7 MINUTE Safety Trainer

Process Safety Management

GOALS

This safety session should teach employees that:

- Process safety management is very important for managing highly hazardous chemicals safely.
- Process hazard analysis depends on employee input.
- Process hazards must be monitored on a continuous basis.

Applicable Regulations: 29 CFR 1910.119

1. **Process safety management is a way to prevent or minimize the consequences of a catastrophic release of toxic, reactive, flammable, or explosive highly hazardous chemicals from a process.**
   - A process is any activity including any use, storage, manufacturing, handling or on-site movement, involving highly hazardous chemicals.
   - An analysis is designed to identify, evaluate, and control the hazards of processes involving highly hazardous chemicals.
   - The analysis is performed by a team experienced in engineering and process operations.
2. **Key safety issues that a process hazard analysis should look at include:**
   - Hazards of the process
   - Any previous incident with the potential for catastrophic consequences
   - Applicable engineering and administrative controls
   - The consequences of failure of those controls
   - Facility siting
   - Human factors
   - A qualitative evaluation of the safety and health effects on employees of failure of controls
3. **Employees must take an active role in developing the analysis.**
   - The team must include at least one employee who has experience and knowledge specific to the process.
   - Another member must be experienced in the methods used to analyze the hazards.
   - All employees must be informed of the results of the analysis and any steps being taken to correct any problems discovered.
   - This involvement gives them a personal stake in the success of the program.
4. **Use one or more of the following methods (or an equivalent) to evaluate hazards:**
   - What If
   - Checklist
   - What If/Checklist
   - Hazard and operability study (HAZOP)
   - Failure mode and effects analysis (FMEA)
   - Fault tree analysis

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5. **A process hazard analysis must be based on reliable and current safety information about the hazards of the chemicals, the technology, and the equipment used in the process.**
   - Chemical hazard information should include physical hazards (corrosivity, explosivity, reactivity), health hazards (toxicity), and permissible exposure limits.
   - Technology information should include such items as a process flow diagram, process chemistry information, and safe upper and lower limits of temperatures and pressures.
   - Information about equipment used in the process should include such items as information about materials used in construction, piping and instruments, safety systems, and ventilation systems.
6. **OSHA requires a process hazard analysis to be updated at least once every 5 years.**
   - In addition, any change in process technology requires close review and potential reassessment of the process hazard analysis.
   - Analysis should be viewed as an ongoing priority—a daily practice in which all process personnel should be directly and actively involved.
   - All employees can make an important contribution by sharing their knowledge and experience with the process hazard analysis team.

DISCUSSION POINTS:

Talk with your trainees about why process safety management is necessary and important for your facility. Which of the activities performed at your site meet the definition of "process" according to this regulation?

CONCLUSION:

No one wants to experience catastrophic release of toxic, reactive, flammable, or explosive highly hazardous chemicals. The whole purpose of process hazard analysis is to prevent such a tragedy that could endanger workers' lives and, very likely, the surrounding community as well.

TEST YOUR KNOWLEDGE:

Have your employees take the Process Safety Management quiz. By testing their knowledge, you can assess their understanding of this important subject and determine whether they need to receive further training or review this topic again soon.

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QUIZ 440

C-1E

PROCESS SAFETY MANAGEMENT QUIZ

1. **Process safety management is a way to prevent or minimize the consequences of a catastrophic release of toxic, reactive, flammable, or explosive highly hazardous chemicals from a process.**
   a. True b. False

2. **Key safety issues that a process hazard analysis should look at include:**
   a. Hazards of the process
   b. Applicable engineering and administrative controls
   c. The consequences of failure of those controls
   d. All of the above

3. **Only top management is active in developing the process hazard analysis.**
   a. True b. False

4. **A process hazard analysis should include hazard information, technology information, and equipment information.**
   a. True b. False

5. **All employees must be informed of the results of the analysis and any steps being taken to correct any problems discovered.**
   a. True b. False

6. **The Occupational Safety and Health Administration (OSHA) requires a process hazard analysis to be updated at least once every 7 years.**
   a. True b. False

7. **Any change in process technology requires close review and potential reassessment of the process hazard analysis.**
   a. True b. False

8. **If there are no changes in process technology, there is no reason to review the analysis.**
   a. True b. False

9. **An analysis is designed to identify, evaluate, and control the hazards.**
   a. True b. False

10. **All employees can make an important contribution by sharing their knowledge and experience with the process hazard analysis team.**
    a. True b. False

When you have completed this quiz, turn it in to your supervisor.

Name:_____ **Date:**_____

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ANSWERS TO PROCESS SAFETY MANAGEMENT QUIZ

1. a. True.
2. d. All of the above.
3. b. False. Employees must take an active role in developing the analysis.
4. a. True.
5. a. True.
6. b. False. OSHA requires a process hazard analysis to be updated at least once every 5 years.
7. a. True.
8. b. False. Analysis should be viewed as an ongoing priority—a daily practice in which all process personnel should be directly and actively involved.
9. a. True.
10. a. True.