

Pre Knowledge Survey – 2 Hour

1. Which of the following is not an element needed for a grain dust explosion:
 - a. Oxygen
 - b. Saturation
 - c. Ignition Source
 - d. Dispersion
 - e. Confinement

2. T/F Dust is considered explosive if flame propagation occurs in combination with a rise in pressure.

3. Good housekeeping includes:
 - a. Vacuuming with proper equipment
 - b. Paying attention to “hidden areas”
 - c. Training all employees
 - d. Maintaining dust aspiration systems
 - e. All of the above

4. T/F Open facilities are more likely to result in explosions than are closed facilities.

5. Which of the following are ways to reduce grain dust during unloading:
 - a. Use cyclones and fabric filters
 - b. There is no good way to reduce dust during unloading
 - c. A closed receiving area so the wind can't disturb the dust
 - d. Unload the grain slowly

6. T/F Chute baffles reduce dust emissions by approximately 70%.

7. To reduce dust while conveying and handling grain:
 - a. Locating the bucket elevator inside the main structure
 - b. Increase the angle of spouting
 - c. Adjust speed of handling equipment
 - d. Explosion venting secured tightly to the leg

8. Warning signs that a dust collection system is malfunctioning include:
 - a. Dust filters are full
 - b. Limited dust emissions
 - c. Blast gate locked into position
 - d. Duct work with extra flexible hose

9. T/F Dust rarely accumulates in hidden areas.

10. A primary explosion _____.
 - a. Settles dust on surfaces
 - b. Ignites the dust cloud
 - c. Disturbs the settled dust
 - d. None of the above

Pre Knowledge Survey – 2 Hour Key

1. Which of the following is not an element needed for a grain dust explosion:
 - a. Oxygen
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2. T/F Dust is considered explosive if flame propagation occurs in combination with a rise in pressure. (True)
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 - e. All of the above**
4. T/F Open facilities are more likely to results in explosions than are closed facilities. (false)
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Post Knowledge Survey – 2 Hour

1. T/F The five elements of the explosion pentagon are confinement, saturation, oxygen, dust, and ignition.
2. Good housekeeping practices include all but the following:
 - a. Auditing of employee behavior
 - b. Addressing hidden areas
 - c. Taking appropriate measures to control dust
 - d. Training employees on the importance of mitigating dust
3. T/F: Dust serves as the ignition source in an explosion.
4. Which types of equipment can reduce grain dust during unloading?
 - a. Cyclones, dead boxes, and fabric filters
 - b. A slope of more than 30 degrees for free flowing grain
 - c. Closed receiving areas so the wind cannot disturb the dust
 - d. A narrow diameter to increase speed
5. Avoid grain turbulence at grain transfer points by:
 - a. Unloading grain very slowly
 - b. Using a baffle or other strategy to direct the grain flow
 - c. Unloading grain inside a closed building
 - d. Turning off any dust collection system to not lose any material
6. T/F: Bucket elevators should be placed as close to outside walls as possible.
7. Effective dust collection systems include which of the following:
 - a. Low suction system pressures
 - b. Limited maintenance
 - c. Extensive duct work
 - d. Dust aspiration or ventilation systems at grain transfer points
8. T/F: Controlling ignition is the only way to avoid dust explosions.
9. T/F: Sweeping dust is one way to prevent dust accumulation.
10. T/F: Dust control systems can run indefinitely with little maintenance needed.

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8. T/F: Controlling ignition is the only way to avoid dust explosions. (False)
9. T/F: Sweeping dust is one way to prevent dust accumulation. (True)
10. T/F: Dust control systems can run indefinitely with little maintenance needed. (False)