

Marking

CAS

Characterization acc. ADR

Cylinder Marking

7440-59-7
UN 1046 HELIUM,
COMPRESSED, 2.2, (E)

Shoulder color: brown

Essential properties

compressed gas, lighter than air, colorless, odorless

Symbols of risks**Physical Properties**

molecular weight	4,0026 kg/kmol
gas density at 0°C and 1,013 bar	0,1785 kg/m ³
density ratio to air	0,1380

For additional safety information see safety data sheet *-HE-061A

Valves / Manifolds

Valve connection

200 bar: acc. to national regulations
300 bar: ISO 5145 Nr. 1: W 30 x 2

Recommended Manifolds

Spectrolab FM 51 / FM 52exact
Spectrocem FE 51 / FE 52exact

Specification / receptacles							
		Helium 4.6	Helium 5.0	Helium 5.6 *	Helium ECD	Helium 6.0	
Composition							
He	≥	99.996	99.999	99.9996	99.9996	99.9999	Vol.-%
Impurities							
O ₂	≤	5	1	1	1	0.5	ppmv
N ₂	≤	20	4	1	1	0.5	ppmv
HC (as CH ₄)	≤	1	0.2	0.1	0.1	0.1	ppmv
CO + CO ₂	≤	-	-	0.1	-	0.1	ppmv
H ₂ O	≤	5	3	2	2	0.5	ppmv
halogenated HC	≤	-	-	-	1	-	ppbv
Cylinder / Contents							
F 10 200 bar		1.8	1.8	1.8	-	1.8	m ³
F 50 200 bar		9.2	9.2	9.2	9.2	9.2	m ³
F 50 300 bar		13.2	13.2	-	-	-	m ³
F 50*12 200 bar		110.4	110.4	110.4	-	-	m ³
F 50*12 300 bar		158.1	158.1	-	-	-	m ³

Remarks

Applications:

Carrier gas for gas chromatography, cooling gas for production of optical fibers, leak detection, filling gas for air bags, component for diving mixtures, shielding gas, laser welding, metallurgy, balloon gas, reactor cooling gas, aeronautics, laser technology.

*: not in each country available

Content in m³ at 15°C, 1 bar

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Description

Colourless, odorless rare gas. Very much lighter than air. In closed rooms the breathing air is displaced (danger of asphyxiation). The inhalation of the gas effects a rise in the frequency of voice (Mickey-Mouse-effect).

Materials

Cylinders and Valves: any usual materials
Seals: PCTFE, PVDF, PA, PP, IIR, NBR, CR, FKM, EPDM

Physical Properties			
molecular weight	4,0026 kg/kmol	vapour pressure at 20°C	
critical point		gas density at 0°C and 1,013 bar	0,1785 kg/m ³
temperature	5,2014 K	density ratio to air	0,1380
Pressure	2,2746 bar	gas density at 15°C and 1 bar	0,1673 kg/m ³
density	0,06964 kg/l	conversion factor	
triple point		liquid at Ts to m ³ gas (15°C, 1 bar)	
temperature	2,177 K	virial coefficient	
Pressure	0,05035 bar	Bn at 0°C	0,53*10 ⁻³ bar ⁻¹
boiling point		B30 at 30°C	0,47*10 ⁻³ bar ⁻¹
temperature	4,224 K, -269 °C	gaseous state at 25°C and 1 bar	
liquid density	0,1250 kg/l	specific heat capacity cp	5,19412 kJ/kg K
evaporation heat	20,413 kJ/kg	thermal conductivity	1500*10 ⁻⁴ W/m K
		dynam. viscosity	19,68*10 ⁻⁶ Ns/m ²