

Hydrogen Element

Hydrogen, symbol H, is the lightest element with atomic number 1 and atomic weight 1.00794 u. It is the most common substance in the Universe, making up about 75% of baryonic mass.

Overview

- Latin name: Hydrogenium
- English name: Hydrogen
- Year discovered: 1766
- CAS Number: CAS1333-74-0
- Electron shell: K1-LO-MO-NO-OO-PO-QO-RO

Properties

- Atomic number: 1
- Atomic weight (Relative atomic mass): 1.00797094202593 (g/mol)
- Density: 0.00008988 (g/cm³)
- Melting point: -259.16°C = -434.49°F = 13.99K
- Boiling point: -252.879°C = -423.18°F = 20.27K
- Valence electrons: 1
- Block: s - block
- Period: 1
- Group: IA
- Phase : gas

- Electron configuration: 1s1
- Ion charge: H¹⁻, 1⁺
- The ionization potential of an atom: 13.598 (eV)
- Atomic radius: 53 (pm)
- Covalent radius: 32 (pm)
- Van der Waals radius: 120 (pm)
- Magnetic type: Diamagnetism
- Volume magnetic susceptibility: $-2.23 \cdot 10^{-9}$
- Mass magnetic susceptibility: $-2.48 \cdot 10^{-8}$
- Molar magnetic susceptibility: $-4.999 \cdot 10^{-11}$ (m³/mol)
- Crystal structure: Hexagonal
- Debye temperature: -163.15°C = -261.67°F = 110.0K
- Electronegativity: 2.2
- Electron affinity: 72.769 kJ/mole

Prevalence

- The universe is composed mostly of hydrogen, making up 75% of its total composition.
- The text states that the Sun is made up of 71% hydrogen.
- Oceans contain hydrogen at a rate of 11.0%.
- The human body contains hydrogen at a rate of approximately 9.99%.
- The Earth's crust has 0.14% hydrogen.
- Meteorites contain hydrogen, which makes up 2.4% of their composition.