

STUDY ON HYDROGEN

Hydrogen (Latin: hydrogenium, from Greek: hydro: water, genes: forming) is a chemical element in the periodic table that has the symbol H and atomic number 1. In engineering, due to its specific use in electrical power generating stations, this gas plays a very important role. It has an atomic mass of 1.01.

Properties

At standard temperature and pressure it is a colorless, odorless, nonmetallic, univalent, tasteless, highly flammable diatomic gas. However, in extremely cold and dense environments, hydrogen can be metallic. Hydrogen is the lightest and most abundant element in the universe.

It is also present in water.

Uses

The element is used in ammonia production, as a lifting gas, as an alternative fuel, and more recently as a power source of fuel cells.

Hydrogen gas is also used extensively as a cooling medium in large electrical generators, generally of 50MW and above, in electric power generating stations.

The present trend is to use it in automobile engines (Hydrogen_car [[1]]) for which extensive trials are being carried out by various manufacturers.

Manufacture

Despite its ubiquity in the universe, pure hydrogen is surprisingly difficult to produce in large quantities on the Earth. In the laboratory, the element is prepared by the reaction of acids on metals such as zinc. The electrolysis of water is a simple method of producing commercial hydrogen, but is economically inefficient for mass production.

However this method of electrolysis of water is adopted for large scale manufacture of hydrogen for use in large generators of electrical power generating stations and transported to power station site by means of cylinders in large numbers.

Alternatively hydrogen gas generated as a byproduct in other industries is sent to power stations.

In the case of very large electrical power generating stations the manufacturing facility by electrolysis is provided at site itself to avoid large scale transport of cylinders, but far away at site, considering safety aspects.

Source : <http://engineering.wikia.com/wiki/Hydrogen>