E-LEARNING IN EXPLOSION PROTECTION: 20 YEARS OF PRACTICAL EXPERIENCE

Georg Suter

*Fire**Ex** Consultant GmbH, Rotenwies 2, 9056 Gais, Switzerland*
E-mail: g.suter@fireex.ch

A risk assessment is a prerequisite to identify and assess explosion/fire hazards and to evaluate and design safety measures against explosions/fires.

Hazard identification and risk assessment are typically iterative processes which normally start with an assessment without safety measures followed by one or more further assessments under consideration of safety measures.

This contribution explains the application of the so-called Modified Zurich Hazard Analysis (MZHA-Method) developed by Fire*Ex* Consultant GmbH to processes involving explosion/fire risks on basis of the ESCIS Booklet 4 (1998) and the conclusions of the European RASE project (2000). The combination of the likelihood for the occurrence of an explosive atmosphere (i.e., the Zones) and the presence of ignition sources combined with the expected impact of an explosion results in a risk evaluation in form of a risk matrix.

Safety characteristics of substances and the equipment details required for a thorough analysis are discussed, typical problems and mistakes with risk assessments in practice are summarized and a practical example for a risk assessment is given.

Finally, the contribution also shows possibilities for optimization and standardization of such a risk assessment with a software tool.

Keywords: *Explosion/Fire Hazards, Explosion Prevention, Explosion Mitigation, Risk Assessment.*

References

ESCIS – Expert Commission for Safety in the Swiss Chemical Industry: Series Safety: Booklet 4. Introduction to Risk Analysis - Approaches and Methods. 1998, Basel (translation of 3rd revised German edition).

The RASE Project: Explosive Atmosphere. Risk Assessment of Unit Operations and Equipment, EU Project No. SMT4-CT97-2169 (2000).