

Know-how Navigator

Gases and Application of Messer



Special gases – from "A" for Analysis to "X" for Xenon Lamps

Anyone choosing special gases from Messer can not only have confidence in the highest standards of quality, but also benefits from a problem solving competence which Messer's experts, together with their customers, put to the test everyday. Added to this is a product range as varied as the applications for special gases.

What counts is experience

It is only through their applications that gases become useful. Helium, for example, is used in gaseous form to fill balloons or, cryogenically liquefied, to cool the superconductors in magnetic resonance tomographs. Naturally, these two applications make completely different demands of the product, the delivery form, the hardware used and the service provided. The experts from MESSER, together with the customer, work out the optimum concept for each application case. Then there is the perfect supply of the gases required. The range of solutions here ranges from a gas mixture in a pressure can to ultra-purity gas in a trailer, from technical gas to 6.0 quality.

For safe and efficient operation, many technologies today require pure gases or standard gas mixtures. Thus, the output performance of an excimer or CO₂ laser depends to a great extent on the quality of the operating gases used. Special characteristics are obtained here by the selection of the gases employed. Xenon lamps or Argon or Krypton filled insulating glass windows are just two examples.

The highest demands are also made of the gases, for example, when they are used for the operation of highly sensitive analytical instruments in environmental analysis, safety technology or quality assurance. 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 require precise weights in order to weigh correctly, high precision gas mixtures with defined compositions are used to calibrate the instruments. It goes without saying that the highest precision is also essential for the lowest concentrations. On the basis of its many years of experience in the manufacture and analysis of gas mixtures, Messer is in a position to deliver virtually any gas mixture in the desired composition and to the required precision. The concentrations of the most important components here are based on international reference standards.

Knowing how to do it

The manufacture of special gases comprises several stages, from cylinder pretreatment to filling technology and analysis. Only well-founded know-how in each individual area and sound mastery of the whole process chain makes possible the constant high quality of Messer products. But special gases also demand special know-how in their application. For example, in order to make sure that the required quality from the storage vessel actually reaches the application, special provisions are necessary in the installations. Not every valve, although proven in the technical field, can also be used for special gases. But, here too, the experts from Messer stand by their customers with advice and assistance.



Helium filled balloons used for climatic research.



Filling station for ultra-purity gases



Edelgas-Füllungen in Isolierglasfenstern sorgen für Schall- und Wärmedämmung Noble gas

Application:	Products from Messer:	Advantages:
Analysis		
	Carrier and operating gases for analytical instruments	High purity gases lower the zero line for analytical procedures and thus permit high precision measurements
	Calibration gases for measurement instruments	Precise and stable gas mixtures permit the calibration of measurement instruments with reference to international standards, if required with a calibration certificate from an ISO 17025 accredited laboratory
Refrigeration technology		
Conventional refrigeration	Filling gases for refrigeration and air conditioning units (coolants)	Safe and reliable plant operation
Generation of extremely low temperatures	Liquid Helium as coolant	Safe, demand related supply e.g. for magnetic resonance tomographs, NMR units or in R&D field
Helium balloons/airships		
Buoyancy	Helium as buoyancy gas for balloons (weather balloons, leisure) and airships	Demand related supply and appropriate delivery form
Glass window technology		
Heat insulation in insulating glass panes	Heavy noble gases (Krypton, Xenon) or gas mixtures as filler gases	High thermal insulation
Lighting and laser		
Lighting technology	Argon, Krypton und Xenon as filler gases in light-bulbs	Noble gases permit high filament temperatures for high light output
	Argon and Krypton as filler gases in gas discharge lamps	Easy starting, high light output
Laser technology	Gases as active media in the resonator	Indispensable for CO ₂ - , noble gas and excimer lasers
Automobile industry		
Motor testing	Carrier and calibration gases for analytical instruments	High purity gases lower the zero line, high precision mixtures permit high precision measurement of values
Exhaust gas examination	Lambda-Mix	Ready-to-use mixtures permit quick testing and calibration of exhaust gas measurement instruments
Propulsion	Hydrogen	Fuel cells are an energy source for the future
Chemicals industry		
Production management and quality control	Carrier and calibration gases for analytical instruments	Individual gas mixtures permit a controlled and optimized process sequence and constant high product quality
	Reactive gases as process chemicals	Safe and demand related supply from a single cylinder to a trailer



High sensitivity analysis with gases from Messer.

