

January 2013 Safety Meeting

Odorization of Propane

Propane in its natural state is odorless and colorless; therefore, a commercial odorant is added. Effective odorization serves two primary purposes:

- Odorization of propane permits the detection of leaks before gas concentrations reach a hazardous level; and
- Odorization reduces gas losses through early detection and repairs of leaks.

NFPA 58, 1998 Edition states:

- 1.3.1 All LP Gases shall be odorized prior to delivery to a bulk plant by the addition of a warning agent of such character that the gases are detectable by a distinct odor to a concentration in air of not over one-fifth the lower limit of flammability. Exception: Odorization, however, shall not be required if harmful in the use of further processing of LP Gas or if such odorization will serve no useful purpose as a warning agent in such further use or processing.
- 1.3.2 If odorization is required, the presence of the odorant shall be determined by **sniff testing** or other means and the results shall be documented: (A) whenever LP Gas is delivered to a bulk plant or (B) when shipments of LP Gas bypass the bulk plant.

Minimum standards have also been set by the U.S. Department of Transportation. The standards state that all LP Gas transported (unless odorization would be harmful for its use in a manufacturing process) shall be odorized so that at a concentration in air of one-fifth of the lower flammability limit the gas is readily detectable by a person with a normal sense of smell.

Although other odorants may be used, the one most commonly used is ethyl mercaptan, which is added at the minimum rate of approximately one pound per 10,000 gallons of propane.

Many companies routinely document **sniff tests** as part of any bulk plant operation. The sniff test is the most widely used method to check for propane odorant. The following precautions should be performed before doing a sniff test:

- Protect yourself by wearing the proper PPE.
- Only vent a small amount of liquid propane.
- Sniff only after the vent is closed and the liquid is vaporized.
- Be familiar with your company policy and standard operating procedures, including how and where to document the presence of propane odorant.

Follow these steps to perform the sniff test when loading a bobtail:

- After you secure the plant transfer hose to the cargo tank connection and before you fill the cargo tank, briefly open and close the transfer hose end valve.
- Vent a small amount of liquid propane through a vent and then close it.
- Sniff the area immediately after the liquid vaporizes.
- Verify that the propane is odorized.

- Record your sniff test on the appropriate company form and proceed with the loading operation.

If you cannot smell propane odorant:

- Do not load the cargo tank or cylinder.
- Disconnect the transfer hoses and secure them in their storage racks.
- Contact your supervisor immediately.
- Warn others in the area not to load until approved by your supervisor.
- Follow your company policy for closing the transfer area if required.

Closing

Because safety is the most important reason for odorization, industry personnel should be familiar with all odorization and sniff testing requirements. This leads not only to better relations but to a safer environment for everyone.

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Name: _____

Date: _____

Instructions: Read and answer each of the following questions. When complete, grade the test and review incorrect answers so each employee is “armed” with the correct answers before they leave the training.

1. What is the commonly used odorant for propane:
 - a. Ethyl Mercaptan
 - b. Methane
 - c. Carbon Dioxide
 - d. Sulfur

2. What code specifies that all LP Gases must be odorized prior to delivery to the bulk plant?
 - a. NFPA 54
 - b. NFPA 58
 - c. NFPA 10
 - d. Department of Public Safety

3. A _____ is the most widely used method to check for propane odorant.
 - a. leak check
 - b. pressure test
 - c. sniff test
 - d. odor detector

4. When performing a sniff test:
 - a. Sniff only after the vent is closed and the liquid propane has not vaporized.
 - b. Sniff only after the vent is opened and liquid propane has vaporized.
 - c. Sniff only after the vent is closed and the liquid propane has vaporized.
 - d. There is not a recommended procedure for sniff testing.

5. All of the following are necessary precautions when performing the sniff test except
 - a. Become familiar with your companies policies and standard operating procedures
 - b. Protect yourself by wearing the propane PPE
 - c. Only vent a small amount of liquid propane
 - d. Sniff only after the vent is opened, so that you are able to smell the odorant

**January 2013 Test
Answer Sheet**

1. A
2. B
3. C
4. C
5. D