Renewable hydrogen 3.0

1 General

Renewable Hydrogen 3.0, RFNBO (Renewable Fuel of Non Biological Origin) compliant, is a gas produced by electrolysis of water from a 100% renewable energy source and with a purity > 99.9%.

2 Uses

Renewable hydrogen 3.0 can be used for combustion testing or storage.

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_2
- **Physical state**
  Gas
- **Molar mass**
  2.02g/mol
- **Density (1013hpa/15°C)**
  0.084kg/m3
- **Flammability limits**
  4 %-77%
- **Gas density relative to air (1013hpa/15°C)**
  0.0695
- **Melting point (1013hpa)**
  -259.2°C
- **Boiling point (1013hpa)**
  -253°C
- **Self-ignition point (1013hpa)**
  560°C

4 Chemical properties

Hydrogen is a powerful reducing agent, which ignites very easily when mixed with oxygen. Under unsafe conditions, it can cause violent vreactions 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_2 Purity**
  > 99.9 %
- **O_2 impurities**
  < 50 ppm
- **H_2O impurities**
  < 100 ppm
- **N_2 Impurities**
  < 500 ppm
- **Lhyfe reference**
  HY0007

6 Safety data sheet

Available at www.lhyfe.com