Inherent Safety Quantification for Toxic Release at Preliminary Design Stage

Azmi Mohd Shariff a, Dzulkarnain Zaini a, Chan T. Leong b
a Process Safety Research Group, Chemical Engineering Department,
Universiti Teknologi PETRONAS, 31750 Tronoh, Perak, Malaysia
b Gas Business Unit, PETRONAS, Level 54, Tower 1, PETRONAS Twin Towers,
50088 Kuala Lumpur, Malaysia
Email: dzulkarnain.zaini@petronas.com.my

Abstract

This work proposes a new technique that can quantify the level of inherent safety for process routes, streams and evaluate the inherent risk for toxic release accidents during the preliminary design stage. The combination of the above techniques is known as 3-Tier Inherent Safety Quantification (3-TISQ). The 3-TISQ allows for risk reduction through the implementation of inherent safety principles and to quantify and prioritize the level of inherent safety of the process route and stream, determine the inherent risk and modify the design up to the acceptable level.