

# Hydrogen 4.5

## 1 General

Hydrogen 4.5 is a gas with a purity > 99.995%.

## 2 Uses

Hydrogen 4.5 can be used in various industrial applications such as the chemical sector, the metal or glass industries. It fits particularly the needs for iron ore reduction, combustion and heating processes, as well as in controlled atmospheres for surface treatments.

## 3 Physical properties

Under normal conditions of temperature and pressure, hydrogen is a flammable, colourless and odourless gas, which is lighter than air. It is soluble in water up to 1.6 mg/L at 21°C.

### ► Chemical formula

H<sub>2</sub>

### ► Gas density relative to air (1013hpa/15°C)

0.0695

### ► Physical state

Gas

### ► Melting point (1013hpa)

-259.2°C

### ► Molar mass

2.02g/mol

### ► Boiling point (1013hpa)

-253°C

### ► Density (1013hpa/15°C)

0.084kg/m<sup>3</sup>

### ► Self-ignition point (1013hpa)

560°C

### ► Flammability limits

4 %-77%

## 4 Chemical properties

Hydrogen is a powerful reducing agent, which ignites very easily when mixed with oxygen. Under unsafe conditions, it can cause violent reactions or even explosions to occur, or react to form flammable mixtures that can ignite with heat and/or shock, or in contact with oxidants, halogens (bromine, chlorine, fluorine, iodine) or gas (acetylene, carbon monoxide). Metal catalysts, such as platinum and nickel, intensify these reactions.

## 5 Specifications

- ▶ **H<sub>2</sub> Purity**  
> 99.995 %
- ▶ **O<sub>2</sub> impurities**  
< 5 ppm
- ▶ **H<sub>2</sub>O impurities**  
< 5 ppm
- ▶ **N<sub>2</sub> Impurities**  
< 50 ppm
- ▶ **Lhyfe reference**  
HY0004

## 6 Safety data sheet

Available at [www.lhyfe.com](http://www.lhyfe.com)

The manufacturer reserves the right to make changes to this datasheet at any time without notice. The user assumes all responsibility for the suitability of this product for their particular purpose responsibility and the compliance with all applicable laws and regulations.