

# Understanding Gases

## Hydrogen



**Hydrogen contributes approximately 75% of the gas on Earth, and is found in light, water, air, plants, and animals, as well as being combined with other chemicals.**



It is colourless, tasteless and odourless meaning it is difficult to detect in different environments.



Historically it was used as rocket fuel and within gas turbines. Hydrogen is sometimes used as a fuel.



Blue hydrogen is produced from non-renewable energy sources, whilst green hydrogen is uses renewable electricity produced by an electrolyser that splits the hydrogen from water molecules.

### How do you detect Hydrogen?

Hydrogen is easy to detect using gas detectors. However, ensuring the placement of gas detectors at ceiling level will ensure early detection in the event of indoor leaks.

Using a reliable detector is important to ensure that those working and moving about in spaces where hydrogen is present are kept safe.

The most reliable is the Molecular Property Spectrometer (MPS), although many other technologies will detect for a significant time.

### What should you do if you are exposed?

In the event of being exposed to hydrogen, individuals should evacuate the hazardous area immediately and rescuers should remain cautious when approaching that area.

### What are the dangers of Hydrogen?

Although non-toxic, hydrogen can still accumulate in indoor and confined spaces which can result in the displacement of oxygen. Within spaces such as battery storage rooms, for example, a build-up of hydrogen can cause confusion, dizziness, nausea, and irritation to the respiratory system. In severe cases, asphyxiation and death. But in practice hydrogen usually disperses.

As a fuel, hydrogen is also highly flammable and so, in the case of leaks, there is a serious risk of fire. Hydrogen disperses upwards and, if ignited, will burn more easily than petrol or diesel. Fires can begin from just a spark of static electricity from a person's finger, and as hydrogen flames are invisible, finding it can be difficult. Hydrogen fires backed by a continuous supply are almost impossible to extinguish.

As a compressed substance, hydrogen is stored and moved in liquified hydrogen tanks, making it very cold. Therefore tank leaks can result in severe frostbite, or even the loss of extremities. Under those circumstances it may be necessary to bathe the affected area of skin in warm water.



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For severe cases of frostbite, bathing in warm water must be undertaken.