

# PROCESS SAFETY FUNDAMENTALS



## We respect hazards

- We improve our understanding of process safety hazards at our location and our roles in controlling them.
- We are vigilant about the potential impacts of uncontrolled process safety hazards.
- We discuss process safety hazards before starting a task.
- We bring forward process safety hazards to be included in activity risk assessments.



## We apply procedures

- We use operating and maintenance procedures, even if we are familiar with the task.
- We discuss the key steps within a critical procedure before starting it.
- We pause before key steps and check readiness to progress.
- We stop, inform supervision and avoid workarounds if procedures are missing, unclear, unsafe, or cannot be followed.
- We take time to become familiar with, and practice, emergency procedures.



## We sustain barriers

- We discuss the purpose of hardware and human barriers at our location.
- We evaluate how our tasks could impact process safety barriers.
- We speak up when barriers don't feel adequate.
- We perform our roles in maintaining barrier health and alert supervision to our concerns.
- We use an approval process for operations with degraded barriers.



## We stay within operating limits

- We discuss and use the approved operating limits for our location.
- We escalate where we cannot work within operating limits.
- We alert supervision if an alarm response action is unclear or the time to respond is inadequate.
- We obtain formal approval before changing operating limits.
- We confirm that potential for overpressure from temporary pressure sources has been addressed.



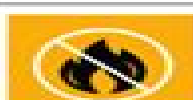
## We maintain safe isolation

- We use isolation plans for the specific task, based on up-to-date information.
- We raise isolation concerns before the task starts and challenge when isolation plans cannot be executed.
- We check for residual pressure or process material before breaking containment.
- We monitor the integrity of isolations regularly and stop to reassess when change could affect an isolation integrity.
- We confirm lock tightness before, during, and after re-starting equipment.



## We walk the line

- We use up-to-date documentation (e.g., Piping and Instrumentation Diagrams) that accurately reflect installed systems and equipment.
- We physically confirm the system is ready for the intended activity (e.g., valve positions, line up of relief devices, etc.).
- We alert supervision to identified documentation and readiness issues before operation.



## We control ignition sources

- We identify, eliminate, or control the full range of potential ignition sources during task risk assessments and during job preparation and execution.
- We minimize and challenge ignition sources even in "non-hazardous" areas.
- We eliminate ignition sources during breaking containment and start-up and shutdown operations.



## We recognise change

- We look for and speak up about change.
- We discuss changes and involve others to identify the need for management of change (MOC).
- We review the MOC process for guidance on what triggers an MOC.
- We discuss and seek advice on change that occurs gradually over time.



## We stop if the unexpected occurs

- We discuss the work plan and what signals would tell us it is proceeding as expected.
- We pause and ask questions when signals and conditions are not as expected.
- We stop and alert supervision if the activity is not proceeding as expected.



## We watch for weak signals

- We proactively look for indicators or signals that suggest future problems.
- We speak up about potential issues even if we are not sure they are important.
- We persistently explore the causes of changing indicators or unusual situations.

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# Fundamentals Of Process Safety

**L Darling-Hammond**



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## **Table of Contents Fundamentals Of Process Safety**

1. Understanding the eBook Fundamentals Of Process Safety
  - The Rise of Digital Reading Fundamentals Of Process Safety
  - Advantages of eBooks Over Traditional Books
2. Identifying Fundamentals Of Process Safety
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an Fundamentals Of Process Safety
  - User-Friendly Interface
4. Exploring eBook Recommendations from Fundamentals Of Process Safety
  - Personalized Recommendations
  - Fundamentals Of Process Safety User Reviews and Ratings
  - Fundamentals Of Process Safety and Bestseller Lists
5. Accessing Fundamentals Of Process Safety Free and Paid eBooks
  - Fundamentals Of Process Safety Public Domain eBooks
  - Fundamentals Of Process Safety eBook Subscription Services

- Fundamentals Of Process Safety Budget-Friendly Options
- 6. Navigating Fundamentals Of Process Safety eBook Formats
  - ePub, PDF, MOBI, and More
  - Fundamentals Of Process Safety Compatibility with Devices
  - Fundamentals Of Process Safety Enhanced eBook Features
- 7. Enhancing Your Reading Experience
  - Adjustable Fonts and Text Sizes of Fundamentals Of Process Safety
  - Highlighting and Note-Taking Fundamentals Of Process Safety
  - Interactive Elements Fundamentals Of Process Safety
- 8. Staying Engaged with Fundamentals Of Process Safety
  - Joining Online Reading Communities
  - Participating in Virtual Book Clubs
  - Following Authors and Publishers Fundamentals Of Process Safety
- 9. Balancing eBooks and Physical Books Fundamentals Of Process Safety
  - Benefits of a Digital Library
  - Creating a Diverse Reading Collection Fundamentals Of Process Safety
- 10. Overcoming Reading Challenges
  - Dealing with Digital Eye Strain
  - Minimizing Distractions
  - Managing Screen Time
- 11. Cultivating a Reading Routine Fundamentals Of Process Safety
  - Setting Reading Goals Fundamentals Of Process Safety
  - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Fundamentals Of Process Safety
  - Fact-Checking eBook Content of Fundamentals Of Process Safety
  - Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
  - Utilizing eBooks for Skill Development
  - Exploring Educational eBooks
- 14. Embracing eBook Trends

- Integration of Multimedia Elements
- Interactive and Gamified eBooks

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