# Analisis risiko keselamatan proses di unit produksi karbamat PT X dengan produk intermediet methyl isocyanate (MIC) menggunakan teknik failure mode and effect analysis (FMEA) = Risk analysis of process safety at PT X in carbamate production unit with intermedite product methyl iso cyanate (MIC) using failure mode and effect analysis (FMEA) technique

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Abstrak

MIC (Methyl Isocyanate) adalah bahan kimia yang sangat berbahaya dan beracun yang telah terbukti menjadi sumber bencana pada tragedi Union Carbide Bhopal tahun 1984. PT X sebagai perusahaan penghasil MIC harus memastikan adanya perlindungan keselamatan proses yang baik. Untuk memastikan hal tersebut perlu dilakukan penilaian risiko secara sistematis dan menyeluruh terhadap alat atau proses produksi MIC. Tesis ini membahas penilaian keselamatan proses menggunakan teknik Failure Mode and Effect Analysis (FMEA). 57 potensi kegagalan teridentifikasi di penelitian ini.
Hasil penelitian memberikan gambaran tentang profil severity, occurance dan detection serta diperolehnya nilai Risk Priority Number (RPN) dari ke-57 potensi kegagalan tersebut. Profil FMEA yang dihasilkan menjadi input untuk membuat skenario terburuk potensi kegagalan ganda. 8 nilai RPN tertinggi dengan potensi keparahan mayor diperoleh untuk segera ditindaklanjuti dengan tindakan perbaikan. Selain itu, diperoleh pula 2 potensi kegagalan ganda terburuk yang harus menjadi perhatian.
Di akhir tesis ini rekomendasi diberikan kepada PT X baik rekomendasi teknis terkait hasil penilaian risiko ini maupun rekomendasi yang bersifat umum untuk meningkatkan perlindungan keselamatan proses di PT X.
.....MIC (Methyl Isocyanate) has been classified as extremely toxic and hazardous substances which had severely caused catastrophic at Union Carbide Bhopal in 1984. PT. X has been a producer of MIC which shall ascertain the presence of process safety strictly implemented. To ascertain those things, systematically risk assessment shall be undertaken as well as comprehensively to devices or MIC production process. This thesis elucidates the assessment of process safety by applying Failure Mode and Effect Analysis (FMEA) Technique. 57 failures potential have been identified in this research.
The result of research has provided depiction concerning the profile of severity, occurrence and detection as well as attaining RPN value of the number of 57 failures potential. FMEA profile which has been resulted, it is an input to establish the worsen scenario of multiple failure potential. The highest RPN is 8 based on attained from the major of potential severity to be promtly followed up for corrective action. Hence, 2 potential attained from the worst multiple failures shall be concerned.
In the end of this thesis recommendation is provided to PT. X either technical recommendation of resulted risk assessment or recommendation generally to enhance the protection of process safety at PT. X .