



KNOWLEDGE FROM PRACTICE



SAFETY ANALYSES AND TECHNICAL CONSULTING



# Safety in the design of industrial infrastructure

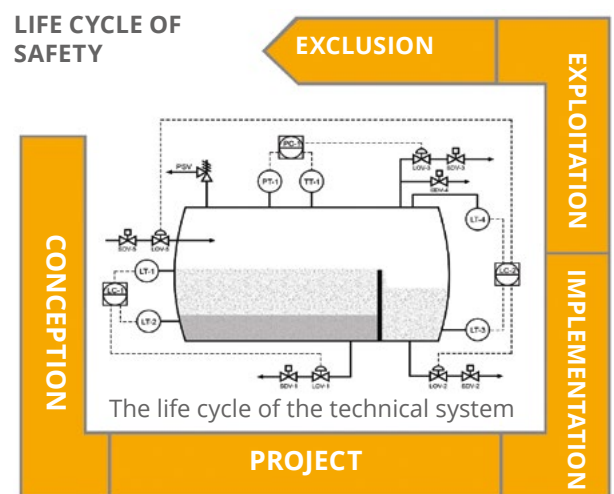
The technical analyses department (ASE Expert) of Automatic Systems Engineering Sp. z o.o., a company belonging to the ASE Group, conducts analyses that meet the actual needs of designers, contractors and users of technical facilities in various industrial plants.

Analyses and risk assessments are carried out at every stage in the lifecycle of a technical system, using methods suitable for the specific requirements to optimise the time and the costs.

*Meeting the safety requirements  
is key to the success of any business*

End-to-end safety coordination for industrial facilities and installations, at the stage of the design, operation and modernisation processes in the following industries: petrochemical, extraction, chemical, power, food, pharmaceutical and many others.

**For more information:**  
[www.ase-ekspert.pl](http://www.ase-ekspert.pl)



For project purposes, the safety specifications include guidelines regarding the sectoral requirements for:

- ✓ architecture
- ✓ design
- ✓ roads
- ✓ sanitation
- ✓ electricity
- ✓ automation
- ✓ technologies

Provision of consulting at every project implementation stage concerning the design solutions in order to assess their conformity with the requirements.



A wide range of services that meet the requirements of efficient and reliable computer-based analyses, achieving a complete and real view of the hazards and risks connected in part or whole with industrial facilities.



## ENVIRONMENTAL PROTECTION - in the investment process

- Environmental impact reports for planned projects
- Environmental impact assessments
- Integrated approvals
- Public consultations
- Environmental consulting
- Environmental studies meeting the standards of international financial institutions



## ENVIRONMENTAL PROTECTION - in the company

- Environmental audits and reviews
- Post-implementation analyses
- Adjustment programs

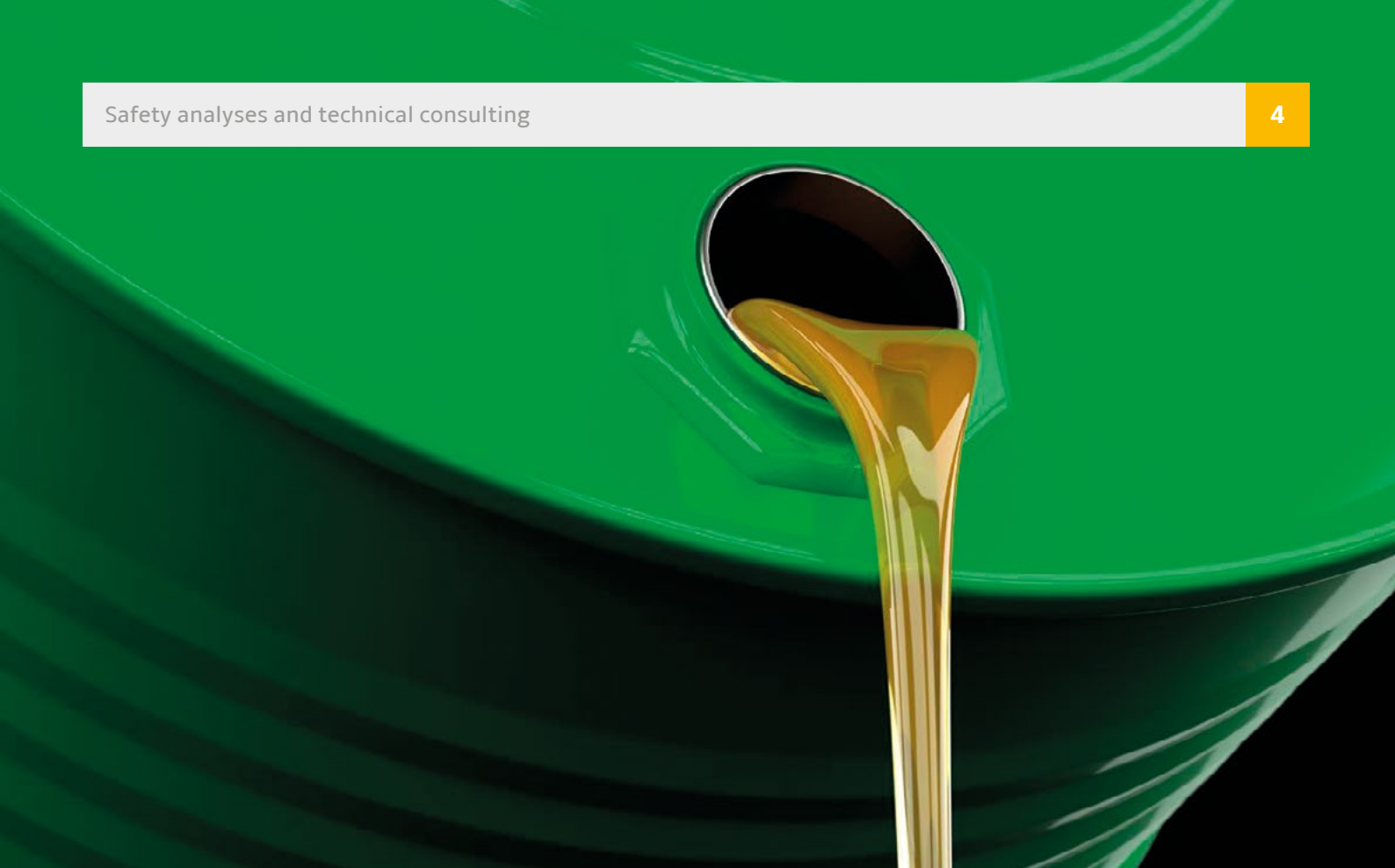
## EKO-KONSULT FOR DESIGN AND CONSULTING SERVICES:

Conducts environmental protection management analyses, studies, evaluations, programs and planning services, including environmental impact reports, environmental impact assessments, environmental audits and inspections, as well as applications for integrated approvals.

Publishes the "Problemy Ocen Środowiskowych" (Environmental Assessment Problems) quarterly, and books on environmental protection management instruments.

Runs training programs on environmental protection for environmental services employees in the public administration and business sectors.

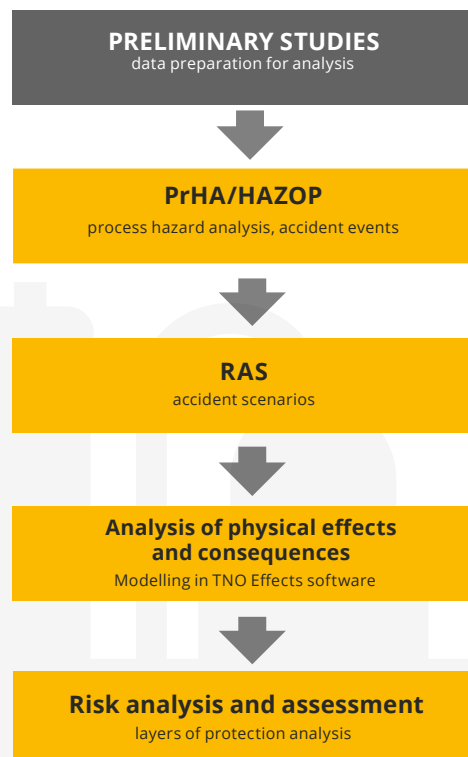
For more information:  
[www.ekokonsult.pl](http://www.ekokonsult.pl)



## SAFETY MANAGEMENT SEVESO III DIRECTIVE

### Plant major accident prevention system:

- Calculations of qualification to lower- and upper-tier sites
- Notification to the competent authority
- Increased and high risk plant qualification and reporting procedures
- Major-accident prevention policy (MAPP)
- Preparation of a failure prevention program
- Safety management system
- Preparation of internal emergency plans
- Guidelines for development of external emergency plans





## FIRE SAFETY

### Industrial safety

- Fire safety analysis
- Development of fire scenarios
- Definition of fire protection conditions
- Project coordination in the scope of fire safety
- Preparation of fire safety instructions



## PROCESS SAFETY

Hazard and risk analyses

 OVER **100**  
SAFETY ANALYSIS

- PrHA: Preliminary Hazard Analysis
- HAZID: Hazard Identification Study
- HAZOP: Hazard and Operability Study
- LOPA: Layers of Protection Analysis
- ETA: Vent Tree Analysis
- FTA: Fault Tree Analysis
- RBD: Reliability Block Diagram analysis
- FMEA/FMECA: Failure Modes, Effect and Criticality Analysis
- QRA: Quantitative Risk Analysis
- pQRA: Preliminary Quantitative Risk Assessment

*Our safety engineers has a knowledge and practice in scope of the IEC 61511 functional safety management proven by the international CFSP certificates*



## FUNCTIONAL SAFETY

### Functional Safety Management

- Supervision over the implementation of all safety lifecycle stages as per the requirements of IEC 61511:2016
- SIL level determination and verification of SIL fulfillment
- Safety requirements specification SRS for safety-related systems SIS
- Process and functional safety audits







## EXPLOSION SAFETY

### Explosion protection

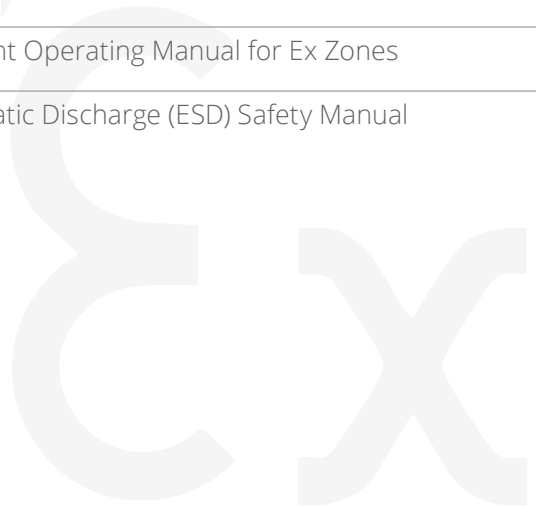
*The New Approach Directives, which include the ATEX 2014/34/EU directive dedicated to protection equipment and systems designed for use in potentially explosive atmospheres and which specifies essential health protection, safety and environmental requirements, are addressed mainly to the manufacturers and distributors of specific products.*

*For spaces with potentially explosive atmospheres, the document governing the tasks of the people responsible for workplace organisation and management is the ATEX USERS 1999/92/EC directive.*

*In the Polish legal system, the scope of this directive is governed by the Regulation of the Minister of Economy of July 8, 2010, on the minimum occupational health and safety requirements related to potentially explosive atmospheres, and which implements the provisions of the directive.*

*Both the Directive and the Regulation implementing it into Polish law specify certain requirements that shall be met by the employer. They include: Explosion Risk Assessment, Explosion Risk Analysis, and the Explosion Protection Document*

- ATEX Audit
- Explosion Risk Assessment
- Classification of Explosion Hazard Areas
- Explosion Risk Analysis
- Explosion Protection Document
- Equipment Operating Manual for Ex Zones
- Electrostatic Discharge (ESD) Safety Manual





## ASE SAFETY ACADEMY

### SPECIALISED TRAINING SYSTEM

The ASE Safety Academy is a system of specialised and certified training in the field of explosion prevention, developed by experienced experts and practitioners associated with ASE, the Polish leader in explosion safety.



 **7 000**

participants trained in 2012-2017

 **OVER 20**  
TYPES OF TRAINING

- Explosion safety
- Process safety
- Functional safety
- Fire safety
- Environmental protection



## IECEx recommends training with the ASE Safety Academy

The IECEx international certification program is a response to the globalisation trends in industry. It facilitates the free flow of goods and services, while maintaining a high level of explosion safety.

IECEx recommends the ASE Safety Academy, acknowledging it as an *IECEx Recognised Training Provider*. The international verification body recognised that during the training courses held at the ASE Safety Academy the participants receive the knowledge necessary to obtain the *IECEx Certificate of Personnel Competence*.

The ASE Safety Academy runs the following training programs that meet the IECEx competence requirements:

- ✓ **Personnel safety in explosion hazard zones**  
*Unit 000 – Basic knowledge and awareness to enter a site that includes a classified hazardous area*
- ✓ **ATEX – anti-explosion technology**  
*Unit 001 – Apply basic principles of protection in explosive atmospheres*
- ✓ **Classification of explosion hazard zones**  
*Unit 002 – Perform classification of hazardous area*
- ✓ **Operation of explosion-proof equipment**  
*Unit 004 – Maintain equipment in explosive atmospheres*





## WORK SAFETY

### Audit of compliance with occupational health and safety requirements in process areas with potentially explosive atmospheres.

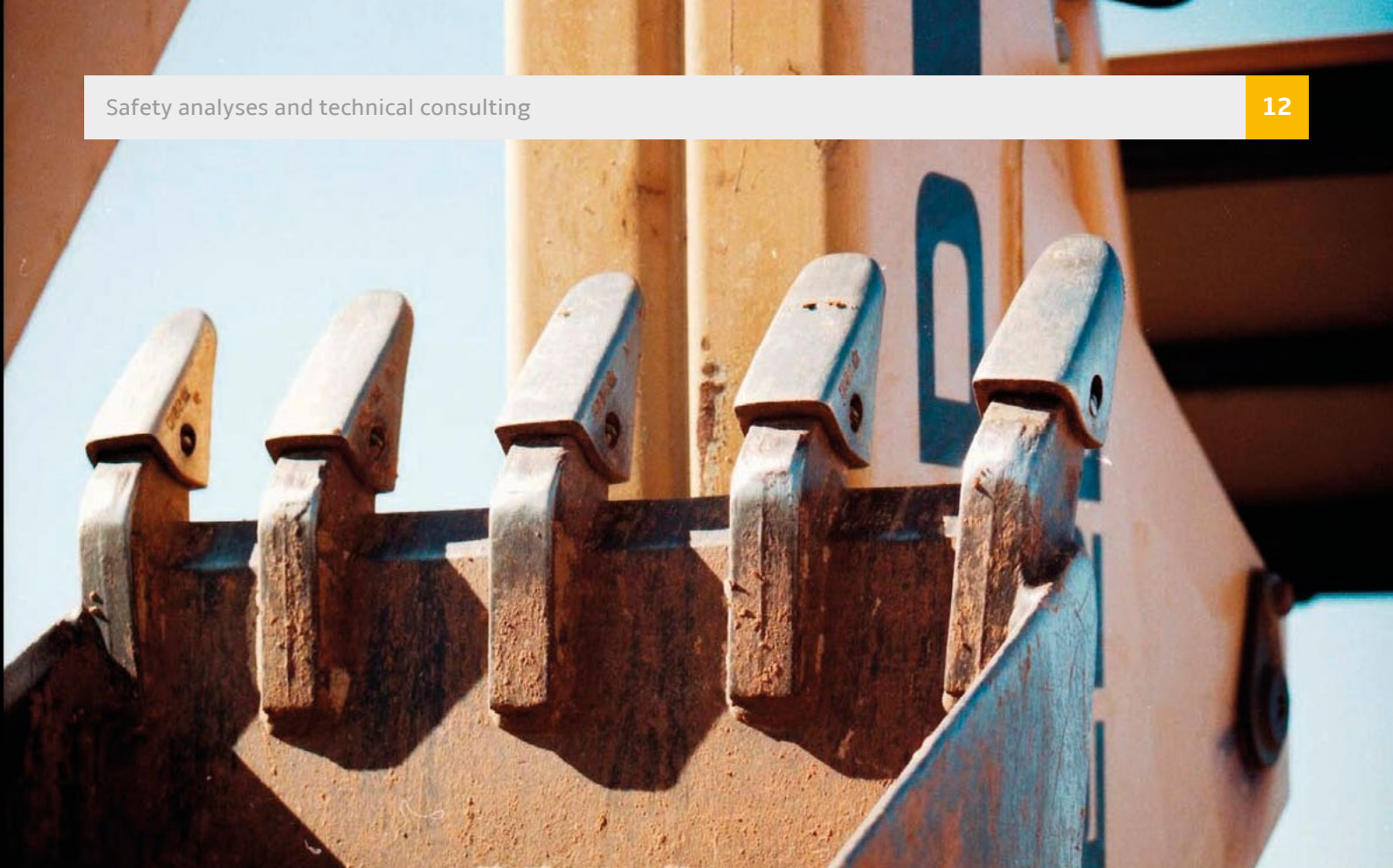
The OHS conditions analysis enables the evaluation of the provision of proper occupational health and safety conditions. Based on the analysis of OHS conditions, the employer can receive a reliable review of all OHS issues, evaluate the content and address its conclusions.

The result of an OHS audit is a report covering the risk areas in which changes are necessary to improve the safety of the work environment.

*Following the Regulation of the Minister of Labour and Social Policy of September 26, 1997, on general occupational health and safety regulations (consolidated text: Journal of Laws of 2003 No. 169 Item 1650, as amended): "the employer shall ensure systematic occupational health and safety condition inspections with particular consideration of the organization of work processes and the technical condition of machines and other process equipment, and determine the methods of recording irregularities and eliminating them". The employer can fulfil the obligation stipulated in § 40 sec. 1 of the above-mentioned regulation by conducting a comprehensive OHS inspection.*

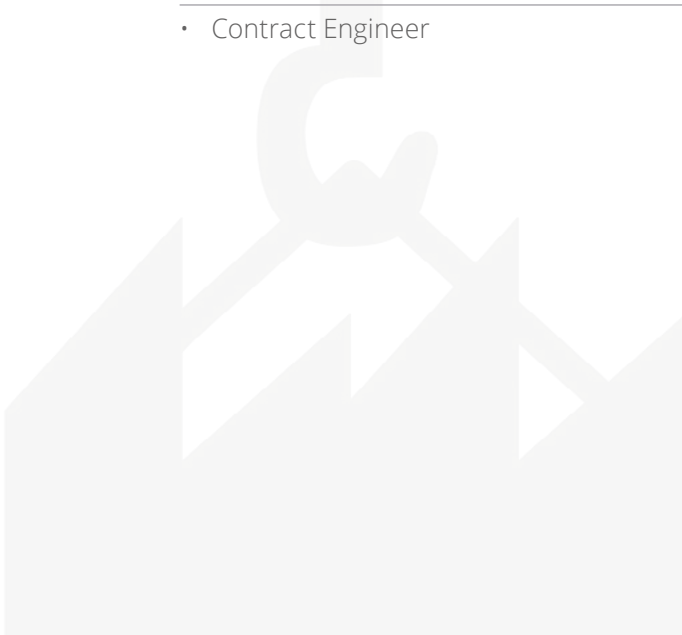
*Conducting the OHS condition inspection as a OHS condition analysis is based on § 2 of the Regulation of the Council of Ministers of September 2, 1997, on the occupational health and safety service (Journal of Laws No. 109 Item 704, as amended).*





## INVESTMENT CONSULTING

- Location analysis
- Estimation of project costs
- Selection and assessment of technologies
- Contract Engineer





## TECHNICAL CONDITION ASSESSMENT

In connection with the operation of installations, various industries show increasing demand for the assessment of the technical condition of an installation and its components related to the installation service time, ageing processes, corrosion and fatigue phenomena connected with process fluctuations (temperature, pressure), etc. To answer to these questions effectively requires a specialised technical condition assessment.

### Evaluations, technical consulting and jurisdiction:

- Specialized works
- Structure strength tests
- Non-destructive tests
- Electrostatics: evaluations and measurements
- Preventative works
- Optimization of the fire protection system operation
- Computer modelling and training simulators
- Corrosion protection

# Safe technologies for industry and infrastructure

The mission of the ASE GROUP companies is to provide safe technologies and solutions for industry and the economic infrastructure.





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