

# Eliminating the Occurrence and Consequences of Toxic Release in Petrochemical Industry through Intervention of Safety Engineering Tools

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**Abstract:** *The aim in this project is to analyze the risk associated with different toxic releases which is occurring in the chemical industry and to minimize its release using safety engineering tool in order to make the working environment safer. The sector of petrochemical industries is very important and have specific place in our country. Since the beginning, the Indian petrochemical industry has shown an enviable growth rate. This industry also contributes largely to the economy of the country and the growth and development of manufacturing industry as well. Petrochemical industry has a high risk of toxic release. The main causes of accidents are the chemical splashes which can occur for instance when a pipe or a tank burst under pressure or during disassembling operations of pipes or valves. There are a number of ways of toxic release at each and every process of petrochemical industry. We have identified the way in each process of the petrochemical industry. We have taken H<sub>2</sub>S as toxic gas and performed analysis, with the help of Bowtie methodology. Result obtained by evaluating various processes in petrochemical industry, we found that H<sub>2</sub>S can be released in three major sections i.e. transportation, storage and processing units. Using bowtie method, resolutions has been done to decrease or eliminate the possibilities of leakage of H<sub>2</sub>S.*

**Keywords:** H<sub>2</sub>S toxic gas, Bowtie methodology, Petrochemical, Accident, Risk, Safety Health, Hazards etc