

1993 Annual Vinyl Chloride Training Quiz

Name _____

Badge # _____

Date _____

True or False:

- ___ 1. Since Vinyl Chloride is regulated separately by OSHA, it is not listed in the plant MSDS system.
- ___ 2. The fixed area monitoring systems located at VCM II, Tri II, the VCM Tank Car Loading Dock, and the South Terminal areas were installed by PPG to monitor VCM levels in the air.
- ___ 3. Federal regulations require that all open ended valves in VCM service be blinded, plugged, or double valved.
- ___ 4. Routine VCM leak patrols, which are required by OSHA, are done by operations and shipping department to reduce the chances for employees being overexposed to VCM.
- ___ 5. Most of PPG's VCM is stored as a gas in open top tanks.
- ___ 6. The STEL (Short Term Exposure Limit) for VCM is 5 ppm time-weighted average for a fifteen minute period.
- ___ 7. One of the purposes for the physical examination bloodwork is to gather information on five liver function tests required by OSHA for VCM workers.
- ___ 8. The proper respiratory protection for VCM is a full face mask with double cartridges certified by OSHA for VCM service.
- ___ 9. The PEL (Permissible Exposure Limit) for VCM workers is 10 ppm time weighted average for an eight hour period.
- ___ 10. VCM odors can be detected by the nose at levels low enough to prevent both short term and long term overexposure.
- ___ 11. A 1% (or 10,000 ppm) mixture of VCM in air is non-explosive.
- ___ 12. VCM has been proven to cause liver cancer in workers after many years of repeated exposures to high levels (more than 1000 ppm) of VCM vapors.
- ___ 13. VCM vapors are heavier than air.
- ___ 14. PPG has never had a single case of angiosarcoma of the liver due to work related exposure to VCM.
- ___ 15. VCM can normally be found in the all of the following places at the Lake Charles complex:
 - a. VCM II.
 - b. Triethane II.
 - c. VCM loading areas. (South Docks, VCM tank car loading)
 - d. Low Temp Storage Tanks (South Terminal).
 - e. VCM I Day Tanks and Sphere area.
 - f. North Dock Sphere #3.
 - g. Certainteed pipeline.
 - h. Main laboratory.
 - i. WTU (vent headers to incinerators and certain Central Steam Stripping equipment)

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INSTRUCTOR'S KEY

- ___ 1. Since Vinyl Chloride is regulated separately by OSHA, it is not listed in the plant MSDS system.

Answer: False. VCM can be found in the MSDS system and all employees should know how to locate it to find out what precautions are necessary in the safe handling of VCM.

- ___ 2. The fixed area monitoring systems located at VCM II, Tri II, the VCM Tank Car Loading Dock, and the South Terminal areas are installed by PPG to monitor VCM levels in the air.

Answer: True. These systems continuously monitor the levels of VCM in the air and give alarms when the potential for overexposure of workers exists.

- ___ 3. Federal regulations require that all open ended valves in VCM service be blinded, plugged, or double valved.

Answer: True. PPG is subject to inspections and large fines if found out of compliance with these and other regulatory requirements.

- ___ 4. Routine VCM leak patrols, which are required by OSHA, are done by operations and shipping department to reduce the chances for employees being overexposed to VCM.

Answer: True. Operators and shippers perform daily equipment rounds and weekly VCM leak patrols to make sure that VCM is being properly contained and to fix and small leaks before they can develop into large ones.

- ___ 5. Most of PPG's VCM is stored as a gas in open top tanks.

Answer: False. VCM cannot be stored in open vessels. PPG's VCM is stored as a liquid in one of the following types of vessels: (1) pressure vessels such as the spheres, bullets, day tanks, and tank cars at ambient temperatures (80 degrees F) or (2) low pressure, vertical tanks at the South Terminal at refrigerated temperatures (12 degrees F).

- ___ 6. The STEL (Short Term Exposure Limit) for VCM is 5 ppm time weighted average for a fifteen minute period.

Answer: True.

- ___ 7. One of the purposes for the physical examination bloodwork is to gather information on five liver function tests required by OSHA for VCM workers.

Answer: True. Bloodwork is primarily measuring liver function tests that are thought to be a measure of a healthy, working liver.

- ___ 8. The proper respiratory protection for VCM is a full face mask with double cartridges certified by OSHA for VCM service

Answer: False. There is no "OSHA certified cartridge for VCM service". The only approved respiratory protection for VCM is an air supplied system such as a Scott Air Pak or a breathing air system.

- ___ 9. The PEL (Permissible Exposure Limit) for VCM workers is 10 ppm time weighted average for an eight hour period.

Answer: False. The eight hour PEL for VCM is 1 ppm.

- ___ 10. VCM odors can be detected by the nose at levels low enough to prevent both short term and long term overexposure.

Answer: False. The odor detection limit for most persons is in the range of 500-600 ppm. This is far above both of the permissible exposure limits for VCM.

- ___ 11. A 1% (or 10,000 ppm) mixture of VCM in air is non-explosive.

Answer: True. VCM is explosive in the range of 3.6 % (36,000 ppm) to 33% (330,000 ppm) in air. Any values above or below these limits are in the non-explosive ranges.

- ___ 12. VCM has been proven to cause liver cancer in workers after many years of repeated exposures to high levels (more than 1000 ppm) of VCM vapors.

Answer: True.

- ___ 13. VCM vapors are heavier than air.

Answer: True. VCM vapors are heavier than air (vapor density of VCM is 2.15 as compared to that of air). VCM vapors will drop to the bottom of an air or nitrogen filled vessel. On the other hand, VCM liquid is lighter than water (specific gravity of 0.92) VCM liquid will float on top of water.

- ___ 14. PPG has never had a single case of angiosarcoma of the liver due to work related exposure to VCM.

Answer: True. PPG has never had a work related VCM exposure case of ASL.

- ___ 15. VCM can normally be found in the all of the following places at the Lake Charles complex:

- a. VCM II.
- b. Triethane II.
- c. VCM loading areas. (South Docks, VCM tank car loading)
- d. Low Temp Storage Tanks (South Terminal).
- e. VCM I Day Tanks and Sphere area.
- f. North Dock Sphere #3.
- g. Certainteed pipeline.
- h. Main laboratory.
- i. WTU (vent headers to incinerators and certain Central Steam Stripping equipment)

Answer: True. This list is all of the places where VCM in any appreciable amounts can be found in the Lake Charles plant.