

# Specialty Gases

Do you have high standards? We do, too. Specialty gases from Messer



Messer was founded in 1898 and today is the largest family-run specialist for industrial, medical and specialty gases worldwide. Under the brand "Messer - Gases for Life" the company offers products and services in Europe, Asia and the Americas.

The specialty gas product range within Messer includes, in particular, liquid helium, rare gases, high purity gases, standard and individual gas mixtures as well as the specialty gas equipment required for the application of gases. These products are characterized by the high demands on quality which Messer consistently pursues.

In Europe specialty gases are mainly manufactured in the specialty gases plants in Belgium, France, Austria, Switzerland, Serbia and Hungary. Through the decentralized production we ensure close contact to market and customers. At the same time, we provide a consistent high quality of our products through a central coordination of our plants. This means, for example, that all our European plants are accredited according to ISO 9001. Additionally, four of them have a laboratory accreditation according to ISO 17025. Furthermore, the Swiss plant is accredited according to ISO 17034.



Liquid helium cools MRI scanners

## Liquid helium

Liquid helium has a boiling point of 4.2 K (-269 °C), therefore, it is the coolant used for reaching lowest temperatures. Most of the technical applications of liquid helium are connected with superconductivity (to conduct electrical current without any electric resistivity). For example, magnetic resonance imaging (MRI) scanners operate with superconducting magnets which are cooled by liquid helium.

Liquid helium is transported and stored in special cryogenic containers (Dewars). According to the actual demand, Messer offers liquid helium in Dewars of different sizes. This extends from the supply of a few liters up to Dewars with a capacity of 450 l. Largescale consumers such as MRI manufacturers or major research facilities can also be supplied directly by tank containers (capacity of 40,000 l).

## High purity gases

From "A" for argon to "X" for xenon, Messer offers an extensive range of high purity gases. This ranges from the "air gases" (nitrogen, oxygen and argon), carbon dioxide, carbon monoxide, hydrogen and the noble gases (helium, neon, krypton and xenon) through to the most important organic (e.g. methane, ethane, ethylene, acetylene, etc.) and inorganic gases (e.g. ammonia, chlorine, sulfur dioxide, etc.).

The reliable product quality is the most important property of high purity gases. Strict quality management is, therefore, essential. Depending on the filling process and quality specifications, the control measurements range from batch to single cylinder analysis.

Tailored to the specific requirements of the particular application, Messer provides the products in different levels of purity. These range from technical gas to 6.0 quality, meaning a purity of 99.9999%, and delivery forms, from small cylinders to bundles with filling pressure of up to 300 bar, or even bulk supply.



Pure gases in plenty of cylinder sizes



Calibration gases for analytical applications

## Standard mixtures

For a variety of routine applications in the most diverse application fields, from banana ripening, through laser applications to the operation of counter tubes, Messer also offers a broad range of standard gas mixtures. The batch production enables consistent quality and short delivery times from stock.

## Calibration gases

The highest demands are placed on gas mixtures when they are used for the operation of sensitive analytical instruments in quality assurance, safety technology, emission or environmental monitoring. Most of the analytical instruments in use today operate comparatively, like the balance scales often seen in street markets in the old days. Just as these required precise weights in order to weigh correctly, modern analytical instruments use high precision gas mixtures with defined compositions for calibration. Messer mainly produces these calibration gases as individual gas mixtures to special customer specifications.

As the accuracy of the analytical results critically depends upon the accuracy of the used calibration gases, Messer follows a strict quality management system in order to ensure the highest quality standards in the production of calibration gases.

## Rare gases

The rare gases krypton, xenon and neon are produced at big air separation units. After having passed special separating and cleaning installations, they are filled into cylinders with specific volume and pressure appropriate to the requirements.

Xenon is used as a propellant in ion engines, as plasma gas in the electronics industry or in dark matter detectors. Neon is the main component of excimer laser gas mixtures. Krypton finds application as filling gas in insulating glass.



Krypton as filling gas for double-glazed windows

## Specialty gas equipment

In order to make sure that the high quality of the gases from the storage vessel actually reaches the application, special precautions are necessary in the installations. Not every valve, although proven in the technical field,

can also be used for specialty gases. Messer offers the suitable gas supply system for every specific application, from the simple pressure regulator to the entire central gas supply system.



## Further information

**Special brochures are also available on the following topics:**

- High Purity Gases
- Gas Mixtures
- Helium
- Balloon Helium
- CANGas
- Specialty Gas Equipment
- Process Gases for Analytical Applications
- Environmental Analysis
- myLab

## Service and Support

The extensive and long-term experience at Messer and the highly skilled employees in development, production and analytics continuously enable the fulfilment of our customers' high demand on quality. The experts from Messer develop in close cooperation with the user the best concept for each individual demand.



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Gases for Life

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