

## H2S Alive Training Burlington

H2S Alive Training Burlington - H<sub>2</sub>S or Hydrogen Sulfide is most frequently found from its separation from sour gas. Sour gas is a kind of natural gas which has a high content of Hydrogen Sulfide in it. It can also be produced when molten elemental sulfur and hydrogen gas react around 450 degrees Celcius. In this chemical process, hydrocarbons could replace hydrogen.

Sulfide is produced as a waste product when sulfate-reducing or resp. sulfur reducing bacteria generate useable energy under low-oxygen conditions. This process happens hydrogen or organic compounds is oxidized by using sulfates or resp. elemental sulfur. When these processes occur, the end result is that hydrogen sulfide is produced as a waste product.

In the lab, the standard lab preparation is to react FeS or ferrous sulfide with a strong acid inside of a Kipp generator. For example:  $\text{FeS} + 2 \text{HCl} \rightarrow \text{FeCl}_2 + \text{H}_2\text{S}$ . There is another more convenient option which is less common. This reaction is to combine water and aluminum sulfide. Like for example:  $6 \text{H}_2\text{O} + \text{Al}_2\text{S}_3 \rightarrow 3 \text{H}_2\text{S} + 2 \text{Al}(\text{OH})_3$

In addition, this gas is also made by heating solid organic compounds with heating sulfur and by reducing hydrogen with sulfurated organic compounds. H<sub>2</sub>S or Hydrogen Sulfide is a byproduct of various reactions and hence, extreme caution has to be taken when production of the gas is likely, since exposure to this could be fatal. Due to all of the hazards involved in its production, H<sub>2</sub>S or Hydrogen Sulfide production could be extremely costly.

Though just small amounts of H<sub>2</sub>S actually happen in crude petroleum, natural gas can contain as much as ninety percent. Hot springs and volcanoes and even some cold springs emit Hydrogen Sulfide or H<sub>2</sub>S. Usually, it arises via the hydrolysis of sulfide minerals, for instance:  $\text{MS} + \text{H}_2\text{O} \rightarrow \text{MO} + \text{H}_2\text{S}$ . Moreover, H<sub>2</sub>S can be naturally present in well water. It often is the result of the action of sulfate-reducing bacteria.

Of the total emissions of hydrogen sulfide all around the world, about 10 percent is a result of human activity. The By far, the largest industrial contributor of H<sub>2</sub>S are the petroleum refineries. This is caused by the hydro-desulfurization procedure which utilizes the action of hydrogen to liberate sulfur from the petroleum. The resulting H<sub>2</sub>S is converted to elemental sulfur by the Claus process and partial combustion caused by it. This produces a major source of elemental sulfur. There are various other anthropogenic sources of H<sub>2</sub>S including the paper mills that utilize the sulfate method, coke ovens and tanneries. H<sub>2</sub>S arises practically from any place where elemental sulfur comes into contact with organic material, particularly at high temperatures.