Product sheet Hydrogen 3.0

Product name	Hydrogen 3.0
Physical state	gaseous, compressed
Chemical sign	H_2
Chemical designation	Hydrogen
Purity	99,9 %
Standard	is not subject to any standard
Properties	see safety data sheet
Shoulder color	flame red (RAL 3000)

Minor components	Maximum values
Oxygen	10,0 vol. ppm
Nitrogen	500,0 vol. ppm
Carbon monoxide + carbon dioxide	2,0 vol. ppm
Hydrocarbons	3,0 vol. ppm
Moisture	50,0 vol. ppm

Name	Material number	Bottle type	Bottle container volume	Vapour/filling pressure	Content	Valve	Properties
Hydrogen 3.0 T10 RCyl	S09500110	steel	10,0 l	200,0 bar	1,8 m^3	DIN 477 No. 1 (W 21,80 x 1/14 LH)	
	S09500120	steel	20,0 l	200,0 bar	3,6 m^3	DIN 477 No. 1 (W 21,80 x 1/14 LH)	
Hydrogen 3.0 T50 RCyl	S09500150	steel	50,0 l	200,0 bar	8,9 m^3	DIN 477 No. 1 (W 21,80 x 1/14 LH)	
Hydrogen 3.0 RBundle12	S09500312	steel	600,0 l	200,0 bar	107,1 m^3	DIN 477 No. 1 (W 21,80 x 1/14 LH)	
Unless otherwise stated, these refer to filling pressure at 288,15K (15°C) and to content at 288,15K (15°C) and 1,013 bar.							

Typical applications

- as a reducing agent in e.g. metal extraction
- as a reducing shield gas
- as a shield gas for metalwork and metal processing applications
- in hydrogenation or reduction of petrochemical products
- in synthesising e.g. ammonia, hydrogen chloride and methanol
- for gas conditioning
- in reduction processes
- for hydrogenation in petroleum refining
- as a shield gas and reaction gas in continuous flow soldering

Physical data

operating figures	Molar mass	2,02 g mol^{-1}
	Ignition Range in Air	4,0-77 Vol.-%
	Calorific Value to DIN 51850	12745 kJ m^{-3}
Liquid State	Heat of Evaporation	454,26 kJ kg^{-1}
	Liquid Density	71,0 kg m^{-3}
Gas State	Thermal Conductivity (at 288.15 K and 1.013 bar)	0,1779 J s^{-1} m^{-1} K^{-1}
	Density Ratio to Air (at 288.15 K and 1.013 bar)	0,07
	Specific heat (at 298.15 K and 1.013 bar)	14,20 kJ kg^{-1} K^{-1}
	Density (at 273.15 K and 1.013 bar)	0,09 kg m^{-3}
Critical Point	Temperature	33,24 (-239,9) K (°C)
	density	30,1 kg m^{-3}
	Pressure	12,98 bar
Triple Point	Temperature	14 (-259,2) K (°C)
	Vapour Pressure	0,0720 bar
	Heat of Fusion	58,2 kJ kg^{-1}

All mentioned data, values and notes correspond to actual state of knowledge on the date of printing. They make no claim to be correct or complete and therefore do not release the user from his obligation to check them.

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