



Food and Beverage Market Segment Brochure

- ISO Accredited Standards
- CRMs for Inorganic and Organic Testing
- Custom Standards Available



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Spex CertiPrep Certified Reference Materials for Food & Beverage

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Quality and Accreditation

Spex CertiPrep has been serving the scientific community since 1954. We are a leading manufacturer of Certified Reference Materials (CRMs) and calibration standards for analytical spectroscopy and chromatography. We offer a full range of Inorganic and Organic CRMs. We are certified by DQS to ISO 9001:2015 and are proud to be accredited by A2LA to ISO/IEC 17025:2017 and ISO 17034:2016. The scope of our accreditation is the most comprehensive in the industry and encompasses all of our manufactured products.



Premixed Pesticide Multi-Compound Certified Reference Materials

Your Sample Analysis Just Got Faster, Easier and Less Expensive

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 use 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 a leader in GC, GC/MS, HPLC, and LC/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 that 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.

Pesticide Standards Kit

Ideal for a Wide Range of HPLC, GC, GC/MS, LC, LC/MS, and QuEChERS Applications

- Contains 10 multi-compound mixes
- Total of 144 compounds in acetonitrile (see the contents of pesticide mixes 1 through 10 in the following pages)
- 100 µg/mL concentration
- Provided in 1 mL ampules; a pre-labeled storage/transfer vial is included

Description	Part #
Pesticide Kit containing all 10 multi-compound mixes	SPXPR-KIT

Pesticide Standard Mixes

Build Your Pesticide Library with Spex CertiPrep Pesticide Mixes!

- Designed to maximize stability and solubility, while minimizing unwanted interferences
- Shorter calibration times and require fewer injections
- Save money - the mixes are less expensive than buying individual certified reference materials
- All standard components provided at 100 µg/mL concentration, 1 mL volume
- CAS numbers available for all compounds. Visit spexcertiprep.com or contact CRMSales@antylia.com.

Description	Part #
Pesticide Mix 1 containing 16 compounds in acetonitrile Contains: Acetamiprid, Aldicarb, Aldicarb sulfone, Aldicarb sulfoxide, Azoxystrobin, Boscalid, Chlorantraniliprole, Fenoxycarb, Imazalil, Imidacloprid, Iprodione, Piperonyl butoxide, Pirimicarb, Tebufenpyrad, Thiacloprid, Trifloxystrobin	SPXPR-1
Pesticide Mix 2 containing 15 compounds in acetonitrile Contains: Azinphos-methyl, Carbophenothion, Coumaphos, Dicrotophos, Dimethoate, Dyfonate (Fonofos), Ethoprophos (Ethoprop), Hexythiazox, Malathion, Methidathion, Phosalone, Phosmet (Imidan), Quinalphos, Terbufos, Triazophos	SPXPR-2

Pesticide Standard Mixes (cont'd)

Description	Part #
<p>Pesticide Mix 3 containing 15 compounds in acetonitrile</p> <p>Contains: Carbaryl, Dimethomorph, Etofenprox, Etoxazole, Flonicamid, Methamidophos, Monocrotophos, Myclobutanil (Systhane), Phenthoate, Phorate, Pirimiphos-methyl, Profenofos, Propargite (Omite), Spirodiclofen, Thiamethoxam</p>	SPXPR-3
<p>Pesticide Mix 4 containing 15 compounds in acetonitrile</p> <p>Contains: Acephate, Chlorothalonil, Chlorpyrifos, Diazinon, Dichlorvos, Disulfoton, Edifenphos, EPN, Ethion, Ethyl parathion, Fenitrothion, Fenthion, Fipronil, Fludioxonil, Methyl parathion</p>	SPXPR-4
<p>Pesticide Mix 5 containing 14 compounds in acetonitrile</p> <p>Contains: Baygon (Propoxur), Clofentezine, Diuron, Isoproturon, Linuron, Metalaxyl, Methomyl, Oxamyl, Oxydemeton-methyl, Paclobutrazol, Pencycuron, Prochloraz, Pymetrozine, Pyraclostrobin</p>	SPXPR-5
<p>Pesticide Mix 6 containing 15 compounds in acetonitrile</p> <p>Contains: Alachlor, Bentazon, Captan, Chlorpropham, Epoxiconazole, Fenoprop (2, 4, 5-TP), Fenpropathrin (mix of isomers), Fenvalerate (Sanmarton), tau-Fluvalinate, Kresoxim-methyl, Metolachlor, Pendimethalin (Prowl), Pyridaben, Quinoxyfen, Quintozene (pentachloronitrobenzene)</p>	SPXPR-6
<p>Pesticide Mix 7 containing 8 compounds in acetonitrile</p> <p>Contains: Bifenthrin, Cyfluthrin (Baythroid), Cypermethrin, Permethrin (mix of isomers), Prallethrin (mix of isomers), Pyrethrins (mix of isomers), Resmethrin (mix of isomers), Tetramethrin</p>	SPXPR-7
<p>Pesticide Mix 8 containing 15 compounds in acetonitrile</p> <p>Contains: Abamectin (mix of isomers), Bifenazate, Bromacil, Fenobucarb (BPMC), Fenpyroximate, Hexaconazole, Isoprocarb (MIPC), Methiocarb, Propazine, Propiconazole (Tilt), Spinetoram (J), Spinosad (as Spinosyn A), Spiromesifen, Spirotetramat, Tebuconazole (Folicur)</p>	SPXPR-8
<p>Pesticide Mix 9 containing 16 compounds in acetonitrile:acetone (9:1)</p> <p>Contains: Acequinocyl, Atrazine, Atrazine-desethyl, Carbofuran, Cyanazine (Bladex), 2,4-DB, Fenamiphos-sulfone, Fenamiphossulfoxide, Fenhexamid, Fenoxaprop, Fluometuron, 3-Hydroxycarbofuran, Molinate, Simazine, Thiophanate-methyl, Trichlorfon (Dylox)</p>	SPXPR-9

Pesticide Standard Mixes (cont'd)

Description	Part #
<p>Pesticide Mix 10 containing 15 compounds in acetonitrile</p> <p>Contains: Aldrin, Chlordecone, o-p'-DDD, o-p'-DDE, o-p'-DDT, p-p'-DDD, p-p'-DDE, p-p'-DDT, Dieldrin, Endrin, Endrin aldehyde, Endrin ketone, Isodrin, Metribuzin, Mirex</p>	SPXPR-10

Analytical Standards for Pesticide Analysis

There are hundreds of commercial pesticides in use in the world today. From algacides 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.

Description	Part #
<p>ReadyPrep 91-SOW Matrix Spike in Methanol, 1 mL</p> <p>Contains: Aldrin (500 µg/mL), gamma-BHC (500 µg/mL), p,p'-DDT (1,000 µg/mL), Dieldrin (1,000 µg/mL), Endrin (1,000 µg/mL), Heptachlor (500 µg/mL)</p>	CLPP-MS91H
<p>3/90 SOW Surrogate Spike in Acetone, 1 mL</p> <p>Contains: 200 µg/mL each of Decachlorobiphenyl, 2,4,5,6-Tetrachlor-m-xylene</p>	CLPP-S90
<p>Organochlorine Pesticide Mix in Benzene, 1 mL</p> <p>Contains: 2,000 µg/mL each of Aldrin, alpha-BHC, beta-BHC, delta-BHC, gamma-BHC, p,p'-DDD, p,p'-DDE, and p,p'-DDT, Dieldrin, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin aldehyde, Endrin ketone, Heptachlor, Heptachlor epoxide (isomer B), Methoxychlor</p>	625-PH

Essential Minerals and Nutrients

Plant nutritional requirements are important to consider in light of the understanding that human beings derive many of their own nutritional requirements from the plants that are consumed to fuel our own metabolism. The elements of the periodic table, especially the essential nutrients, play a key role in metabolism in many organisms, especially ones involved in providing human nutrition. That reason is why many world regulatory organizations require testing and monitoring of elemental levels in food for human consumption. Organizations such as the FDA, provide labeling requirements that reflect the levels of critical elements (and other components) in food. Spex CertiPrep is a proud partner with many agencies and laboratories around the world to provide standards of elemental nutrients for the betterment of global food safety testing.

Element	Concentration	Volume	Matrix	Part #
Calcium	1,000 µg/mL	30 mL	2% HNO ₃	PLCA2-2M
Calcium	1,000 µg/mL	125 mL	2% HNO ₃	PLCA2-2Y
Calcium	1,000 µg/mL	250 mL	2% HNO ₃	PLCA2-2T
Calcium	1,000 µg/mL	500 mL	2% HNO ₃	PLCA2-2X
Chromium	1,000 µg/mL	30 mL	2% HNO ₃	PLCR2-2M
Chromium	1,000 µg/mL	125 mL	2% HNO ₃	PLCR2-2Y
Chromium	1,000 µg/mL	250 mL	2% HNO ₃	PLCR2-2T
Chromium	1,000 µg/mL	500 mL	2% HNO ₃	PLCR2-2X
Copper	1,000 µg/mL	30 mL	2% HNO ₃	PLCU2-2M
Copper	1,000 µg/mL	125 mL	2% HNO ₃	PLCU2-2Y
Copper	1,000 µg/mL	250 mL	2% HNO ₃	PLCU2-2T
Copper	1,000 µg/mL	500 mL	2% HNO ₃	PLCU2-2X
Iron	1,000 µg/mL	30 mL	2% HNO ₃	PLFE2-2M
Iron	1,000 µg/mL	125 mL	2% HNO ₃	PLFE2-2Y
Iron	1,000 µg/mL	250 mL	2% HNO ₃	PLFE2-2T

Essential Minerals and Nutrients (cont'd)

Element	Concentration	Volume	Matrix	Part #
Iron	1,000 µg/mL	500 mL	2% HNO ₃	PLFE2-2X
Magnesium	1,000 µg/mL	30 mL	2% HNO ₃	PLMG2-2M
Magnesium	1,000 µg/mL	125 mL	2% HNO ₃	PLMG2-2Y
Magnesium	1,000 µg/mL	250 mL	2% HNO ₃	PLMG2-2T
Magnesium	1,000 µg/mL	500 mL	2% HNO ₃	PLMG2-2X
Manganese	1,000 µg/mL	30 mL	2% HNO ₃	PLMN2-2M
Manganese	1,000 µg/mL	125 mL	2% HNO ₃	PLMN2-2Y
Manganese	1,000 µg/mL	250 mL	2% HNO ₃	PLMN2-2T
Manganese	1,000 µg/mL	500 mL	2% HNO ₃	PLMN2-2X
Molybdenum	1,000 µg/mL	30 mL	H ₂ O	PLMO9-2M
Molybdenum	1,000 µg/mL	125 mL	H ₂ O	PLMO9-2Y
Molybdenum	1,000 µg/mL	250 mL	H ₂ O	PLMO9-2T
Molybdenum	1,000 µg/mL	500 mL	H ₂ O	PLMO9-2X
Phosphorus	1,000 µg/mL	30 mL	H ₂ O	PLP9-2M
Phosphorus	1,000 µg/mL	125 mL	H ₂ O	PLP9-2Y
Phosphorus	1,000 µg/mL	250 mL	H ₂ O	PLP9-2T
Phosphorus	1,000 µg/mL	500 mL	H ₂ O	PLP9-2X
Potassium	1,000 µg/mL	30 mL	2% HNO ₃	PLK2-2M
Potassium	1,000 µg/mL	125 mL	2% HNO ₃	PLK2-2Y
Potassium	1,000 µg/mL	250 mL	2% HNO ₃	PLK2-2T
Potassium	1,000 µg/mL	500 mL	2% HNO ₃	PLK2-2X
Selenium	1,000 µg/mL	30 mL	2% HNO ₃	PLSE2-2M
Selenium	1,000 µg/mL	125 mL	2% HNO ₃	PLSE2-2Y
Selenium	1,000 µg/mL	250 mL	2% HNO ₃	PLSE2-2T
Selenium	1,000 µg/mL	500 mL	2% HNO ₃	PLSE2-2X

Essential Minerals and Nutrients (cont'd)

Element	Concentration	Volume	Matrix	Part #
Sodium	1,000 µg/mL	30 mL	2% HNO ₃	PLNA2-2M
Sodium	1,000 µg/mL	125 mL	2% HNO ₃	PLNA2-2Y
Sodium	1,000 µg/mL	250 mL	2% HNO ₃	PLNA2-2T
Sodium	1,000 µg/mL	500 mL	2% HNO ₃	PLNA2-2X
Zinc	1,000 µg/mL	30 mL	2% HNO ₃	PLZN2-2M
Zinc	1,000 µg/mL	125 mL	2% HNO ₃	PLZN2-2Y
Zinc	1,000 µg/mL	250 mL	2% HNO ₃	PLZN2-2T
Zinc	1,000 µg/mL	500 mL	2% HNO ₃	PLZN2-2X

Heavy Metals

On a daily basis, the average person around the world is subjected to doses of heavy metals from a variety of sources. One of the most insidious sources of routes of exposure is through the food supply. The World Health Organization contends that food may be the source of the largest contribution to the intake of heavy metals (especially lead). Many foods may naturally contain heavy metal compounds, from either natural biochemical processes or from bio accumulation from the environment. Other foods and beverages become contaminated by natural, agricultural or industrial sources of heavy metals. Finally, there are food and beverage products which are intentionally adulterated or counterfeited with materials containing heavy metals.

Element	Concentration	Volume	Matrix	Part #
Arsenic	1,000 µg/mL	30 mL	2% HNO ₃	CLAS2-2M
Arsenic	1,000 µg/mL	125 mL	2% HNO ₃	CLAS2-2Y
Cadmium	1,000 µg/mL	30 mL	2% HNO ₃	CLCD2-2M
Cadmium	1,000 µg/mL	125 mL	2% HNO ₃	CLCD2-2Y

Heavy Metals (cont'd)

Element	Concentration	Volume	Matrix	Part #
Chromium	1,000 µg/mL	30 mL	2% HNO ₃	CLCR2-2M
Chromium	1,000 µg/mL	125 mL	2% HNO ₃	CLCR2-2Y
Mercury	1,000 µg/mL	30 mL	10% HNO ₃	CLHG4-2M
Mercury	1,000 µg/mL	125 mL	10% HNO ₃	CLHG4-2Y
Lead	1,000 µg/mL	30 mL	2% HNO ₃	CLPB2-2M
Lead	1,000 µg/mL	125 mL	2% HNO ₃	CLPB2-2Y

Heavy Metals and Minerals Testing Kits

Spex CertiPrep Heavy Metals and Minerals Testing Kits are designed for routinely analyzed heavy metals and minerals. All kits come with six, 30 mL standards that include a nitric acid blank for easy dilution. Conveniently packaged in a sturdy, heavy-duty carton, these kits are perfect to store on a lab bench or in a cabinet. The 30 mL standards ship non-hazardous, saving money on shipping costs. The smaller volume also allows for less hazardous waste should the standard expire before its contents are used.

Description	Part #
Heavy Metals Testing Kit Contains: 30 mL each of Mercury, Cadmium, Chromium, Arsenic, and Lead at 1,000 µg/mL concentration along with a Nitric Acid Blank	SPXHM-KIT
Minerals Testing Kit Contains: 30 mL each of Calcium, Magnesium, Iron, Potassium, and Sodium at 1,000 µg/mL concentration along with a Nitric Acid Blank	SPXMT-KIT

European Pesticide Mix

Addressing European Commission's Regulation 2017/170

Spex CertiPrep has developed a pesticide mix to address the European Commission's Regulation 2017/170. The Commission is amending Annexes II, III and V to Regulation (EC) No 396/2005 of the European Parliament and of the Council as it applies to maximum residue levels for bifenthrin, carbetamide, cinidon-ethyl, fenpropimorph, and triflusaluron in or on certain products.

Description	Part #
European Pesticide Mix Contains: 1 mL each of Bifenthrin, Carbetamide, Cinidon-ethyl, Fenpropimorph, and Triflusaluron-methyl at 100 µg/mL concentration in Acetonitrile	EU-2017-170

Analytical Standards for Wine

From Pesticide Residue Analysis to Wine Taint Detection!

Wine is a complex combination of water, alcohol and other substances such as organic acids, phenols, sugars, carbon dioxide, and sulfur dioxide. The chemical interactions of these compounds, combined with the aging process, determine the quality of the color, taste and aroma of the wine. However, during this process the chemical interactions can also play key roles in spoiling the wine. For instance, cork taint transpires when naturally occurring airborne fungi react with chlorophenol compounds to form 2,4,6-Trichloroanisole (TCA) in the wine. When this reaction occurs, the wine's aroma is reduced significantly, replaced by an undesirable smell and taste. The wine industry has identified and measured several compounds that can cause this spoilage. For this industry, Spex CertiPrep offers Certified Reference Materials (CRMs) for wine that are designed for GC, GC/MS, HPLC, and LC/MS analysis. These standards are manufactured from the highest purity starting materials and the highest grade of solvents available to guarantee superior standards. Every standard is supplied with a comprehensive Certificate of Analysis.

Description	Concentration	Matrix	Part #
Acetic acid	1,000 µg/mL	Methanol P&T	S-133
2,3-Butanedione	1,000 µg/mL	Methanol P&T	S-609
2-Chlorophenol-3,4,5,6-d ₄	1,000 µg/mL	Methanol P&T	S-905
Dextrose anhydrous	1,000 µg/mL	Methanol P&T	S-5005
Ethanol	1,000 µg/mL	Methanol P&T	S-1885
Ethanol	2,000 µg/mL	H ₂ O	S-1885-W2K
4-Ethyl-2-methoxyphenol	1,000 µg/mL	Methanol P&T	S-4183
2-Ethylphenol	1,000 µg/mL	Methanol P&T	S-1983
4-Ethylphenol	1,000 µg/mL	Methanol P&T	S-1985
2-Fluorophenol	1,000 µg/mL	Methanol	S-2050
Malic acid	1,000 µg/mL	Methanol P&T	S-4168
2,3,4,5,6-Pentachloroanisole	1,000 µg/mL	Methanol	S-2930

Analytical Standards for Wine (cont'd)

Description	Concentration	Matrix	Part #
Pentachloroanisole	1,000 µg/mL	Methanol	S-2950
Phenol-d ₆	1,000 µg/mL	Methanol P&T	S-3035
2,3,4,6-Tetrachlorophenol	1,000 µg/mL	Methanol	S-3405B
2,4,6-Tribromoanisole	1,000 µg/mL	Methanol	S-4309
2,4,6-Tribromophenol	1,000 µg/mL	Methanol P&T	S-3555
2,4,6-Tribromophenol-d ₅	1,000 µg/mL	Methanol P&T	S-4335
2,4,6-Tribromophenol-d ₅	100 µg/mL	Methanol	S-4335-100
2,4,6-Trichloroanisole	1,000 µg/mL	Methanol	S-3586
2,4,6-Trichloroanisole-d ₅	20 ng/mL	Methanol P&T	S-4336-20
2,4,6-Trichloroanisole-d ₅	46 µg/L	Ethanol	S-4336-46
2,4,6-Trichloroanisole-d ₅	100 µg/mL	Methanol P&T	S-4336-100
2,4,6-Trichlorophenol	1,000 µg/mL	Methanol P&T	S-3645

Analytical Standard Mixes for Wine

- Multi-component reference standard mixes
- 1 mL volume standards

Description	Part #
Wine Mix 1 in Methanol Contains: 100 µg/mL each of Pentachloroanisole-d ₃ , 2,4,6-Tribromoanisole-d ₅ and 2,4,6-Trichloroanisole-d ₅	WINE-1
Wine Mix 2 in Methanol-P&T Contains: 100 µg/mL each of 2,3,4,5,6-Pentachloroanisole, 2,3,4,6-Tetrachloroanisole and 2,4,6-Trichloroanisole	WINE-2
Wine Mix 3 in Methanol-P&T Contains: 10,000 µg/mL each of Carbon disulfide, Ethyl sulfide, Ethanethiol, Ethyl disulfide, Ethyl methyl sulfide, 2-Ethylthiopene, Methanethiol, Methyl disulfide, Methyl sulfide, 2-Methyl-2-propanethiol, 2-Methylthiophene, 1-Pentanethiol, 2-Propanethiol, and Thiophene	WINE-3

Speciation Standards

Analytical Standards for Single Speciation Analysis

Speciation analysis has become common in many testing fields, including in 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. Our speciation standards are certified to the strictest ISO 17034 guidelines, and tested on our LC-ICP-MS.

Description	Volume	Matrix	Part #
Assurance Grade Arsenic (+3) Speciation Standard	125 mL	2% HCl	SPEC-AS3
Assurance Grade Arsenic (+3) Speciation Standard	30 mL	2% HCl	SPEC-AS3M
Assurance Grade Arsenic (+5) Speciation Standard	125 mL	H ₂ O	SPEC-AS5
Assurance Grade Arsenic (+5) Speciation Standard	30 mL	H ₂ O	SPEC-AS5M
Assurance Grade Chromium (+3) Speciation Standard	125 mL	2% HNO ₃	SPEC-CR3
Assurance Grade Chromium (+3) Speciation Standard	30 mL	2% HNO ₃	SPEC-CR3M
Assurance Grade Chromium (+6) Speciation Standard	125 mL	H ₂ O	SPEC-CR6
Assurance Grade Chromium (+6) Speciation Standard	30 mL	H ₂ O	SPEC-CR6M
Assurance Grade Selenium (+4) Speciation Standard	125 mL	2% HNO ₃	SPEC-SE4
Assurance Grade Selenium (+4) Speciation Standard	30 mL	2% HNO ₃	SPEC-SE4M
Assurance Grade Selenium (+6) Speciation Standard	125 mL	H ₂ O	SPEC-SE6
Assurance Grade Selenium (+6) Speciation Standard	30 mL	H ₂ O	SPEC-SE6M

30 mL Single-Element Standards

From Aluminum to Zirconium, We've Got You Covered

Spex CertiPrep has made a selection of our ICP-MS and ICP single-element standards available in a 30 mL volume. This product delivers the same great quality you have come to expect, but in a smaller volume — reducing waste and mitigating worries about expiration dates.

As with all of our ICP-MS and ICP standards, the 30 mL standards include a comprehensive Certificate of Analysis. Each certificate is compliant with ISO 9001:2015, ISO/IEC 17025:2017 and ISO 17034:2016 guides and standards. The NIST traceable certified value of the main analyte is clearly stated, along with actual measured values, down to parts per trillion (ppt), of up to 68 trace impurities.

In order to ensure the best quality product possible, Spex CertiPrep standards are made with the finest, purest materials available. Our ICP-MS single-element standards are made using ultra high purity acids, 99.9999+% pure starting materials and ASTM Type I water.

You Can Decrease Your Waste and Save Your Space!

- No excess to toss
- Volume accommodates infrequent analysis
- Approximately ½ the price of larger volume standards
- Efficient new instruments require less solutions
- No hazardous shipping or disposal fees within the US
- Hazardous goods in excepted quantities for most countries outside the US
- Ease of shipping

ICP-MS Standards

- Single-component reference standards
- 30 mL volume standards

Element	Concentration	Matrix	Part #
Aluminum	1,000 µg/mL	2% HNO ₃	CLAL2-2M
Antimony	1,000 µg/mL	H ₂ O/0.6% Tartaric Acid/tr. HNO ₃	CLSB7-2M
Arsenic	1,000 µg/mL	2% HNO ₃	CLAS2-2M
Barium	1,000 µg/mL	2% HNO ₃	CLBA2-2M
Bismuth	10 µg/mL	2% HNO ₃	CLBI2-1AM
Beryllium	1,000 µg/mL	2% HNO ₃	CLBE2-2M
Cadmium	1,000 µg/mL	2% HNO ₃	CLCD2-2M
Calcium	1,000 µg/mL	2% HNO ₃	CLCA2-2M
Chromium	1,000 µg/mL	2% HNO ₃	CLCR2-2M
Cobalt	1,000 µg/mL	2% HNO ₃	CLCO2-2M
Copper	1,000 µg/mL	2% HNO ₃	CLCU2-2M
Germanium	10 µg/mL	H ₂ O/tr. F ⁻	CLGE9-1AM
Gold	100 µg/mL	2% HCl	CLAU1-1M
Indium	10 µg/mL	2% HNO ₃	CLIN2-1AM
Iron	1,000 µg/mL	2% HNO ₃	CLFE2-2M
Lead	1,000 µg/mL	2% HNO ₃	CLPB2-2M
Magnesium	1,000 µg/mL	2% HNO ₃	CLMG2-2M
Manganese	1,000 µg/mL	2% HNO ₃	CLMN2-2M
Mercury	10 µg/mL	5% HNO ₃	CLHG2-1AM
Mercury	1,000 µg/mL	10% HNO ₃	CLHG4-2M
Molybdenum	1,000 µg/mL	H ₂ O	CLMO9-2M
Nickel	1,000 µg/mL	2% HNO ₃	CLNI2-2M

ICP-MS Standards (cont'd)

Element	Concentration	Matrix	Part #
Potassium	1,000 µg/mL	2% HNO ₃	CLK2-2M
Rhodium	10 µg/mL	2% HCl	CLRH1-1AM
Scandium	10 µg/mL	2% HNO ₃	CLSC2-1AM
Selenium	1,000 µg/mL	2% HNO ₃	CLSE2-2M
Silver	1,000 µg/mL	2% HNO ₃	CLAG2-2M
Sodium	1,000 µg/mL	2% HNO ₃	CLNA2-2M
Terbium	10 µg/mL	2% HNO ₃	CLTB2-1AM
Thallium	1,000 µg/mL	2% HNO ₃	CLTL2-2M
Thorium	1,000 µg/mL	2% HNO ₃	CLTH2-2M
Tin	1,000 µg/mL	1% HNO ₃ / 1% HF	CLSN2-2M
Titanium	1,000 µg/mL	H ₂ O/0.24% F ⁻	CLTI9-2M
Uranium	1,000 µg/mL	2% HNO ₃	CLU2-2M
Vanadium	1,000 µg/mL	2% HNO ₃	CLV2-2M
Yttrium	10 µg/mL	2% HNO ₃	CLY2-1AM
Zinc	1,000 µg/mL	2% HNO ₃	CLZN2-2M

ICP Standards

- Single-component reference standards
- 30 mL volume standards

Element	Concentration	Matrix	Part #
Aluminum	1,000 µg/mL	2% HNO ₃	PLAL2-2M
Antimony	1,000 µg/mL	H ₂ O/0.6% Tartaric Acid/tr. HNO ₃	PLSB7-2M
Arsenic	1,000 µg/mL	2% HNO ₃	PLAS2-2M

ICP Standards (cont'd)

Element	Concentration	Matrix	Part #
Barium	1,000 µg/mL	2% HNO ₃	PLBA2-2M
Beryllium	1,000 µg/mL	2% HNO ₃	PLBE2-2M
Bismuth	1,000 µg/mL	2% HNO ₃	PLBI4-2M
Boron	1,000 µg/mL	H ₂ O	PLB9-2M
Cadmium	1,000 µg/mL	2% HNO ₃	PLCD2-2M
Calcium	1,000 µg/mL	2% HNO ₃	PLCA2-2M
Carbon	1,000 µg/mL	H ₂ O	PLC9-2M
Cerium	1,000 µg/mL	2% HNO ₃	PLCE2-2M
Cesium	1,000 µg/mL	2% HNO ₃	PLCS2-2M
Chromium	1,000 µg/mL	2% HNO ₃	PLCR2-2M
Cobalt	1,000 µg/mL	2% HNO ₃	PLCO2-2M
Copper	1,000 µg/mL	2% HNO ₃	PLCU2-2M
Dysprosium	1,000 µg/mL	2% HNO ₃	PLDY2-2M
Erbium	1,000 µg/mL	2% HNO ₃	PLER2-2M
Europium	1,000 µg/mL	2% HNO ₃	PLEU2-2M
Gadolinium	1,000 µg/mL	2% HNO ₃	PLGD2-2M
Gallium	1,000 µg/mL	2% HNO ₃	PLGA2-2M
Germanium	1,000 µg/mL	H ₂ O/0.16% F ⁻	PLGE9-2M
Gold	1,000 µg/mL	10% HCl	PLAU3-2M
Hafnium	1,000 µg/mL	2% HCl	PLHF1-2M
Holmium	1,000 µg/mL	2% HNO ₃	PLHO2-2M
Indium	1,000 µg/mL	2% HNO ₃	PLIN2-2M
Iridium	1,000 µg/mL	10% HCl	PLIR3-2M
Iron	1,000 µg/mL	2% HNO ₃	PLFE2-2M
Lanthanum	1,000 µg/mL	2% HNO ₃	PLLA2-2M

ICP Standards (cont'd)

Element	Concentration	Matrix	Part #
Lead	1,000 µg/mL	2% HNO ₃	PLPB2-2M
Lithium	1,000 µg/mL	2% HNO ₃	PLLI2-2M
Lutetium	1,000 µg/mL	2% HNO ₃	PLLU2-2M
Magnesium	1,000 µg/mL	2% HNO ₃	PLMG2-2M
Manganese	1,000 µg/mL	2% HNO ₃	PLMN2-2M
Mercury	1,000 µg/mL	10% HNO ₃	PLHG4-2M
Molybdenum	1,000 µg/mL	H ₂ O	PLMO9-2M
Neodymium	1,000 µg/mL	2% HNO ₃	PLND2-2M
Nickel	1,000 µg/mL	2% HNO ₃	PLNI2-2M
Niobium	1,000 µg/mL	H ₂ O/0.4% HF	PLNB9-2M
Palladium	1,000 µg/mL	10% HCl	PLPD3-2M
Phosphorus	1,000 µg/mL	H ₂ O	PLP9-2M
Platinum	1,000 µg/mL	10% HCl	PLPT3-2M
Potassium	1,000 µg/mL	2% HNO ₃	PLK2-2M
Praseodymium	1,000 µg/mL	2% HNO ₃	PLPR2-2M
Rhenium	1,000 µg/mL	H ₂ O	PLRE9-2M
Rhodium	1,000 µg/mL	10% HCl	PLRH3-2M
Rubidium	1,000 µg/mL	2% HCl	PLRB2-2M
Ruthenium	1,000 µg/mL	10% HCl	PLRU3-2M
Samarium	1,000 µg/mL	2% HNO ₃	PLSM2-2M
Scandium	1,000 µg/mL	2% HNO ₃	PLSC2-2M
Selenium	1,000 µg/mL	2% HNO ₃	PLSE2-2M
Silicon	1,000 µg/mL	H ₂ O/0.4% F ⁻	PLSI9-2M
Silver	1,000 µg/mL	2% HNO ₃	PLAG2-2M
Sodium	1,000 µg/mL	2% HNO ₃	PLNA2-2M

ICP Standards (cont'd)

Element	Concentration	Matrix	Part #
Strontium	1,000 µg/mL	2% HNO ₃	PLSR2-2M
Sulfur	1,000 µg/mL	H ₂ O	PLS9-2M
Tantalum	1,000 µg/mL	H ₂ O/0.8% HF	PLTA9-2M
Tellurium	1,000 µg/mL	10% HNO ₃	PLTE4-2M
Terbium	1,000 µg/mL	2% HNO ₃	PLTB2-2M
Thallium	1,000 µg/mL	2% HNO ₃	PLTL2-2M
Thorium	1,000 µg/mL	2% HNO ₃	PLTH2-2M
Thulium	1,000 µg/mL	2% HNO ₃	PLTM2-2M
Tin	1,000 µg/mL	20% HCl	PLSN5-2M
Titanium	1,000 µg/mL	H ₂ O/0.24% F ⁻	PLTI9-2M
Tungsten	1,000 µg/mL	H ₂ O	PLW9-2M
Uranium	1,000 µg/mL	2% HNO ₃	PLU2-2M
Vanadium	1,000 µg/mL	2% HNO ₃	PLV2-2M
Ytterbium	1,000 µg/mL	2% HNO ₃	PLYB2-2M
Yttrium	1,000 µg/mL	2% HNO ₃	PLY2-2M
Zinc	1,000 µg/mL	2% HNO ₃	PLZN2-2M
Zirconium	1,000 µg/mL	2% HNO ₃	PLZR2-2M

Accreditations

Our Three Levels of Quality Enable You to *Calibrate With Confidence*®

To ensure the validity of results from today's high performance instrumentation, Spex CertiPrep has developed an extensive line of the highest quality certified reference materials. How can we prove it?

The International Organization for Standardization (ISO) has established a set of guidelines designed to define common business practices, increase responsibility, and ensure clarity and full disclosure in the industry. As depicted below, there are three ISO quality management systems that are most relevant for reference material manufacturers - ISO 9001, ISO/IEC 17025 and ISO 17034. Each ISO standard has its own set of internationally recognized criteria against which companies are formally measured. Each level is more difficult to achieve and fewer companies are able to meet the required criteria. Spex CertiPrep is proud to have all three. By taking the extra step of choosing to demonstrate our competence and comply with these standards, we are continuously proving that our tests and calibration results are technically competent and our products truly are of the highest quality.

Spex CertiPrep Accreditations

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Level 2: ISO/IEC 17025:2017 - Testing and/or Calibration Labs

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Level 3: ISO 17034:2016 - Reference Material Producers

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About Each Standard and What it Means to You:

ISO 9001:2015

Customer Satisfaction

- Open to all types of organizations
- Written procedures
- Documented complaints

ISO/IEC 17025:2017

Technically Sound Products

- Specifically for organizations carrying out testing and/or calibration
- Competent at quality and related tests
- Consistent manufacturing

ISO 17034:2016

Traceable & Accurate Reference Materials

- Specifically for reference material producers
- Validate methods to prove accuracy
- Report uncertainty and sources of error

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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.

When you place your order, your custom mix will be assigned a part number specific for your company and stored in our system for future reference, making reordering fast and accurate!

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- 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-MS or ICP
- Organic customs certified by HPLC, LC/MS, GC, or GC/MS
- High quality starting materials, tested for impurities prior to use
- Experience in manufacturing CRMs since 1954

DQS and A2LA Stamp of Approval

- Quality system complies with ISO 9001:2015 - certified by DQS
- Spex CertiPrep is accredited by A2LA to ISO/IEC 17025:2017 and ISO 17034:2016

Spex CertiPrep Custom Standards Can Be Used For:

- AA Atomic Absorption
- IC Ion Chromatography
- 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
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By E-mail:

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Our online order processing center makes purchasing high quality Certified Reference Materials from Spex CertiPrep only a click away at spex.com.

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- View account information
- Check recent order history
- Access order shipment tracking information
- Download SPEXcertificates and SDS sheets
- One-click ordering from product page, site search or by sort pages

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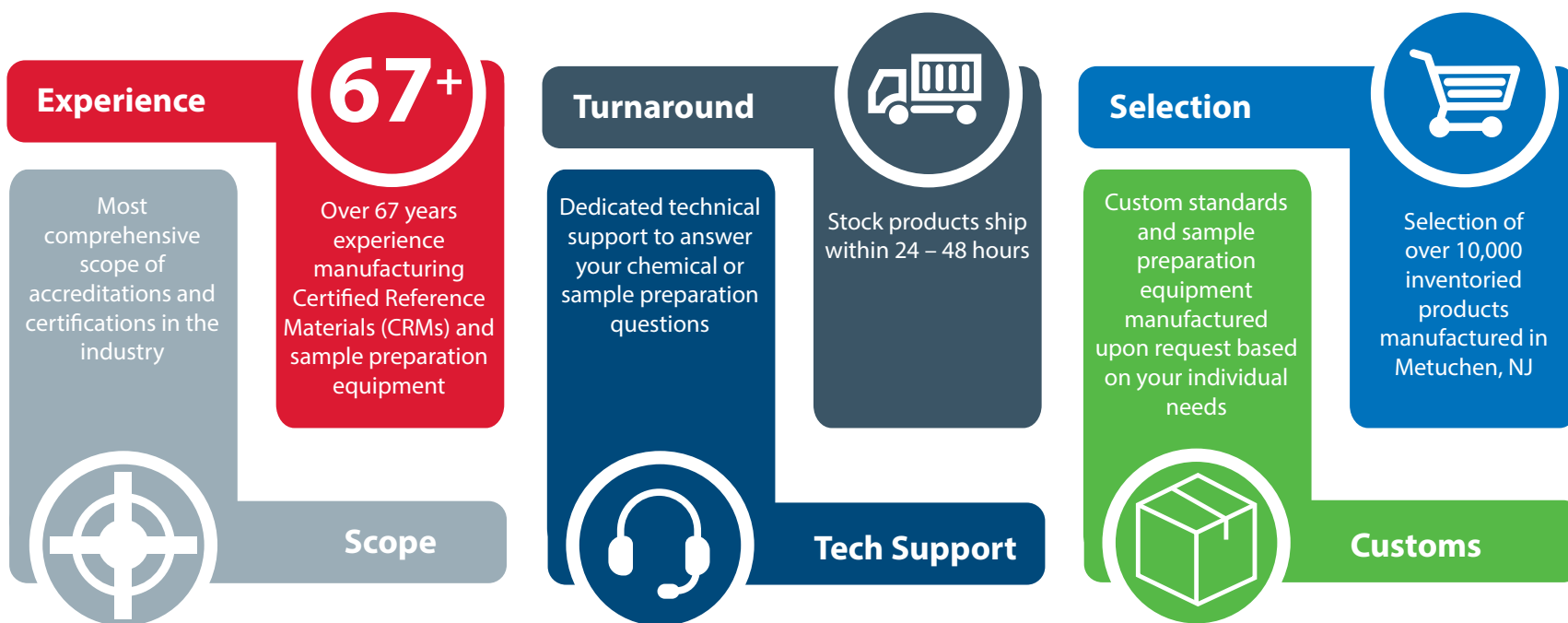
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