLPV-A
Mix B-Purgeable Gases (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	6	5022-BH
Mix B-Purgeable Gases	200 µg/mL	1 mL	Methanol-P&T	6	5022-B
Mix C (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	22	5242-CH
Mix D (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	17	5242-DH
Volatile Organics Combination Mix	2,000 µg/mL	1 mL	Methanol-P&T	54	5242-VCX
EPA Method 524.2 Volatile Calibration Standard	200 µg/mL	1 mL	Methanol-P&T	54	5242-VCX-200

US EPA Volatiles (cont'd)

"Long List" Appendix of Compounds for 8260B					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 8260B					
Mix E (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	7	8260-EH
Mix E	200 µg/mL	1 mL	Methanol-P&T	7	8260-E
2-Chloroethylvinyl Ether Stock Standard	1,000 µg/mL	1 mL	Methanol-P&T	1	S-855
Vinyl Acetate Stock Standard	1,000 µg/mL	1 mL	Methanol-P&T	1	S-3800
Combined Stock Standard	2,000 µg/mL	1 mL	Methanol-P&T	2	CNVA
Ethylene Oxide Stock Standard	1,000 µg/mL	1 mL	Methanol-P&T	1	S-1960
Xylene-Free Chloroprene Stock Standard	1,000 µg/mL	1 mL	Methanol-P&T	1	S-930

CLP Series					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 8260B					
Volatiles Mix for OML04.1	2,000 µg/mL	1 mL	Methanol-P&T	44	CLPV-43CH
Mix B-Purgeable Gases (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	6	5022-BH
Mix B-Purgeable Gases	200 µg/mL	1 mL	Methanol-P&T	6	5022-B
Volatile Organics Combination Standards	2,000 µg/mL	1 mL	Methanol-P&T	32	CLPV-32CH
Mix B-Purgeable Gases (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	4	CLPV-BH
Volatiles Mix A (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	15	CLPV-AH
Volatiles Mix A	200 µg/mL	1 mL	Methanol-P&T	15	CLPV-A
Volatiles Mix D (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	8	CLPV-D90H
Volatiles Mix D for CLP SOW Alternate (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	9	CLPV-DH
Supplementary Volatiles Mix for CLP OLM04.1	200 µg/mL	1 mL	Methanol-P&T	12	CLPV-041X
Combined Stock Standards	2,000 µg/mL	1 mL	Methanol-P&T	2	CNVA

US EPA Volatiles (cont'd)

CLP Series (cont'd)					
Description	**Concentration**	**Volume**	**Matrix**	**# of Comp.**	**Part #**
Method 8260B (cont'd)					
Volatile Surrogate Standard (High Level)	2,500 µg/mL	1 mL	Methanol-P&T	3	CLPV-SH
Matrix Spike (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	5	CLPV-MH
GC/MS Tuning Standard (BFB) (High Level)	2,500 µg/mL	1 mL	Methanol-P&T	1	CLPV-TH

The 60 Big Mix

The most routinely analyzed volatile compounds in one ampule. All compounds checked on our GC/MS ensuring the highest quality at an affordable price.

Description	Concentration	Volume	Matrix	# of Comp.	Part #
Volatile Organics Mix	1,000 µg/mL	1 mL	Methanol-P&T	60	60-BIG-MIX
Volatile Organics Mix (Low Level)	200 µg/mL	1 mL	Methanol-P&T	60	60-BIG-MIX-200
Volatile Organics Mix (High Level)	2,000 µg/mL	1 mL	Methanol-P&T	60	60-BIG-MIX-2000

The Big Mix

Volatile organics mix with 76 certified components.

Description	Concentration	Volume	Matrix	# of Comp.	Part #
Volatile Organics Mix	2,000 µg/mL	1 mL	Methanol-P&T	76	8260-BIG-MIX

USP <232> & <2232> Elemental Impurities

Analytical Standards for USP <232> & <2232> Elemental Impurities

The new guidelines set by the United States Pharmacopeia (USP) and the International Conference on Harmonization (ICH) have pushed the pharmaceutical and nutraceutical industries to provide accurate, quantifiable results for metal analysis in drugs, pharmaceutical substances and raw materials.

USP <232> outlines new limits in pharmaceutical products for arsenic, cadmium, lead, and mercury. The proposed procedures focus on the use of ICP-MS (Inductively Coupled Plasma/Mass Spectrometry) for the analysis of low level impurities. ICP-MS instrumentation, along with accurate ICP-MS standards, allow for increased efficiency and accuracy of the analysis necessary to comply with the new regulations. In addition to the changes enacted by the USP, the ICH is also planning to release similar guidelines on elemental impurities in pharmaceutical materials and products.

Developed in accordance with USP <232> Elemental Impurities, SPEX CertiPrep is proud to offer these additions to our Consumer Safety Compliance Standards line. These standards can be used as a calibration or check standard to verify Oral Daily Dose PDE, Parenteral Component Limit or Parenteral Daily Dose PDE. Our extensive experience in creating quality trace metal standards, coupled with your ICP-MS analysis, will ensure your company will remain compliant with the new and changing regulations.

For additional product information, please visit www.spexcertiprep.com/products/USP.

Oral Elemental Impurities A				
Element	**Concentration**	**Volume**	**Matrix**	**Part #**
Cadmium	5 mg/kg	125 mL	5% HNO_3	USP-TXM2A
Mercury	30 mg/kg			
Lead	5 mg/kg			
Arsenic	15 mg/kg			

Precious Metal Impurities B (with Os)				
Element	**Concentration**	**Volume**	**Matrix**	**Part #**
Iridium	100 mg/kg	125 mL	15% HCl	USP-TXM3
Osmium	100 mg/kg			
Palladium	100 mg/kg			
Platinum	100 mg/kg			
Rhodium	100 mg/kg			
Ruthenium	100 mg/kg			

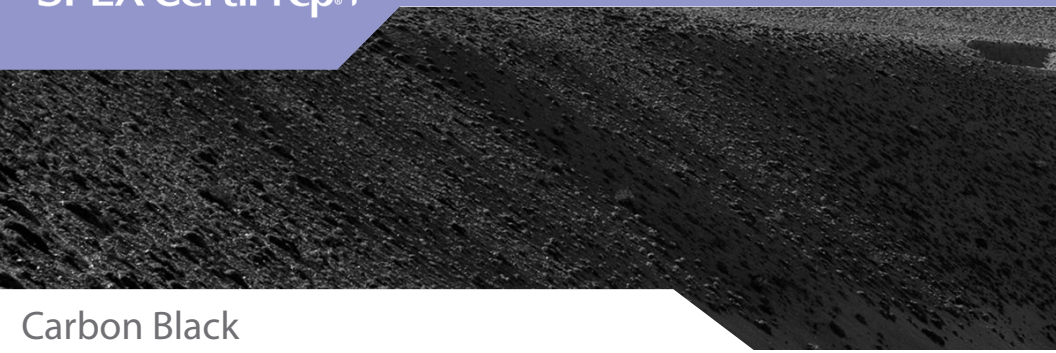
USP <232> & <2232> Elemental Impurities (cont'd)

Precious Metal Impurities B (without Os)				
Element	**Concentration**	**Volume**	**Matrix**	**Part #**
Iridium	100 mg/kg	125 mL	15% HCl	USP-TXM4
Palladium	100 mg/kg			
Platinum	100 mg/kg			
Rhodium	100 mg/kg			
Ruthenium	100 mg/kg			

Oral Elemental Impurities C				
Element	**Concentration**	**Volume**	**Matrix**	**Part #**
Copper	3,000 mg/kg	125 mL	5% HNO_3	USP-TXM5A
Nickel	200 mg/kg			
Molybdenum	3,000 mg/kg			
Vanadium	100 mg/kg			
Chromium	11,000 µg/mL			

Parenteral Elemental Impurities C				
Element	**Concentration**	**Volume**	**Matrix**	**Part #**
Copper	300 mg/kg	125 mL	5% HNO_3	USP-TXM5B
Nickel	20 mg/kg			
Molybdenum	1,500 mg/kg			
Vanadium	10 mg/kg			
Chromium	1,100 µg/mL			

Parenteral Elemental Impurities D				
Element	**Concentration**	**Volume**	**Matrix**	**Part #**
Lead	5 mg/kg	125 mL	5% HNO_3 /1% HCL	USP-TXM6A
Cadmium	2 mg/kg			
Arsenic	15 mg/kg			
Mercury	3 mg/kg			



Carbon Black

Carbon Black Reagents for ASTM D1510

Details Matter...

Our sodium thiosulfate solutions are prepared from ACS Grade, micro-crystalline materials. In order to maximize shelf life, our matrix is prepared using double-deionized, ASTM Type I Water.

Our iodine solutions are prepared from ACS Grade potassium iodide and crystalline elemental iodine. To guarantee a clean and stable product, our matrix is prepared using double-deionized, ASTM Type I Water.

All solutions are prepared gravimetrically using high accuracy analytical balances to ensure precise target concentrations. Each batch is thoroughly homogenized using a high speed industrial mixer to ensure reliable results from the first bottle to the last.

We are titrating our samples on our automated titrator. The automated dosing drive uses 10,000 steps over a 20 mL volume, so its dosing increment *can be* as small as 2 µl. For these applications, we are using a minimum dose of 10 µl for the sodium thiosulfate endpoint and 4 µl for the iodine endpoint. These settings achieve the extremely precise measurements for each titration, while also staying within the parameters of the dosing unit.

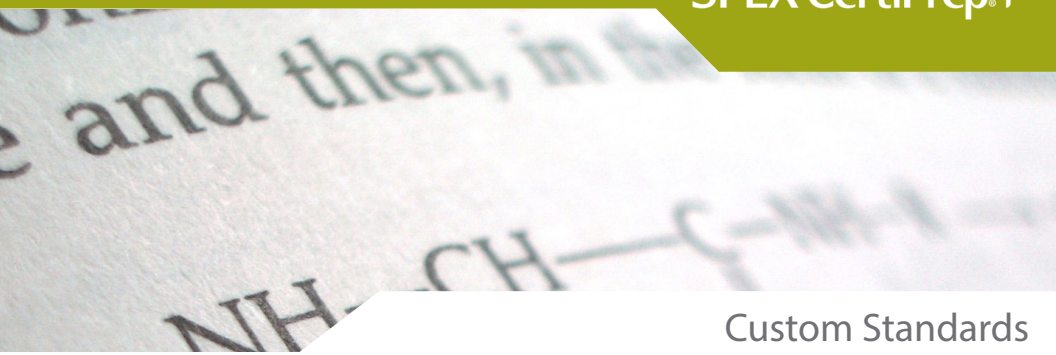
As stated on our Certificate of Analysis, the sodium thiosulfate is run against a 0.1 N potassium dichromate solution. The exact normality of this solution is calculated by comparing it to NIST potassium dichromate. A set of 6 samples are run that must all be within the nominal value of 0.0394 N ± 0.00008 N.

The certified sodium thiosulfate is then used to titrate iodine. A set of 3 samples are run that must all be within the nominal value of 0.0473 N ± 0.00003 N.

Before releasing either of these reagents for packaging, we run QC checks with a previous lot to ensure accuracy over time.

For additional product information, please visit www.spexcertiprep.com/knowledge-base/carbon-black-reagents.

Description	Packaging	Volume	Part #
0.0394 N Sodium Thiosulfate	Cubitainer	1 gallon	182002
0.0473 N Iodine	Amber Glass Bottle	1 gallon	183134



Custom Standards

Inorganic and Organic Custom Standards

Tired of Mixing Your Own Standards? Let SPEX CertiPrep Save You Valuable Time!

SPEX CertiPrep offers Custom Certified Reference Materials (CRMs) because we realize that no two laboratories face exactly the same samples or have precisely the same requirements. With SPEX CertiPrep's custom CRM program, you can create custom standards to meet your specific laboratory needs. Our specialists will be happy to discuss combinations of analytes, concentrations and preferred matrices with you. Our chemists will then design the most compatible, stable mixture using our comprehensive supply of starting materials and certified solutions.

UL and A2LA Stamp of Approval

- Quality system complies with ISO 9001:2008 - registered with UL-DQS
- SPEX CertiPrep is accredited by A2LA to ISO/IEC 17025:2005 and ISO Guide 34:2009

Features of SPEX CertiPrep Custom Standards

- Single and multi-component standards manufactured to meet your exact specifications
- Packaged in a variety of convenient sizes and packaging types
- Concentration, accuracy and stability of components guaranteed
- Private labeling available
- SDS available in multiple languages

Benefits of SPEX CertiPrep Custom Standards

- Customized for your application
- Inorganic customs certified by ICP or ICP-MS
- Organic customs certified by HPLC, LC/MS, GC, or GC/MS
- High quality starting materials, tested for impurities prior to use
- Over 60 years of experience in manufacturing CRMs

SPEX CertiPrep Custom Standards can be used for:

- AA Atomic Absorption
- ICP Inductively Coupled Plasma
- ICP-MS Inductively Coupled Plasma/Mass Spectrometry
- GC Gas Chromatography
- GC/MS Gas Chromatography/Mass Spectrometry
- HPLC High Performance Liquid Chromatography
- LC/MS High Performance Liquid Chromatography/Mass Spectrometry

For additional details, please visit www.spexcertiprep.com/products/custom-standards.

Ordering Information

SPEX CertiPrep offers three easy and convenient ways to place your order:



By Telephone:

Call 1.800.LAB.SPEX or 732.549.7144 and you can speak directly with one of our sales representatives who can take your order by telephone and also answer any questions you may have. Customers within the UK, Ireland and Europe may call SPEX CertiPrep, Ltd at +44 (0) 208 204 6656 to speak with a representative.

By E-mail:

Orders can be e-mailed directly to our sales department at crmsales@spex.com. Customers within the UK, Ireland and Europe may e-mail their orders directly to spexeurope@spex.com.

Online:

Our online order processing center makes purchasing high quality Certified Reference Materials from SPEX CertiPrep only a click away.

As a registered website user, you will now have access to:


View account information


Check recent order history


Access order shipment tracking information


Download SPEXertificates and SDS sheets


One click ordering from product page, site search, or by sort pages

As an online user you will also have the option to be included in our monthly e-mails that contain information on SPEX CertiPrep products and services.

General Conditions:

Payment terms are Net 30 days to rated organizations or by credit card. Orders originating from USA are sent ExWorks Metuchen, New Jersey, and shipped in accordance with IATA or DOT regulations. In order to do so, SPEX CertiPrep must frequently use alternatives to the fastest or most economical modes of shipment. All freight charges are prepaid and added to the invoice unless otherwise specified on your order.

SPEX CertiPrep accepts Visa, MasterCard and American Express for your convenience.

Return and/or Exchange:

Contact the SPEX CertiPrep Sales Department for a Return Authorization Number and instructions before shipping your return. Unauthorized returns will be refused. Transportation is the responsibility of the customer; all materials must be packed, marked, labeled, and shipped in accordance with regulations governing transportation of hazardous materials. Credit for returned merchandise will be issued only if goods are unopened, resalable, and received within 30 days of the original invoice date. Returned items are subject to a 25% restocking charge.

Loyal Customer Programs

Loyal Customer Discount:

SPEX CertiPrep offers a Loyal Customer Discount Program to reward our customers with an automatic discount ranging from 5% to 20% off all of our qualified products. There is no need to apply! If you purchase a minimum of $2,000 in any calendar year and are in good payment standing with us, we will enroll you into the program automatically in the beginning of the next year so you can receive these discounts!

The program starts at a 5% discount and increases by 5% each year you are a member in good standing. As long as you meet the minimum purchase requirement and remain in good payment standing with us, your discount will continue to grow until you have reached the maximum of 20%.

Towards the beginning of each year, all eligible members will receive a confirmation letter. This letter thanks you for your continued business and outlines your discount for that year. It will automatically be updated in our system and your pricing will reflect that discount, so there is no need to remember a code for each order. These automatic discounts are just one of the many ways that we like to show our appreciation for your continued business.

Loyal Customer Rewards:

Another way we show our appreciation for your continued business is through our Loyal Customer Rewards Program, ***SPoints***. In addition to receiving the highest quality Certified Reference Materials, every time you make a purchase with SPEX CertiPrep, you will earn 1 ***SPoint*** (or credit) for every $10 spent. There is no limit on how many ***SPoints*** you can earn and they are good for up to one year after your order has shipped. There is no need to register for this rewards program; if you place a direct order of any qualifying product, you automatically earn ***SPoints*** rewards!

Your total ***SPoints*** earned from each order can be found on the bottom of your packing slip. If you do not know your total available ***SPoints***, you can email us at CRMMarketing@spex.com or call us at 1.800.LAB.SPEX. ***SPoints*** can be redeemed for valuable merchandise such as gift cards, electronics, and even gift certificates towards your next SPEX CertiPrep purchase. You can redeem your ***SPoints*** at any time by emailing us at CRMMarketing@spex.com or calling us at 1.800.LAB.SPEX.

SPoints Rewards

Join SPEX CertiPrep's **SPoints Program** and earn valuable credits every time you order!

REDEEM YOUR **SPOINTS** FOR VALUABLE MERCHANDISE

You are automatically enrolled when you place an order with us!
For every $10 spent, earn one ***SPoint*** • There is **NO LIMIT** on how many ***SPoints*** you can earn

20 *SPoints*

SPEX CertiPrep T-Shirt

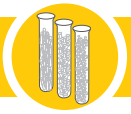
$5 Walmart Gift Card or E-Gift Card

SPEX CertiPrep Water Bottle

$5 Dunkin Donuts or Starbucks Gift Card or E-Gift Card

100 *SPoints*

$20 SPEX CertiPrep Gift Certificate



Test Tube Office Supply Set

$20 Dominos Gift Card or E-Gift Card

Laboratory Beaker Mug

250 *SPoints*

Chemistry Cocktail Bar Set

$50 Visa Gift Card or E-Gift Card

Garmin Vivofit®

$50 Amazon Gift Card or E-Gift Card

500 *SPoints*

$100 Visa Gift Card or E-Gift Card

Kindle E-Reader

$100 Amazon Gift Card or E-Gift Card

Wireless Headset

1000 *SPoints*

BOSE Mini Bluetooth Speaker

$200 Visa Gift Card or E-Gift Card

Amazon Echo

$200 SPEX CertiPrep Gift Certificate

SPoints are not earned on purchases of Fusion Flux, Oil Standards or QC Samples. SPEX CertiPrep has the right to change or withdraw this offer at any time. Prizes are subject to change. SPoints expire after one calendar year. Valid only on direct US orders; excludes export, OEM and distributor/reseller orders.

Units of Measurement

Common Unit Prefixes								
Prefix	kilo	centi	milli	micro	nano	pico	femto	atto
Symbol	k	c	m	µ	n	p	f	a
Factor	10^{3}	10^{-2}	10^{-3}	10^{-6}	10^{-9}	10^{-12}	10^{-15}	10^{-18}
Equivalence	thousand	hundredth	thousandth	millionth	billionth	trillionth	quadrillionth	quintillionth

Weight to Weight Concentrations					
Name	*Symbol*	*Equivalence*			
*Parts per thousand **	ppt*	g/kg	mg/g	µg/mg	ng/µg
Parts per million	ppm	mg/kg	µg/g	ng/mg	pg/µg
Parts per billion	ppb	µg/kg	ng/g	pg/mg	fg/µg
*Parts per trillion ***	ppt**	ng/kg	pg/g	fg/mg	ag/µg

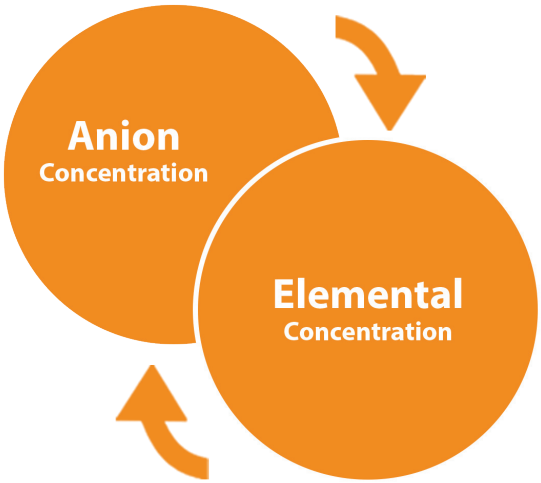
Weight to Volume Concentrations					
Name	*Symbol*	*Equivalence*			
*Parts per thousand **	ppt*	g/L	mg/mL	µg/µL	ng/nL
Parts per million	ppm	mg/L	µg/mL	ng/µL	pg/nL
Parts per billion	ppb	µg/L	ng/mL	pg/µL	fg/nL
*Parts per trillion ***	ppt**	ng/L	pg/mL	fg/µL	ag/nL

Concentration Conversions					
Unit	*Symbol*	*ppt**	*ppm*	*ppb*	*ppt***
*1 part per thousand **	ppt*	-	1×10^{3}	1×10^{6}	1×10^{9}
1 part per million	ppm	1×10^{-3}	-	1×10^{3}	1×10^{6}
1 part per billion	ppb	1×10^{-6}	1×10^{-3}	-	1×10^{3}
*1 part per trillion ***	ppt**	1×10^{-9}	1×10^{-6}	1×10^{-3}	-

Temperature Scale			
Scale	*Symbol*	*Convert To*	*Formula*
Celsius	°C	Fahrenheit	°F = °C x 1.8 + 32
Celsius	°C	Kelvin	°K = °C + 273
Fahrenheit	°F	Celsius	°C = (°F - 32) / 1.8
Fahrenheit	°F	Kelvin	°K = (°F - 32) / 1.8 + 273
Kelvin	°K	Celsius	°C = °K - 273
Kelvin	°K	Fahrenheit	°F = 1.8 (°K - 273) + 32

** ppt = parts per thousand*
*** ppt = parts per trillion*

Helpful Hint: When calculating gravimetric factors for Ion Chromatography standards, remember that:



Anion Concentration		Elemental Concentration
1,000 µg/mL Nitrate	=	226 µg/mL Nitrogen
1,000 µg/mL Nitrite	=	305 µg/mL Nitrogen
1,000 µg/mL Phosphate	=	326 µg/mL Phosphorus
1,000 µg/mL Sulfate	=	334 µg/mL Sulfur
1,000 µg/mL Nitrogen as Nitrate	=	1,000 µg/mL Nitrogen
1,000 µg/mL Nitrogen as Nitrite	=	1,000 µg/mL Nitrogen
1,000 µg/mL Phosphorus as Phosphate	=	1,000 µg/mL Phosphorus
1,000 µg/mL Sulfur as Sulfate	=	1,000 µg/mL Sulfur

From Your Bench to Our Bench

Bench Talk!

Have a question? Ask a Chemist!

Do you have a technical CRM question for our experienced chemists?

We have dedicated technical support to answer your CRM and lab questions.

Email us at AskAChemist@spex.com

禹重科技® UZONGLAB

成分分析仪器 | 表面测试仪器 | 样品前处理仪器

上海市闵行区春申路2525号芭洛商务大楼　　邮编：201104 , China
电话：021-8039 4499　传真：021-5433 0867　邮箱：shanghai@uzong.cn
上海|北京|沈阳|太原|长沙|广州|成都|香港
全国销售和售后服务电话：400-808-4598　　更多信息请访问：www.uzong.cn

了解我们　　微信公众号

US ADDRESS

203 Norcross Avenue • Metuchen, NJ 08840
Tel: 1.800.LAB.SPEX • Fax: 732.603.9647
CRMSales@spex.com • www.spexcertiprep.com

UK ADDRESS

2 Dalston Gardens • Stanmore, Middlesex • HA7 1BQ • UK
Tel: +44 (0) 208 204 6656 • Fax: +44 (0) 208 204 6654
SPEXEurope@spex.com • www.SPEXEurope.com