Application of KGS−RBI™ program developed for petrochemical plant

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The method of Risk−Based Inspection (RBI) estimates a grade or degree of risk for each equipment, and then prioritizes inspection processes and establishes an inspection method, interval, and schedule in order to provide a comprehensive and systematic inspection on a technical basis. The algorithm of KGS−RBI™ developed for petrochemical plant by this study was constructed on the basis of the assessment procedure presented in appendices of API 581 BRD Code. The algorithm can be divided largely into three modules as qualitative, semi−quantitative, and quantitative RBI. In order to verify the applicability and validity of the KGS−RBI™, a sample analysis was curried out for 15 columns selected in a domestic NCC(Naphtha Cracking Center) plant whose operating time reaches about 15 years. Each column was considered as two equipment parts by dividing into top and bottom. Generic column failure frequencies were adjusted based on likelihood data. After determining release rate, release duration and release mass for each failure scenario, flammable, explosive and toxic consequences were assessed. Current risks for 15 columns were evaluated and risk based prioritization were determinded as a final result.