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Failure Cases Analysis in Petrochemical Industry

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Abstract : In recent years, the failure accidents in petrochemical industry have been frequent, and have posed great security problems in personnel and property. The improvement of petrochemical safety is highly requested in order to prevent re-occurrence of severe accident. This study focuses on surveying the failure cases occurred in petrochemical field, which were extracted from journals of engineering failure, including engineering failure analysis and case studies in engineering failure analysis. The relation of failure mode, failure mechanism, type of components, and type of materials was analyzed in this study. And the analytical results showed that failures occurred more frequently in vessels and piping among the petrochemical equipment. Moreover, equipment made of carbon steel and stainless steel accounts for the majority of failures compared to other materials. This may be related to the application of the equipment and the performance of the material. In addition, corrosion failures were the largest in number of occurrence in the failure of petrochemical equipment, in which stress corrosion cracking accounts for a large proportion. This may have a lot to do with the service environment of the petrochemical equipment. Therefore, it can be concluded that the corrosion prevention of petrochemical equipment is particularly important.

Keywords : cases analysis, corrosion, failure, petrochemical industry
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