

## 12 FLAMMABLE AND COMBUSTIBLE LIQUIDS

---

### QUIZ 1 (20 POINTS TOTAL)

#### *True/False (6 points)*

1. Air normally contains about 21% oxygen.
  - a. true
  - b. false
2. The purpose of grounding is to eliminate a difference in the static-electrical charge potential between two or more objects.
  - a. true
  - b. false
3. Studies by the petroleum industry show a significant increase in fire safety by using spark-resistant hand tools in the presence of gasoline and similar hydrocarbon vapors.
  - a. true
  - b. false
4. If an atmosphere is below flammable limits, it is safe to breathe.
  - a. true
  - b. false
5. Where any electric power line is within 20 ft of a tank's opening, the use of a metallic gauging rod is permitted.
  - a. true
  - b. false
6. The preferred method of unloading a tank car is through the bottom.
  - a. true
  - b. false

#### *Multiple Choice (6 points)*

7. \_\_\_\_\_ is the tendency or ability of a liquid to vaporize.
  - a. Autoignition
  - b. Flash point
  - c. Volatility
  - d. Rate of diffusion
8. \_\_\_\_\_ indicates the tendency of a gas or vapor to disperse into or mix with another gas or vapor, including air.
  - a. Rate of diffusion
  - b. Vapor pressure
  - c. Volatility
  - d. Oxygen limits

9. Which of the following is a source of static electricity?
- a. flat moving belts
  - b. petroleum liquids flowing through piping
  - c. a flammable liquid agitated in a tank
  - d. all of the above
  - e. b and c only
10. When employees are filling tanks and other containers, they should allow enough vapor space, or outage, above the liquid level so the liquid can safely expand. Many jurisdictions recommend fill limits at \_\_\_\_\_ of the tank's capacity.
- a. 90%
  - b. 96%
  - c. 97%
  - d. 99%
11. According to OSHA regulations, an employee must wear breathing equipment when working in an enclosed space that tests at \_\_\_\_\_ or less of oxygen.
- a. 15%
  - b. 19.5%
  - c. 22.5%
  - d. 23%
12. Aboveground outside storage tanks that are exposed to the sun should be painted \_\_\_\_\_.
- a. black
  - b. white
  - c. red
  - d. dark blue

**Short Answer (7 points)**

13. What is oxygen deficiency? What are the physical symptoms of oxygen deficiency?
14. What is a flammable liquid, as defined by NFPA Flammable and Combustible Liquids Code? What is a combustible liquid?



## QUIZ 2 (20 POINTS TOTAL)

### *True/False (6 points)*

1. Combustible liquids are those with flash points at or above 100 F but below 200 F, closed cup.
  - a. true
  - b. false
  
2. It is possible to store flammable liquids in open containers.
  - a. true
  - b. false
  
3. Storage tanks inside buildings should have their fill pipes and vent pipes located outside.
  - a. true
  - b. false
  
4. Gasoline can be used for cleaning grease and oil from metal parts where ordinary ventilation is provided and the area is free of sources of ignition.
  - a. true
  - b. false
  
5. It is okay to refill a fuel tank of an engine that is running if the tank is located outside the engine room.
  - a. true
  - b. false
  
6. Propagation of flame is the spread of flame through the entire volume of the flammable vapor-air mixture from a single source of ignition.
  - a. true
  - b. false

### *Multiple Choice (5 points)*

7. Tank fires most commonly occur \_\_\_\_\_.
  - a. below the tank
  - b. at the fill pipe
  - c. at the self-closing valve
  - d. at one of the roof openings
  
8. Inside a storage room, containers over 30 gal capacity storing Class I or Class II liquids shall not be stored more than \_\_\_\_\_ container/s high.
  - a. 1
  - b. 2
  - c. 3
  - d. 4

9. The highest concentration of a substance that will burn or explode when an ignition source is present is known as \_\_\_\_.
- a. lower explosive limit
  - b. flammable range
  - c. upper explosive limit
  - d. none of the above
10. If a drum is considered clean and is free of rags, waste or other debris, what is the easiest method for cleaning it?
- a. sodium silicate compound
  - b. steam
  - c. inert gas
  - d. hot chemical wash
11. For installations where highly volatile liquids are stored, what can be done to externally cool the tanks?
- a. paint the tank black
  - b. spray the tank with water
  - c. insulate and wrap with heating coils
  - d. all of the above

**Short Answer (8 points)**

12. When would you need to install a dike near a tank? When would you need a pump? Should a pump have a sunken pit?

13. What are the most common methods for cleaning and vapor-freeing small tanks and drums?

14. What is the proper procedure for abandoning used tanks?

