



MATHESON PETROCHEMICAL INDUSTRY PROGRAM for Specialty Gas Supply

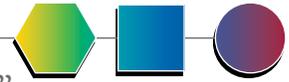
“Experience the MATHESON Commitment to Supply Chain Excellence”



MATHESON

ask. . .The Gas Professionals™

MATHESON PETROCHEMICAL INDUSTRY PROGRAM for Specialty Gas Supply



“Experience the MATHESON Commitment to Supply Chain Excellence”

MATHESON is a single source for industrial, medical, specialty, and electronics gases ... as well as gas handling equipment, high-performance purification systems, engineering and gas management services, and onsite gas generation.

MATHESON is the largest subsidiary of the Taiyo Nippon Sanso Corporation, one of the five largest suppliers of gases in the world. We have a depth of technology and resources that can come only from a global enterprise.

We also work hard to hold onto our local values, with personalized service and a real interest in understanding – and resolving – your gas use and management requirements.

MATHESON serves the Petrochemical Industry facilities involved in the production of pure basic chemicals. Petrochemical Industry facilities may include one or more of the following units:

- Refinery that processes crude oil into raw materials for the Petrochemical units
- Ethylene Units → Polyethylene Units
- Propylene Units → Polypropylene Units
- Butadiene Units
- Butene Units
- Aromatics Units

The Petrochemical industry facilities may have the following requirements:

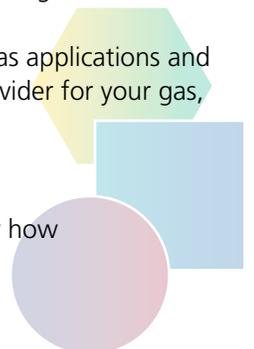
- Health and safety compliance monitoring
- Environmental compliance analyses
- Process control analyses (analyzer shacks)
- Finished product analyses

The MATHESON Petrochemical Industry Program will maximize your operating efficiencies by addressing the six key parameters that customers must have from their suppliers to achieve supply chain excellence.

- **CONVENIENCE** using the MATHESON Item Master process that ensures fast re-ordering
- **QUALITY** ISO 9001 and ISO 17025 certified gas and equipment operations to ensure consistent reliability and safety
- **PRODUCTS** specifically designed for the petrochemical industry
- **HEALTH & SAFETY** hazardous gas monitoring products plus equipment design integrity to protect your personnel and work environment
- **SUPPORT** whenever you need it from our sales, technical and service support teams
- **DELIVERY** options tailored to your operating needs

Our 85+ years of experience in industrial gas applications and equipment makes MATHESON an ideal provider for your gas, equipment, and services requirements.

Call us at **800-416-2505** or email us at **info@mathesongas.com** and let us know how we can help you.



CONVENIENCE

The MATHESON Item Master Process

MATHESON works with our customers to capture all gas or liquid mixture components, concentrations, calculated values, hydrocarbon dew point, and temperature. All of this information is applied order after order, and cylinder after cylinder. All you have to tell us is your item number.

Additional MATHESON Convenience Features

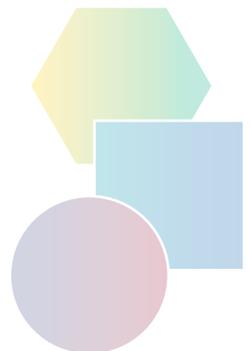
- Selected stocked products to provide emergency or “24-hour” delivery service
- Additional Certificate of Analysis copy available on request

QUALITY

Production Controls Provide High Quality Products and Service

- **Six Sigma:** MATHESON has a national Six Sigma quality program
- **ISO 9001 Certified Gas and Equipment Operations:** Gas and equipment products manufactured to international industry standards
- **ISO 17025 Laboratory Accreditation** for EPA Protocols and CalMAT grades
- **“C of A’s”:** Custom certificate of analysis contents to meet individual customer requirements
- **Direct NIST Traceability:** NIST traceable calibrations of MATHESON gas and equipment measurements
- **High Purity Hydrocarbons:** MATHESON purifies its own C1 to C5 hydrocarbons to ensure that the highest purity raw materials go into low ppm reference standards
- **Stable Mixture Technology:** MATHESON developed the Microshield series of cylinder surface treatments that ensure the long term stability of ppm reduced sulfur components in balance hydrocarbons and nitrogen
- **Unique Product Part Numbering:** Each customer mixture will be assigned an Item Number which captures all of the key product information, and ensures ease of ordering
- **State of the Art Engineering Software:** MATHESON applies state-of-the-art gas and liquid mixture engineering software that provides hydrocarbon mixture components and concentrations at optimized hydrocarbon condensation temperature, and cylinder fill pressure

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PRODUCTS

Petrochemical Facility Environmental Compliance

Where	Gas Standards Needed
Emissions monitoring standards at boilers and electricity generating CEM's	CO, NOx, and CO ₂ EPA Protocols and CalMat Daily Standards
Flares, vents, cooling towers	HRVOC Standards with Ethene, Propene, 1,3 Butadiene, Butene isomers (plus other VOC as needed)

Petrochemical Industry Process Monitoring and Product Certification

Ethylene and Propylene Units' Process Analyzer and Central Laboratory Standard Gas Mixtures

Products for trace impurity analyses

- Sub-ppm to 5 ppm CO and CO₂, balance Ethylene or Propylene
- Sub-ppm to 5 ppm COS, Methyl Mercaptan and H₂S, balance Propylene in Microshield treated cylinders
- 3 ppm and higher Methanol, balance Propylene
- MATHESON Research Grade Ethylene and Propylene with certified impurities
- Cylinders, 6-Packs, 12-packs, and Dewars of the following:
 - ▶ Helium, Air, Hydrogen, and Nitrogen for gas chromatographs
 - ▶ Zero, UHP, and higher gas grades available
- Propylene standards available in gas and liquid phase standards
 - Piston cylinders
 - Low pressure cylinders*
 - High pressure cylinders*

**Low and high pressure cylinders may have Full Length Eductor Tubes, and either of helium or nitrogen head pressures.*

Aromatics Units' Analyzer Laboratory Standard Gas Mixtures

- BTEX* gas standards in low pressure (portable or refillable cylinders), and high pressure cylinders
- Liquid BTEX* component standards in low pressure and high pressure cylinders. Low and high pressure cylinders may have Full Length Eductor Tubes, and either of helium or nitrogen head pressures

**BTEX is Benzene, Toluene, Ethyl Benzene, ortho Xylene, meta Xylene, and para Xylene.*

Butadiene and Butene Units' Standard Mixtures

- Multi-component C4 impurities balance Butene, liquid phase, in low or high pressure cylinders, with Full Length Eductor Tubes, and either of helium or nitrogen head pressures
- Research purities of n-Butane and iso-Butane are available; commercial purities of Butenes and 1,3 Butadiene are available
- Liquid mixtures of 1-Butene, Hexane, iso-Butene, iso-Butane, Isoprene, Propane with balance Methyl Chloride are available in low pressure or high pressure cylinders, and either of helium or nitrogen head pressures

MATHESON Equipment to Support Petrochemical Facility Gas Usage

- Cylinder regulators for quantitative gas delivery
- Gas panels for control of gas supplies
- Automated manifolds and alarms for control of high volume gas usage



HEALTH & SAFETY

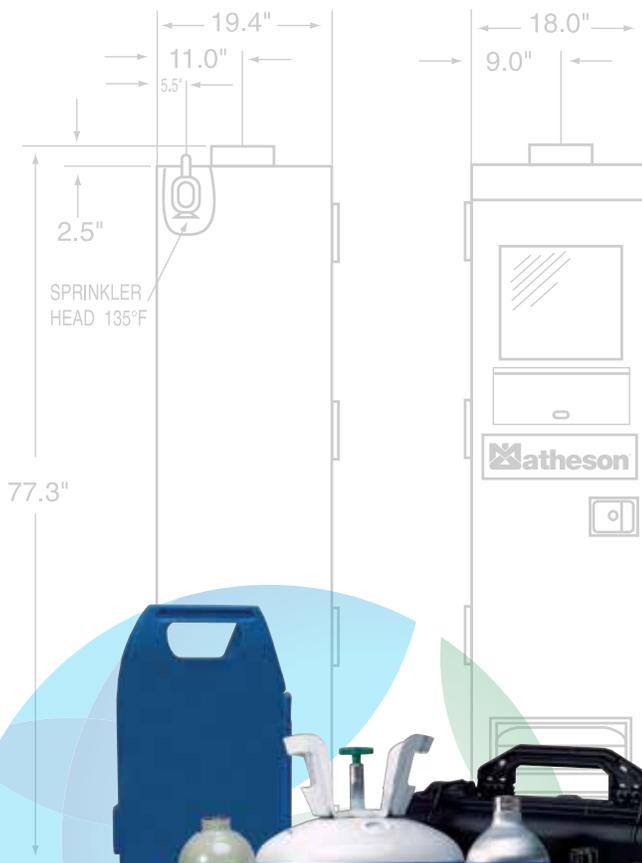
Monitoring for OSHA Compliance

- MATHESON Portables LEL and H₂S/CO/Methane/Air mixtures for your safety and industrial health programs. Many more standard and custom mixtures and pure gases, and gas delivery products are available (see the MATHESON Portables Catalog)
- Gas Cabinets and Panels for safe hazardous gas handling and delivery to point of use
- Hazardous gas monitoring systems including fixed and portable instruments, plus Kitagawa tubes
- On-site safety training programs and education products to enhance and improve safety awareness

SUPPORT

MATHESON Technical and Service Support Teams

- Expert mixture phase engineering using state-of-the-art software
- Specialty Gas Team who understand petrochemical products and cylinder package options - (Product Manager, Technical Service Coordinator, Gas Operations Team, and Customer Service Team)
- Personalized service at your door with field sales, and on the phone with dedicated customer service representatives
- Dedicated customer service representatives assigned to your account
- MATHESON's Customer Arrangements systematize your products and pricing



DELIVERY

- Designed to suit your facility and operating hours
- Options for delivery



"Experience the MATHESON Commitment to Supply Chain Excellence"

Our mission is to deliver innovative improvements to the Petrochemical industry ... in ways that have tangible benefit and cost effectiveness for our customers. We can offer you the best gas supply for your business from single cylinders to 6-, 12-, and 16-packs, to liquid dewars, to microbulk, to bulk, to onsite supply.



Cylinders



Multipacks



Liquid Dewars



Microbulk



Cryogenic Tanks



Onsite & Pipeline Plants

MATHESON is committed, without limitation, to be your “go to” company for maximizing profits and minimizing operating costs.

Thank you for your interest in our specialty gas and equipment products. For more information, please visit the MATHESON website @ www.mathesongas.com, or call our customer service center @ **800-416-2505** to have one of our sales representatives contact you directly.

Equipment Technology Center
166 Keystone Drive
Montgomeryville, PA 18936
Tel: 800.416.2505
Fax: 215.619.0458
Email: Info@mathesongas.com
www.mathesongas.com

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