

What if you could raise the bar?

Let's create value from every drop of oil. **Together.**

Analytical Solutions for Petrochemical & Petroleum Products



Supelco[®]

Analytical Products

Sigma-Aldrich[®]

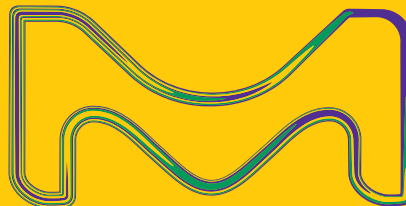
Lab & Production Materials

Millipore[®]

Preparation, Separation,
Filtration & Monitoring Products

Milli-Q[®]

Lab Water Solutions



MilliporeSigma has brought together the world's leading Life Science brands, so whatever your life science problem, you can benefit from our expert products and services.

Supelco®

Analytical Products

The Supelco® portfolio of analytical solutions of MilliporeSigma is developed by analytical chemists for analytical chemists to ensure your results are accurate, precise and reproducible. Every product is meticulously quality-controlled to maintain the integrity of your testing protocols and, with our dedicated scientists, the expertise you need is always on hand.

Sigma-Aldrich®

Lab & Production Materials

The Sigma-Aldrich® portfolio of MilliporeSigma offers a strong and ever-expanding offering of lab and production materials. Through our technical support and scientific partnerships, we help connect our customers with a whole world of progress.

Millipore®

Preparation, Separation,
Filtration & Monitoring Products

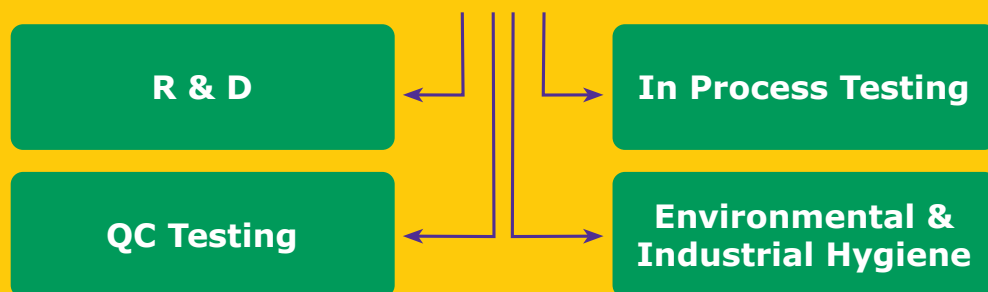
The Millipore® portfolio of MilliporeSigma offers an ecosystem of industry-leading products and services, spanning preparation, separation, filtration and monitoring – all of which are deeply rooted in quality, reliability and timetested processes. Our proven products, regulatory and application expertise are a strong foundation you can rely on to consistently perform at the highest level.

Milli-Q®

Lab Water Solutions

The Milli-Q® portfolio of lab water solutions from MilliporeSigma takes care of all your water quality and purity needs. Our solutions are backed by consistent quality and full compliance, and work seamlessly together to let you focus on your vital work.

ANALYTICAL TESTING



Analytical Testing

How can we help you?

This brochure provides a summary of proven and reliable tools and consumables for the analytical lab supporting your petrochemical process.

Our solutions and tools for petrochemical analysis include sample preparation devices, moisture determination, special and dedicated gas chromatography (GC) columns, analytical standards & certified reference material (CRMs) as well as classical and high purity solvents and reagents to enable accurate and reliable analysis of your samples.

Accurate.
Precise.
Consistent.



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For a change, let's talk water:

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- Water as the Sample Matrix (e.g. process & effluent water) 11,15
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Sample Preparation

Solid Phase Extraction (SPE)

Solid Phase Extraction (SPE) is one of the most common sample preparation methods in today's labs to cleanup or concentrate samples. We carry a full portfolio of phases and configurations.

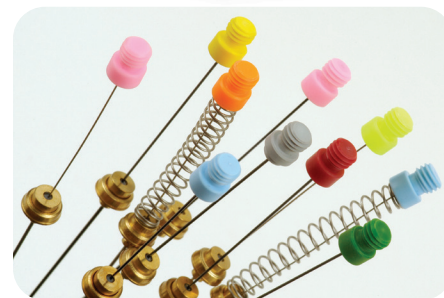
SigmaAldrich.com/SPE



Solid Phase Microextraction (SPME)

Solid Phase Microextraction (SPME) is an innovative, solvent-free, one step sample preparation technology that is fast, economic, versatile and can be easily automated. The coated fiber extracts analytes of interest that are then desorbed directly into the GC. SPME is suitable for analysis of sensitive oxygenates in gasoline using the PEG fiber and for VOC determination in water.

SigmaAldrich.com/SPME



Solvent extraction

Classical, high purity, consistent quality solvents in sample prep are the foundation of reliable and efficient extraction methods. Our portfolio covers every solvent needed for accurate and reproducible analytical results with low background.

See the "Solvents" section in this brochure (page 16) and our complete offer on

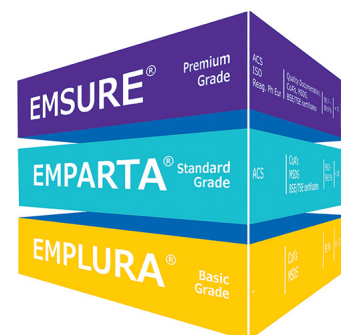
SigmaAldrich.com/Solvents

Digestion

For spectroscopic techniques like AAS and ICP, digestion or solvatization of samples is often necessary. For standard applications, EMSURE® Acids and Bases should be used for sample preparation. High purity acids and bases from our Suprapur® and Ultrapur line will ensure the lowest background and consequently, highest sensitivity of your most critical inorganic trace and ultra-trace analysis.

SigmaAldrich.com/Emsure

SigmaAldrich.com/traceanalysis



Filtration

Sample filtration protects HPLC columns and instruments by removing particulates prior to analysis. Due to their broad chemical compatibility, hydrophobic and hydrophilic Millex® PTFE syringe filters are an ideal choice for sample preparation in petrochemical analysis. Learn more about nonsterile Millex® syringe filters at

SigmaAldrich.com/OneMillex



Analysis

Gas Chromatography

GC - Columns, reagents, consumables for use in Gas Chromatography

Our Supelco® brand started in gas chromatography in the early 1960s and therefore has a long history and broad expertise in column technologies & production. We started by offering packed GC columns and have since developed a vast range of capillary columns for the petrochemical industry to support classical GC, GC-MS, Fast GC and GCxGC. Innovations continue with our line of columns using ionic liquids as stationary phases. We regularly introduce columns for specific applications and instrumentation, including a recently added line for the Agilent® Intuvo system.

[SigmaAldrich.com/GC](https://www.sigmaaldrich.com/GC)

Column Innovations

Ionic Liquid capillary columns enabling unique applications and selectivities:

- **Watercol™ 1910** – allows the convenient measurement of water by GC e.g. in gasoline or Liquefied Petroleum Gas (LPG), by producing a sharp peak for water and being stable against water
- **SLB®-IL60i, SLB®-IL76i, and SLB®- IL111i** – combine unique selectivity and high inertness towards polar analytes enabling separations not possible before and are ideal as the 2nd dimension in GCxGC
- **SLB®-ILD3606** – allows determination of oxygenates and benzene in petroleum products, such as gasoline, in relation to ASTM D3606 but with one column
- **SLB®-ILPAH** – provides for unsurpassed resolution of polyaromatic hydrocarbons (PAHs)

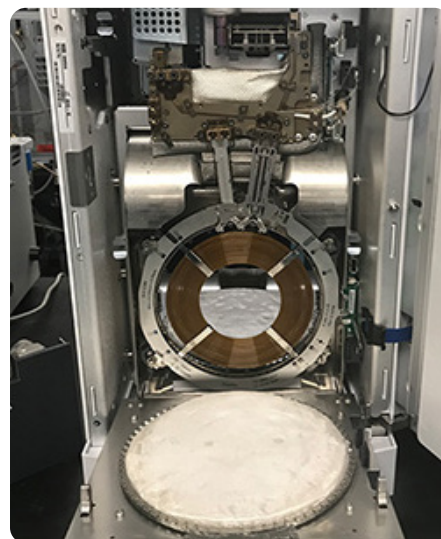
Visit [SigmaAldrich.com/watercol](https://www.sigmaaldrich.com/watercol)

Visit [SigmaAldrich.com/il-gc](https://www.sigmaaldrich.com/il-gc)

Capillary Columns

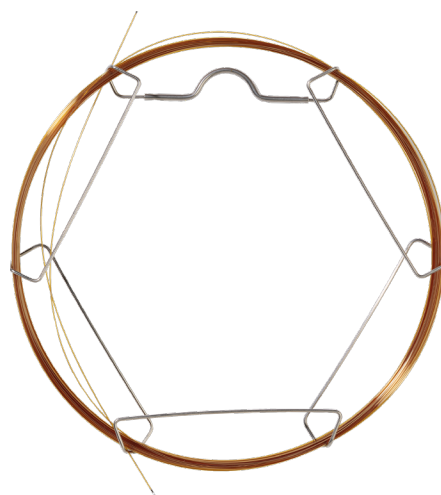
This family of columns can be used for methods to measure purity, determine composition, and identify impurities in petroleum products.

- **SLB®-ms MS-grade** (SLB®-1ms, -5ms, -35ms) – low bleed, inert, durable, and consistent columns for sensitive and reliable mass spectral identification
- **Petrocol® series** – non-polar columns with considerable theoretical plate numbers (incl. 150 m column) for detailed analyses of petroleum products like PIANO, PONA, and PNA
- **SPB®-1 SULFUR** – for analyses of sulfur gases and other volatile sulfur compounds
- **PLOT** – one of the broadest offerings; choose from different adsorbent types for separations of permanent gases, light hydrocarbons, and volatile sulfur compounds
- **SCOT** – efficiency of capillary GC combined with the extensive stationary phase library of packed GC (e.g. Bentone 34/DNDP, TCEP, BMEA, Squalane)



Agilent® Intuvo system with Supelco® GC column

Visit [SigmaAldrich.com/intuvo](https://www.sigmaaldrich.com/intuvo)



- **MET** - rugged metal columns designed for simulated distillation (SimDis) and biodiesel
- **PTA-5 and Carbowax® Amine** – base-deactivated columns for analyses of amines and other volatile basic compounds
- **Intuvo columns** for the Agilent® Intuvo GC system

[SigmaAldrich.com/GC-Petro](https://www.sigmaaldrich.com/GC-Petro)

Packed Columns

Our extensive line of Supelco® packed GC columns are configured to fit most commercially available GC instruments. We are also catering for process GCs using metal or glass columns. The inhouse glass shop and GC manufacturing enables us to offer custom-made columns and packings.

[SigmaAldrich.com/GCpacked](https://www.sigmaaldrich.com/GCpacked)

See our overview by industry/application on

[SigmaAldrich.com/GC-columns](https://www.sigmaaldrich.com/GC-columns)

GC Accessories

In addition to high-quality and innovative GC columns, we also offer a comprehensive line of GC accessories, ensuring reliable performance of your GC instrument. This includes low bleed GC septa, inlet liners, inlet seals, ferrules, nuts, guard columns, connectors, flowmeters, hand tools, syringes, vials, and PID lamps. Some highlights include:

- **Molded Thermogreen® LB-2 GC septa** – the perfect combination of low bleed, thermal stability, and easy puncturability
- **FocusLiner™ inlet liners** – enhance sample vaporization and increase precision, accuracy, and reliability
- **Inlet liner O-ring and inlet seals** – commonly replaced items in Agilent capillary injection ports
- **Capseal Bullet® ferrules (for capillary columns)** - design keeps the graphite from adhering to the fitting, making them easy to remove and reusable
- **Supeltex® ferrules** – form leak tight seals without sticking to columns
- **Flowmeters** – four models of digital flowmeters, including choices for volumetric or mass measurement
- **Low Adsorption (LA) vials** – maintain sample integrity during storage by minimizing pH shifts and metal contamination

[SigmaAldrich.com/GC-Accessories](https://www.sigmaaldrich.com/GC-Accessories)

Solvents for GC-ECD & FID / GC-MS

Our SupraSolv® GC solvent qualities are ideal for all gas chromatography applications. These solvents are specially developed and tested for ECD, FID and MS detection and show minimal signal-to-noise ratio in the largest specified retention time range. See also the solvent section of this brochure (p. 16).

[SigmaAldrich.com/GC-solvents](https://www.sigmaaldrich.com/GC-solvents)



GC Accessories



Gas Purification/Management

It is critical that a gas delivery system provides gas at the proper purity level, and at the correct pressure, based on its intended use. We offer many products that enable purification and management of the gas supply reaching from gas generators, over tubing and valves to gas purifiers to ensure the correct gas quality at the instrument.

- **Supelcarb® HC hydrocarbon trap** – greatest capacity for hydrocarbons per gram of adsorbent
- **High capacity gas purifiers** – best purifier choice for removing moisture and oxygen from carrier gas streams
- **OMI® (oxygen moisture indicating) polishing purifiers** – removes remaining contaminants that other upstream purifiers miss and indicates/ensures gas quality at the instrument
- **SGT Super Clean Gas Purifier** – including triple purifier (hydrocarbons, moisture, oxygen)
- **Tubing** – specially cleaned to ensure purity and inertness
- **Swagelok® tubing fittings** – reliable connections for GC carrier gas line installations

SigmaAldrich.com/GC-Purification

See the complete offer on GC product at

SigmaAldrich.com/GC



HPLC

Columns, reagents, consumables for use in High Performance Liquid Chromatography (HPLC)

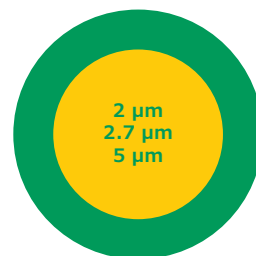
HPLC is most commonly used for analytes that are either thermally unstable or non-volatile, neither of which can be analyzed using GC. We offer a broad range of HPLC columns, solvents, reagents and accessories.

SigmaAldrich.com/HPLC

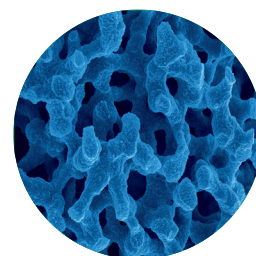
Columns

High resolution, efficiency, and robustness against matrix-rich samples are key properties that U/HPLC columns demand in Petrochemical analysis and our products satisfy. Column lines in our offer being most suitable for the petrochemical industry are:

- **Ascentis® Express** – for small molecule analysis by HPLC & UHPLC providing highest efficiency and resolution. These superficially porous particle (SPP) or Fused-Core® columns are available with the widest range of phases/ selectivities for optimized method development
- **Chromolith® columns** – monolithic silica rod columns provide lowest back pressure and highest robustness against matrix-rich samples providing flexibility in choice of column lengths (column stacking), mobile phase solvent options & flow rate, and degree of sample preparation needed
- **Purospher™ STAR** – highest purity, fully porous silica particle (FPP) columns provide outstanding reproducibility, peak symmetry and loading capacity for pH ranges from 1.5 to 10.5



Superficially porous particles (SPP) / Fused Core® - Ascentis® Express



Monolithic silica - Chromolith®

- **TSKgel®*** - SEC columns for industrial polymers (size exclusion, gel permeation, and gel filtration techniques)

*Not available in all countries through MilliporeSigma

[SigmaAldrich.com/HPLC-Columns](https://www.sigmaaldrich.com/HPLC-Columns)

Accessories

To achieve faster analyses and increased resolution, systems are pushed toward higher operating pressures by using smaller particle columns and/or higher flowrates. With these trends, it is important to choose the correct accessories when replacing fittings, tubing, and other similar parts to maximize performance and reliability. Our extensive portfolio of tubing, high-performance fittings, filters and other accessories enable you to properly maintain your system and minimize downtime.

[SigmaAldrich.com/HPLC-Accessories](https://www.sigmaaldrich.com/HPLC-Accessories)

Solvents

We are the renowned manufacturer of U/HPLC and LC-MS solvents and reagents. The newest addition, the UHPLC-MS LiChrosolv® solvent line, sets new standards with regards to solvent purity and resulting sensitivity.

See also the solvent section of this brochure (p. 16).

[SigmaAldrich.com/UHPLC-MS](https://www.sigmaaldrich.com/UHPLC-MS)

Mobile phase filtration is critical to protect HPLC columns and instruments from particle impurities and gases. In addition to traditional glass vacuum filtration equipment and cut disc membranes, our polypropylene-based, solvent-resistant Millicup™-FLEX filtration device offers the convenience and compatibility of glassware with improved durability.

[SigmaAldrich.com/MillicupFLEX](https://www.sigmaaldrich.com/MillicupFLEX)

See the complete offer on HPLC/UHPLC products at

[SigmaAldrich.com/HPLC](https://www.sigmaaldrich.com/HPLC)



TLC

We are the undisputed leader in manufacturing reliable and high quality TLC, HPTLC, and TLC-MS plates; tools you can rely on in reaction, monitoring, and screening applications.

[SigmaAldrich.com/TLC](https://www.sigmaaldrich.com/TLC)



Titration and Karl Fischer

Determination of water content by Karl Fischer

The significance of water determination with Karl Fischer titration is emphasized by the fact that it has been included in ASTM (American Society for Testing and Materials) methods, ISO guidelines and other industrial norms.

[SigmaAldrich.com/Titration](https://www.sigmaaldrich.com/Titration)



Did you know that reliable water determination e.g. in LPG is possible with GC? Read more at [SigmaAldrich.com/watercol](https://www.sigmaaldrich.com/watercol)

Aquastar® Reagents

Our Aquastar® Karl Fischer reagents and Certified Reference Materials (CRMs) always provide reliable, rapid, and accurate results and are globally available to facilitate international method transfer. The product lines include specific solvents for oils and fats ensuring a reliable Karl Fischer performance for these matrices.

For the complete overview on our offer and applications, visit SigmaAldrich.com/Aquastar

Volumetric Titration

Our volumetric titration product line comprises a wide range of titration solutions & standards including.

- **Titripur® ready-to-use volumetric solutions** - traceable to reference materials from NIST and certified under ISO/IEC 17025 accreditation.
- **Titripac® unique packaging** – for reliable solutions from the first to the last drop
- **Titrisol® concentrates** – easy to use and simplifies daily work if you need different types of concentrations
- **Certipur® Volumetric Standards & pH buffer CRMs** – reliable reference materials produced under the double accreditation of ISO/IEC 17025 and ISO 17034.

See the complete offer on titration products at SigmaAldrich.com/Titration

Related testing

Spectroscopy (AAS & ICP) ◀

When analysing raw materials, intermediates and finished products for metal content (e.g. from catalysts or wear metal), the analytical reagents need to be reliably low in background. Suprapur® and Ultrapur high purity acids and bases are designed specifically for instrumental analytical applications to ensure your results are accurate. They are complemented by a range of auxiliary reagents including buffers and matrix modifiers for AAS, and an extensive line of TraceCERT® and CERTIPUR® standards. See our complete offering for metal trace analysis including certified reference materials and reagents for x-ray fluorescence (XRF) at

SigmaAldrich.com/traceanalysis

SigmaAldrich.com/spectromelt-reagents

Physical Property Testing ▶▶

We carry a vast range of viscometers from Paragon. Visit SigmaAldrich.com/Paragon

We also offer melting point accessories in our labware range. See Labware product categories at SigmaAldrich.com/labware

Please also refer to the reference materials section (page 12)



Titration goes Digital

Connect your titrator with our SmartChemicals!

Look for the new RFID labels to transfer reagent data with a brief touch on the bottle. Saves time, ensures correct data integrity and prevents transcription errors.

SigmaAldrich.com/SmartChemicals



Environmental Water Analysis

For analysis of effluent or wastewater, visit our environmental analysis page [SigmaAldrich.com/environmental](https://www.sigmaaldrich.com/environmental)

For determination of VOCs in water according to ISO 17943 using HS-SPME/GC-MS, visit [SigmaAldrich.com/ISO17943](https://www.sigmaaldrich.com/ISO17943)



Mobile Analysis and Process Water

Mobile Analysis

Mobile analysis of key chemical parameters is essential for on the spot in-process control and water monitoring. For example, optimizing chlorine levels prevents microbiological fouling, silicate contamination in boiler feedwater could accelerate scale buildup, and elevated iron levels indicate corrosion. Different levels of analysis can be achieved based on various mobile testing systems. The three major mobile testing approaches are:

- **MQuant® test strips and liquid colorimetric tests** provide visual, semiquantitative readout. Some are now available for digitalized readout with the smartphone app **MQuant® StripScan**.
- Instrument-based test strip readout with **Reflectoquant® reflectometer** provides quantitative results.
- Handheld **Spectroquant® Move colorimeters** and ready-to-use photometric test kits allow precise on the spot analyses.

There are tailor-made solutions for quick and easy on the spot analysis in various applications to test a wide range of parameters e.g. residual or total hardness, iron, sulfite, or nitrite.

[SigmaAldrich.com/mobile-lab](https://www.sigmaaldrich.com/mobile-lab).

Process Water

Analyzing cooling and boiler water is essential for industrial plants and silicate, calcium and magnesium contents are particularly important as they can cause deposit formation and scaling, leading to higher maintenance costs and downtime. To test ultra-low levels of different parameters in process water, the Spectroquant® Prove 600 with a 100 mm cuvette allows ultra-sensitive measurements of silicate, chloride and iron to protect your system. It is complemented by a large range of Spectroquant® test kits e.g. for chloride, iron, silicate, sulphate and others. With Spectroquant® Prove connect data transfer into LIMS and ELN systems can be enabled.

[SigmaAldrich.com/spectroquant](https://www.sigmaaldrich.com/spectroquant)



MQuant® StripScan App



MQuant® liquid colorimetric tests



Spectroquant® Move colorimeter



Spectroquant® Prove 600 photometer

Calibration – Reference Materials

Organic and Inorganic Reference Materials

For Petrochemical Applications

The Supelco® analytical product range offers a comprehensive line of pure standards (neats), along with single and multi-component petrochemical solutions which are suitable for most analytical methods. Many of our standards are formulated to meet the prescribed recommendations of ASTM, or international bodies (including DIN, EN and ISO), as well as other international organizations. The quality and consistency of our products are supported by our ISO Certifications and Accreditations. In addition to ISO 9001:2000 certification, we are proud to offer CRMs produced under double accreditation according to ISO/IEC 17025 and ISO 17034 (formerly ISO Guide 34). This represents the highest achievable quality standard for the production of Certified Reference Materials (CRMs)

See our full range of analytical standards and certified reference materials at [SigmaAldrich.com/standards](https://www.sigmaaldrich.com/standards)



Selected areas:

Organic Reference Materials

- ASTM Standard Solutions
- Hydrocarbons – fuels, e.g. jet fuel, biodiesel, reformates and oils, PIANO, PONA, PNS
- Sulfur compounds
- Volatile Organic Compounds (VOCs) – Environmental testing: e.g. Underground storage Tank (UST) GRO & DRO or VOCs in water by ISO17943
- FAMES
- UV/Vis calibration verification from Jaytee and Hellma

[SigmaAldrich.com/jaytee](https://www.sigmaaldrich.com/jaytee)

[SigmaAldrich.com/hellma](https://www.sigmaaldrich.com/hellma)

Inorganic Reference Materials

- Trace metals by ICP and AAS with double Accreditation (ISO/IEC 17025 and ISO 17034) [SigmaAldrich.com/TraceCERT](https://www.sigmaaldrich.com/TraceCERT)
- Cations and Anions by IC [SigmaAldrich.com/IC](https://www.sigmaaldrich.com/IC)
- Sulfur Matrix CRMs [SigmaAldrich.com/sulfurcrm](https://www.sigmaaldrich.com/sulfurcrm)

Water (Karl-Fischer) CRMs

Aquastar® Certified Reference Materials (CRMs) are available as neat powders, or convenient single-use ampouled solutions. An innovative oil matrix water standard is also available, specifically designed for petrochemistry and produced under double accreditation (ISO/IEC 17025 and ISO 17034).

[SigmaAldrich.com/Aquastar](https://www.sigmaaldrich.com/aquastar)



Physical Property CRMs

Paragon Scientific is a UKAS accredited CRM manufacturer with 20 years of experience in the production and certification of quality reference materials. The products are certified in accordance with the requirements of ISO/IEC 17025 and ISO 17034 (ISO Guide 34). Areas covered are:

- Viscosity
- Color
- Density
- Flash point
- Freezing point
- Refractive index
- Smoke point

Paragon also offers CRMs for applications such as aniline point, distillation, FIA (fluorescent indicator adsorption), aromatics, sulfur, and total acidity, as well as viscometers, viscosity bath media and synthetic seawater.

[SigmaAldrich.com/Paragon](https://www.sigmaaldrich.com/paragon)

Metrological Institute Standards

NIST Standard Reference Materials® (SRMs), we are a NIST authorized distributor, see our complete portfolio at [SigmaAldrich.com/NIST](https://www.sigmaaldrich.com/nist)

For the full range of reference materials, visit [SigmaAldrich.com/standards](https://www.sigmaaldrich.com/standards)



Environmental & Industrial Hygiene Monitoring

Air Monitoring and Air Sampling

Our broad portfolio of air monitoring products includes samplers and tools for emission & gas monitoring. To see the full range of products for whole air sampling, solvent desorption (**ORBO™** line) and thermal desorption (**Carbotrap®** tubes and adsorbents), visit us at

SigmaAldrich.com/air-monitoring

To see an overview on air monitoring applications visit

SigmaAldrich.com/airsampling

Specialized tools for air:

FLM™ Carbotrap™ X Thermal Desorption Tube

for Fenceline Monitoring acc. to US EPA 325B Method “VOC from Fugitive and Area Sources”

EPA Method 325 requires refineries to monitor VOCs at the fenceline of their facilities, using passive sampling by a thermal desorption tube with diffusion cap. Our FLM™ Carbotrap™ X Thermal Desorption Tube meets the requirements of method 325B for passive sampling and provides the widest range of compound uptake rates mentioned in the method.

Visit SigmaAldrich.com/FLM

The FLM™ tubes are barcoded. To see our range of barcoded thermal desorption glass tubes (fritted for improved bed integrity) and SS tubes, visit

SigmaAldrich.com/thermaldesorption

Radiello™ Passive Samplers

Radiello™ passive/diffusive samplers are for environmental monitoring, ambient and outdoor air monitoring, industrial hygiene, indoor air quality (IAQ), personal sampling and breathing zone assessment. The radial design offers higher capacity and faster uptake/sampling rates than traditional passive monitors. Applications include BTEX, VOCs, NO₂, SO₂, HF, aldehydes, ozone, H₂S, ammonia, HCl, phenols, anesthetic gases/vapors and 1,3 butadiene & Isoprene. The 1,3-butadiene, the phenols and a VOC/BTEX sampler (RAD145) are made for thermal desorption.

SigmaAldrich.com/Radiello

ASSET™ EZ4-NCO Sampler for Isocyanates

ASSET™ EZ4 Dry Samplers are easy-to-use and offer the ultimate sensitivity for collection and measurement of vapor phase and particulate isocyanates. The ASSET™ EZ4-NCO Dry Sampler collects the full range of isocyanate monomers and oligomers, while the ASSET™ EZ4-ICA sampler is designed to collect isocyanic acid (ICA) and methyl isocyanate (MIC) at low levels.



Key Features & Benefits:

- Easy to use and safe to wear
- Able to sample up to 12 h (EZ4-NCO), increasing workplace productivity during sampling as work shifts are not interrupted for sampler exchange
- Ability to achieve reliable, low detection limits, only device to measure vapor phase and particulate isocyanates
- No interferences, no field extraction or sample refrigeration needed, reduces shipping and handling charges
- Fully supported by Certified Reference Materials (CRMs) for LC-MS detection
- 2 year shelf life
- Complies with ISO 17734-1:2013

[SigmaAldrich.com/ASSET](https://www.sigmaaldrich.com/ASSET)

Environmental Water Analysis

We offer a portfolio of tools and solutions for sample preparation of water samples including SPE (tubes and disks) & SPME products.

For more details, visit [SigmaAldrich.com/Sample-Prep](https://www.sigmaaldrich.com/Sample-Prep)

For an overview of our full offer for environmental analysis, visit [SigmaAldrich.com/environmental](https://www.sigmaaldrich.com/environmental)

See also our application for VOCs in water according to ISO 17943 using HS-SPME/GC-MS

[SigmaAldrich.com/ISO17943](https://www.sigmaaldrich.com/ISO17943)

Ready-to-use test kits for key wastewater parameters

For swift, secure and precise analysis, our Spectroquant® test kits are easy to use and are supplied with validated standard-compliant reagents. Choose from over 180 kits including the following critical water testing parameters:

- Ammonium
- Chlorine
- Metals
- BOD
- COD
- Nitrate
- Phosphate
- Silicate

See also the Mobil Analysis section in this brochure (p. 11)

[SigmaAldrich.com/test-kits](https://www.sigmaaldrich.com/test-kits)

Explore the NEW interactive wastewater workflow guide! Quickly assess the testing products you need for each step in petrochemical wastewater analysis using our new interactive wastewater workflow guide.

[SigmaAldrich.com/environmental](https://www.sigmaaldrich.com/environmental)



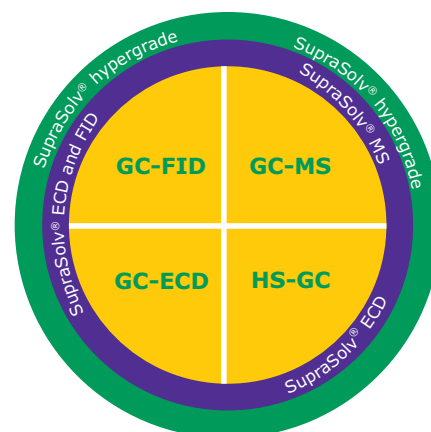
Solvents

GC Solvents

SupraSolv® for GC applications, catering for Headspace (HS), FID, ECD and MS Applications.

- Accurate, reliable and reproducible results due to minimal signal-to-noise ratio.
- Time and cost savings due to the best possible batch consistency, thus avoiding analysis repetition.
- The most comprehensive application area due to the largest retention time range.

[SigmaAldrich.com/GC-Solvents](https://www.sigmaaldrich.com/GC-Solvents)



HPLC & UHPLC Solvents and Reagents

- **LiChrosolv®** solvents, ensuring optimal HPLC & LC-MS performance, complemented by **LiChropur®** reagents for LC-MS.

[SigmaAldrich.com/HPLC-Solvents](https://www.sigmaaldrich.com/HPLC-Solvents)

- **UHPLC-MS LiChrosolv® solvents** provide lowest background and particle freeness, setting a new standard for HPLC solvents.

[SigmaAldrich.com/UHPLC-MS](https://www.sigmaaldrich.com/UHPLC-MS)



Solvents for Classical Analysis

EMSURE® premium grade solvents offer the highest quality and unmatched scope of specifications. EMSURE® products are fully compliant with ACS, Reag. Ph Eur and ISO guidelines. As a result, they can be used for almost all applications, including pharmacopoeia analysis.

[SigmaAldrich.com/EMSURE](https://www.sigmaaldrich.com/EMSURE)

EMPARTA® standard grade solvents offer fewer test parameters than EMSURE® products. Still, EMPARTA® product specifications are fully compliant with ACS requirements and cover all important parameters, thus ensuring reliable and reproducible results.

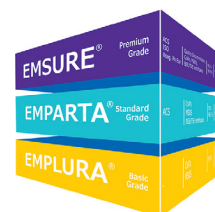
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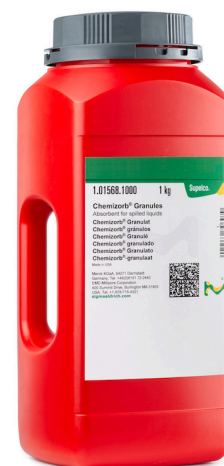
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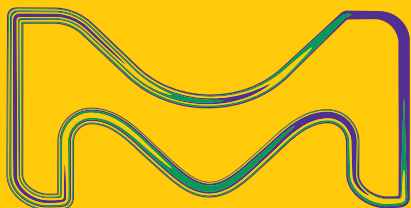
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