LP-Gas (Propane) at normal atmospheric conditions is a colorless, odorless, and flammable gas. It is transported and stored in liquid form under pressure in specially designed, constructed, and treated containers.

KNOW THE ODOR

In order to detect its presence and prevent an explosion from a buildup of propane gas, odorant (almost always ethyl mercaptan) is added to liquid LP-Gas. To familiarize yourself with this type of odor you can request “Scratch and Sniff” leaflets from the Propane Education and Research Council, www.propanemarc.com, 202-452-8975, or your local propane supplier.

Propane is occasionally odorized with something other than ethyl mercaptan and it may smell different. Users should acquaint themselves with the odor of the odorized propane that they are using and should frequently make sniff tests to confirm the presence of odor in their LP-Gas. If there is ever any suspicion as to the adequate presence of the expected odor, the user should immediately evacuate the area, shut off the propane tank supply valve, if possible, and call their LP-Gas dealer, or supplier, from a place of safety. If there is a suspected leak, the user should follow this same procedure and also call the fire department from a place of safety.

WARNING

Everyone handling or using LP-Gas should realize that the odorant used to give propane a distinctive smell may not be detected by all people under all circumstances. The strongest odor may be near the floor, and consumers should be aware of possible floor-to-ceiling concentration differences. Conditions such as sinus congestion, allergies, head colds, smoking, or recent use of alcohol or drugs (including certain medications) also may affect the ability to detect odor at any particular time. Certain individuals (especially the elderly) can have an impaired sense of smell.

Environmental conditions also may exist which diminish odor detection. For example:

1. The odorized gas may be masked or covered up by other odors such as musty basements, cooking odors, and certain foods.

2. High concentrations of odor can shock or diminish the sense of smell which can also occur from prolonged exposure to the odor of LP-Gas.

Under rare conditions, ethyl mercaptan odorant in LP-Gas can “fade” or diminish in intensity. A leak could exist and a person may not detect an odor from the gas. Ethyl mercaptan can fade because of adsorption (sticking) of the odorant to the inside surface of metal storage containers or oxidation of the odorant. Odorant can be adsorbed from the vapor space of periodically used (static) propane storage containers. Odorant can also be adsorbed by such things as soil, on the inside walls of gas piping, by building materials such as untreated masonry or rough wall surfaces, and on furniture, fabrics, and drapes.

Special precautions should be taken when putting a container into service, especially if the container is new or has been out of service and open to the atmosphere for any extended period of time. Special care should be taken to ensure that containers are free of active internal rust. Refer to PERC or NPGA bulletins for container preparation methods.

The National Fire Protection Association and Federal and State agencies responsible for regulating propane safety acknowledge that odorants added to propane do not provide 100% effective leak detection, and, on rare occasions, a leak may not be detected by smell. Gas detectors, listed by the Underwriters Laboratories (UL) and others, can be used as an extra measure of safety for detecting leaks. Detectors that sound a loud alarm are now on the market at a reasonable price.

Everyone producing, distributing, marketing, or consuming LP-Gas should accept the responsibility of becoming knowledgeable about the handling and use of LP-Gas. All family members should be informed. People who own rental property that uses propane should inform their new lessees of the characteristics and properties of LP-Gas.

If an LP-Gas incident occurs, involving personal injury, death, or property damage, contact the LP-Gas supplier immediately, and follow the procedures outlined in NPGA Bulletin No. 202.

Any time there is a question about the presence of propane gas, immediately evacuate the premises, shut off the propane tank supply valve, if possible, and call the fire department and LP-Gas dealer from a place of safety.
It is customary for the owner or operator of production, distribution, or bulk storage facilities in the U.S., to inject a minimum of 1.0 pounds (generally 1.5 lbs) of ethyl mercaptan per 10,000 gallons of liquid LP-Gas. NFPA 58 (which has been adopted administratively as law in most states) states:

"All LP-Gas 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 the LP-Gas or if such odorization will serve no useful purpose as a warning agent in such further use of processing (sec. 1-3.1)."

The owner or operator of production, storage, or bulk distribution facilities handling odorized propane should verify by a sniff test the presence of an odorant at each change of LP-Gas custody. Good industry practice involves preparing the proper documentation of odorization on the bill of lading for tank cars and transports. At a minimum, such documentation should certify that the gas has been odorized, the type of odorant, and the amount used. The receiving plant should review the bill of lading (to confirm the certification), perform its own chemical analysis or sniff test, and make a record of the results of such tests.

*The forgoing information is intended to enhance the safe use of propane. Ray Energy Corp. has used all possible care to ensure the accuracy of the information contained in this information sheet but assumes no liability for any errors, omissions, or defects whatsoever in the content, or for any damage or injury resulting from its information.*

**Standards, Codes, Regulations, Papers**

*More detailed information is available from the following sources:

1. Federal, State and local laws, regulations, and codes.
2. Department of Transportation Regulations.
4. NPGA Bulletins.
13. Title 49 CFR Transportation, Chapter 12, Research and Special Programs Administration, Department of Transportation, 173-315
17. Propane Education & Research Council, www.propane.com