

STRUCTURAL INTEGRITY ASSESSMENT OF PRESSURE VESSELS USED IN PROCESS INDUSTRY - RISK BASED APPROACH

Aleksandar Sedmak^{1*}, Snežana Kirin², Igor Martić², Tamara Golubović²

¹*University of Belgrade, Faculty of Mechanical Engineering, Kraljice Marije 16, Belgrade, Serbia, asedmak@mas.bg.ac.rs**

²*Innovation Center of the Faculty of Mechanical Engineering, Kraljice Marije 16, Belgrade, Serbia*

Abstract

Risk based approach to assess structural integrity of pressure vessel in process industry is presented, taking into account EU PED 2014/68 and API 581, and using basic fracture mechanics parameters. Failure Assessment Diagram (FAD) is applied to assess likelihood of failure of two spherical storage tanks, one for vinyl chloride monomer (VCM), the other one for ammonia. Using consequence estimation, the risk matrix is constructed, enabling managers to make decisions using risk as defined by engineers.

Keywords: *Structural integrity, Pressure vessels, Process industry, Risk based approach.*