

PROCESS SAFETY AT A GLANCE 2023

GUIDELINES (G/L) FOR RISK BASED PROCESS SAFETY

CCPS MANAGEMENT RESOURCE TOOLS

COMMIT TO PROCESS SAFETY

- PS Leadership from the Boardroom to the Frontline
- Essential Practices for Creating, Strengthening, and Sustaining Process Safety
- The Business Case for Process Safety, 4th ed.
- G/L for Implementing Process Safety Management, 2nd ed.
- G/L for Process Safety in Outsourced Manufacturing Operations
- Local Emergency Planning Committee Guidebook
- Practical Compliance with the EPA Risk Management Program: A CCPS Concept Book
- Process Safety for Engineers: An Introduction, 2nd ed.**



CCPS RISK BASED PROCESS SAFETY ELEMENT

- **Process Safety Culture**
- **Standards, Codes, Regulations, and Laws**
- **Process Safety Competency**
- **Workforce Involvement**
- **Stakeholder Outreach**

CCPS TECHNICAL RESOURCES & TOOLS

SOFTWARE APPLICATIONS

- Risk Analysis Screening Tool (RAST) and Chemical Hazard Engineering Fundamentals (CHEF)
- CCPS Glossary – [aiche.org/ccps/resources/glossary](https://www.aiche.org/ccps/resources/glossary)
- CCPS Process Safety Incident Evaluation Tool (PSIE 2.0)
- CCPS Chemical Reactivity Worksheet Tool (CRW 4.0.3)
- Process Safety Incident Database
- Vision 20/20 Self-Assessment Tool
- RBPS Self-Assessment Tool
- New tools and videos will be added to [aiche.org/ccps/resources/tools](https://www.aiche.org/ccps/resources/tools)

VENTING AND EMERGENCY RELIEF

- Deflagration and Detonation Flame Arresters
- Emergency Relief Systems Design Using DIERS Technology
- G/L for Pressure Relief and Effluent Handling Systems
- Safe Design and Operation of Process Vents and Emission Control Systems

CHEMICAL REACTIVITY HAZARDS

- Essential Practices for Managing Chemical Reactivity Hazards
- G/L for Process Safety in Batch Reaction Systems, 2nd ed.
- G/L for Chemical Reactivity Evaluation and Application to Process Design, 2nd ed.
- G/L for Safe Storage and Handling of Reactive Materials

SAFE DESIGN

- Handbook for Process Safety in Laboratories and Pilot Plants: A Risk Based Approach
- Continuous Monitoring for Hazardous Material Releases
- G/L for Engineering Design for Process Safety, 2nd ed.
- G/L for Integrating PS into Engineering Projects
- G/L for Fire Protection in Chemical, Petrochemical, and Hydrocarbon Processing Facilities
- G/L for Safe Warehousing of Chemicals
- G/L for Inherently Safer Chemical Processes, A Life Cycle Approach, 3rd ed.

CONSEQUENCE MODELING

- G/L for Consequence Analysis of Chemical Releases
- G/L for Evaluating Process Plant Buildings for External Explosions, Fires, and Toxic Releases, 2nd ed.**
- G/L for Vapor Cloud Explosion, Pressure Vessel Burst, BLEVE, and Flash Fire Hazards, 2nd ed.**
- Understanding Explosions
- Wind Flow and Vapor Cloud Dispersion at Industrial and Urban Sites
- G/L for Determining the Probability of Ignition of a Released Flammable Mass

BIOPROCESS SAFETY

- G/L for Process Safety in Bioprocess Manufacturing Facilities

DUST EXPLOSION HAZARDS

- G/L for Safe Handling of Powders and Bulk Solids
- G/L for Combustible Dust Hazard Analysis

HUMAN FACTORS

- Human Factors Handbook for Process Safety Plant Operations: Improving Process Safety and System Performance
- G/L for Preventing Human Error in Process Safety

AUTOMATION

- Managing Cybersecurity in the Process Industries: A Risk-Based Approach
- G/L for Safe and Reliable Instrumented Protective Systems
- G/L for Safe Automation of Chemical Processes, 2nd ed.**

UNDERSTAND HAZARDS AND RISKS

- G/L for Process Safety During the Transient Operating Mode
- G/L for Facility Siting and Layout**
- Recognizing and Responding to Normalization of Deviance
- G/L for Defining Process Safety Competency Requirements*
- A Practical Approach to Hazard Identification for Operations and Maintenance Workers*/**
- G/L for Chemical Process Quantitative Risk Analysis, 2nd ed.
- G/L for Chemical Transportation Safety, Security, and Risk Management, 2nd ed.
- G/L for Hazard Evaluation Procedures, 3rd ed.*
- Layer of Protection Analysis*/**
- G/L for Enabling Conditions and Conditional Modifiers in Layer of Protection Analysis**
- Guidelines for Initiating Events and Independent Protection Layers in Layer of Protection Analysis
- Recognizing Catastrophic Incident Warning Signs in the Process Industries**
- Process Safety in Upstream Oil and Gas



- **Process Knowledge Management**
- **Hazard Identification and Risk Analysis**

MANAGE RISK

- G/L for Managing Abnormal Situations
- Bow Ties in Risk Management: A Concept Book for Process Safety
- Dealing with Aging Process Facilities and Infrastructure
- G/L for Integrating Management Systems and Metrics to Improve Process Performance
- Conduct of Operations and Operational Discipline*/**
- G/L for Management of Change for Process Safety*/**
- G/L for Managing Process Safety Risks during Organizational Change
- G/L for Improving Plant Reliability through Data Collection and Analysis
- G/L for Asset Integrity Management
- G/L for Performing Effective Pre-Startup Safety Reviews**
- G/L for Process Safety Documentation
- G/L for Technical Planning for On-Site Emergencies
- G/L for Managing Abnormal Situations
- G/L for Revalidating Process Hazard Analysis, 3rd ed.
- G/L for Analyzing and Managing the Security Vulnerabilities of Fixed Chemical Sites
- G/L for Writing Effective Operating and Maintenance Procedures*
- Guide for Making Acute Risk Decisions
- Tools for Making Acute Risk Decisions



- **Operating Procedures**
- **Safe Work Practices**
- **Asset Integrity and Reliability**
- **Contractor Management**
- **Training and Performance Assurance**
- **Management of Change**
- **Operational Readiness**
- **Conduct of Operations**
- **Emergency Management**

LEARN FROM EXPERIENCE

- Book of Beacons, Online, Available to Members-only
- Driving Continuous Process Safety Improvements from Investigated Incidents
- G/L for Process Safety Metrics
- CCPS PS Metrics Guide for Leading and Lagging Indicators*/**
- Effectively Using Metrics to Improve Process Safety Performance*/**
- Process Safety Leading Indicators Industry Survey
- G/L for Acquisition Evaluation and Post Merger Integration
- G/L for Auditing Process Safety Management Systems, 2nd ed.**
- G/L for Investigating Process Safety Incidents, 3rd ed.
- Incidents that Define Process Safety**
- More Incidents that Define Process Safety



- **Incident Investigation**
- **Measurement and Metrics**
- **Auditing**
- **Management Review and Continuous Improvement**

ADDITIONAL RESOURCES

Find **CCPS resources** to meet your needs from the chart on this page. Additional information can be found at [aiche.org/ccps](https://www.aiche.org/ccps)



It always makes sense to start with "Guidelines for Risk Based Process Safety".**

Most **CCPS books** are available at [wiley.com/go/ccps](https://www.wiley.com/go/ccps)

Deep Search CCPS by searching for "CCPS" and keywords on [Knovel.com](https://www.knovel.com)

Monograph Series

- Safe Work Practices
 - Golden Rules of Process Safety for Specific Technologies
 - Key Principles of Process Safety
 - Handling Force Majeure Events (Pandemic, Natural Disasters, etc.)
- Additional monographs can be found here: [aiche.org/ccps/publications/process-safety-monographs](https://www.aiche.org/ccps/publications/process-safety-monographs)

CCPS Education

Courses, in-person, and virtual training covering various elements of Risk Based Process Safety are available at [aiche.org/ccps/education](https://www.aiche.org/ccps/education)

Translated Materials

Mandarin, Japanese, Portuguese, Spanish and Italian versions available at [aiche.org/ccps/QuickLinks](https://www.aiche.org/ccps/QuickLinks)

* Available in Spanish, Japanese, and/or Portuguese

** Available in Chinese