



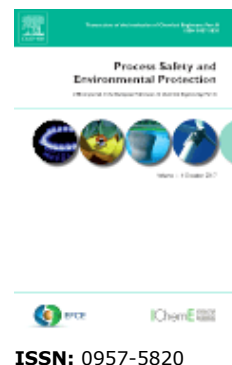
# PROCESS SAFETY AND ENVIRONMENTAL PROTECTION

Publication of the [Institution of Chemical Engineers](#)

## AUTHOR INFORMATION PACK

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### DESCRIPTION

*PSEP* aims to be the principal international journal for publication of high quality, original papers in the branches of engineering concerned with the **safety of industrial processes** and the protection of the **environment**.

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Core topic areas:

#### **Risk Assessment and Reliability Engineering**

- Risk assessment, risk management, consequence analysis, and uncertainty quantification.
- Supply chain risk management.
- Cyber and physical security vulnerability assessment.
- Risk assessment of hydrogen-based technologies.
- Human reliability analysis (HRA) and human-machine interface (HMI).
- Reliability predictions of integrated systems and high-temperature power electronics.

- Integrity management and reliability, availability and maintainability (RAM).

### **Technical Safety and Loss Prevention**

- Fire and gas detection.
- Firewater systems.
- Functional safety and safety integrity levels (SIL)
- Layer of protection analysis (LOPA)
- Bowtie analysis.
- Emergency response
- HAZOP and other hazard/risk identification techniques.

### **Modelling**

- Modelling liquid, gaseous, and two-phase releases and dispersion.
- Consequence modelling, including: fire, explosion, toxic, eco-toxic effects and projectile impacts.
- Methods, including computational fluid dynamics (CFD).
- Accident investigation and modelling.

### **Chemical Toxicity and Exposure Assessment**

- Toxic releases and exposure assessment.
- Process plant health issues.

### **Process Pipelines, Storage and Security**

- Process pipelines security and terrorism.
- Pipeline leak detection and measurement and corrosion assessment.
- Carbon capture and storage (CCS) and CO<sub>2</sub> transport.

### **Fire and Explosion**

- Fire, combustion, and explosion phenomena.
- Dust explosions.
- Fire and blast protection and survivability.

### **Human Factors in Design and Management**

- HSE performance measurement including leading and lagging indicators.
- Human and organizational factors in safety cases.
- Human performance optimization by design.
- SIMOPS (simultaneous operations).
- Situational awareness.
- Communications and risk control systems.
- Resilience engineering.
- Technical assurance and workforce training.

### **Inherent Safety and Inherently Safer Design**• Hazard identification

- Design and development of new processes and equipment.
- Methodologies for ranking inherent safety.
- Retrofitting inherently safer solutions and upgrading existing plant for improved safety.

### **Nuclear Safety**

- Waste disposal.
- Design for decommissioning.
- Passively safe reactor designs.
- Nuclear reactor protective and monitoring systems.

### **Reaction Hazards**

- Chemical thermal stability and thermal reaction hazards.
- Influence of impurities on reaction hazards.
- Development of reactivity hazard index ranking tools.
- Runaway reactions, including detection and mitigation.
- Compatibility/reactivity of chemicals involved in a chemical process.

### **Industrial Hazards and Safety Cases**

- Major accident hazards
- ALARP and cost-benefit analysis.
- Industrial safety cases.

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- Case histories of incidents and lessons learned integration into design and operations.
- Technical analysis of incidents.
- Computational modelling to simulate actual incidents
- Use of incidents in training and improvement of safety performance
- Incident investigation methodologies
- Incident databases and their applications.

### **Air pollution prevention and treatment**

- Methods and technologies for prevention and treatment of air pollution
- Air dispersion modelling
- Prediction and mitigation of air pollution incidents
- Health impacts from air pollution

### **Resource and waste management**

- Recovery and recycling of materials and products
- Energy from waste and alternative resources
- Waste minimisation
- Waste treatment technologies
- Waste management: systems and processes for energy and material recovery and waste treatment; disposal
- Landfill and waste repository design, operation and management
- Land remediation and recovery

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- Mitigation of water pollution incidents
- Water pollution dispersion modelling
- Health impacts from water pollution

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