Managing Hydrogen Sulphide in Petroleum Refinery

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Abstract

Hydrogen Sulphide is produced during the process of hydro treatment for desulphurisation, and hydro cracking operation for improvement in quality of petroleum products. H2S is also evolved during the process of sour water treatment and Sulphur Recovery from fuel gas. Hydrogen Sulphide Gas being highly toxic in nature, it requires preventive action and protective equipment for monitoring the accidental presence of H2S and prevent from H2S exposure. This paper deals with the facts relating to H2S, its material health and safety data, sources of H2S generation in petroleum refinery which are critical. It requires protection for safe handling and disposal of H2S especially from Sour Water stripping system, amine treating system for flue gas desulphurization, and Sulphur recovery units. A few case studies on H2S exposure which has been discussed reminds the safe work practices to be followed.

The paper also describes the corrosion aspect of Hydro Sulphide in overhead system of certain fractionation towers in hydro-cracker & hydrotreater effluent streams, in sour water stripping and in Amine Treating Units which may help in deciding the metallurgy & practice for preventing equipment failure.