

# HYDROGEN (H<sub>2</sub>)

Synonyms : Dihydrogen; N-Hydrogen; Protium



AIR LIQUIDE

## Gas Description

Hydrogen is only found in the atmosphere at trace levels; it is synthesized from hydrocarbons (petroleum and petroleum by-products) and from water where it constitutes the lightest fraction of the H<sub>2</sub>O molecule. Hydrogen gas is colourless, highly flammable, very light, cannot sustain life and reacts easily with other chemical substances.

### Typical applications :

Reducing atmosphere in metallurgy  
Fuel gas for analyzers  
Hydrogenation of oils and fats  
Coolant gas for electrical equipment  
Oxyhydrogen welding and cutting  
Synthesis of ammonia  
Petroleum refining

### Transport Regulations :

UN Number : 1049  
Shipping Name : HYDROGEN,  
COMPRESSED  
Class : 2.1 : Non-Flammable Gas  
CAS Number : 1333-74-0  
Hazchem : 2[S]E  
[Click here](#) for MSDS  
[Click here](#) for more information

## Physical Properties

Chemical symbol : H<sub>2</sub>  
Molecular weight : 2.016  
Specific gravity (Air=1) : 0.0696  
Specific volume (m<sup>3</sup>/kg) : 11.90  
Critical temperature : -240°C  
Boiling point : -252.8°C

Melting Point : -259°C  
Critical pressure (bar) : 12.98  
Major hazards : High Pressure, Fire  
Toxicity : Simple Asphyxiant  
Flammability Range : 4.0 - 7% ref N°175  
Odour : None

[Click here](#) for more information

## Application

### INDUSTRY

Laboratories and Analysis

Food Processing

Machine / Metal Construction

Other

### APPLICATION

Used pure and in mixtures for industrial and hospital analysis and quality control.

Production of food oils.

Heat treatment of various metals.

Desulfurizing of fuel-oil and gasoline.

[Click here](#) for more information

## Typical Specification Comparison Table

Grade	Purity	Typical Impurities (ppm molar)				
		H <sub>2</sub> O	O <sub>2</sub>	THC	CO	CO <sub>2</sub>
<b>Alphagaz 2</b>	99.9995%	<0.5	<0.1	<0.1	<0.1	<0.1
<b>Alphagaz 1</b>	99.999%	<3	<2	<0.5		
<b>Alphagaz HP</b>	99.995%					

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## Hydrogen : **Alphagaz 2**

Min Purity 99.9995%

<u>Gas</u>		<u>Cylinder information</u>			
Typical impurities (ppm molar)		Cylinder Size	Valve Connection	Pressure (kPa)	Contents (m <sup>3</sup> )
H <sub>2</sub> O	< 0.5ppm	B 50	NF E	20,000	8.8
O <sub>2</sub>	< 0.1ppm				
THC	< 0.1ppm				
CO	< 0.1ppm				
CO <sub>2</sub>	< 0.1ppm				

### Recommended Equipment

Dual stage chrome plated brass body regulator with a stainless steel diaphragm.  
For further information [Contact](#) the specialty gases representative in your region.

## Hydrogen : **Alphagaz 1**

Min Purity 99.999%

<u>Gas</u>		<u>Cylinder information</u>			
Typical impurities (ppm molar)		Cylinder Size	Valve Connection	Pressure (kPa)	Contents (m <sup>3</sup> )
H <sub>2</sub> O	< 3ppm	B 50	NF E	20,000	8.8
O <sub>2</sub>	< 2ppm				
THC	< 0.5ppm				

### Recommended Equipment

Dual stage chrome plated brass body regulator with a stainless steel diaphragm.  
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## Hydrogen : **Alphagaz HP**

Min Purity 99.9995%

<u>Gas</u>		<u>Cylinder information</u>			
Typical impurities (ppm molar)		Cylinder Size	Valve Connection	Pressure (kPa)	Contents (m <sup>3</sup> )
		G	AS 2473 T 20	13,700	5.9

### Recommended Equipment

Dual stage chrome plated brass body regulator with a stainless steel diaphragm.  
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