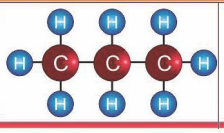
Propane Fact Sheet

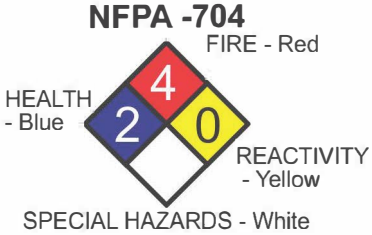
DOT GUIDEBOOK GUIDE # 115, 366, 374

Chemical Name: **Propane**
Chemical Family: **Hydrocarbon**
Chemical Formula: C_3H_8



RESPONDER TRAINING ENTERPRISES, LLC est. 1989
www.ResponderTraining.com

CAS Registry No.: **74-98-6**
IDLH: **2200 ppm** (based on 10% LEL)
LEL: **2.15 (2)** UEL: **9.6 (10)**
Vapor Density: **1.5**
Specific Gravity: **0.5**
Vapor Pressure: **95 psig @ 60 Deg. F**
Boiling Point: **-44 Deg. F**
Freeze Point -306
Evaporation Rate: **Gas at normal ambient temperatures**
Flash Point: **-156 Deg. F**
Ignition Temp.: **900 - 1100 Deg. F**
Weight: **4.24 Lbs. per gallon @ 60 Deg. F**
Expansion Ratio: **270 - 1**
Solubility: **Not soluble in water**



Color: **Colorless**
Odor: **Odorless, ALSO SEE BELOW**
Percent Volatile by Volume (%): **100**
Stability: **Stable**
Hazardous Polymerization: **Will not occur**
Decomposition Products: **CO, CO_2**
OSHA PEL: **1000 ppm**
ACGIH TLV: **1000 ppm**

STORAGE VESSALS

Propane and other Liquified Petroleum Gases (LPG) are shipped in container sizes from less than 1 ounce, to over 34,000 gallons (railcar). Cigarette lighters, hand held torches, spray cans, semi trailers and rail cars can all be used as a vessel to hold propane and other LPG's.

Normally small cylinders (less than 4 lbs.) are used to supply propane vapor and do not have a dip tube (80% liquid tube). If a cylinder that was designed to supply vapor only is inverted, liquid will be expelled from the vapor opening. If this happens, place the cylinder in an upright position to convert the leak back to vapor.

20 lb. or gas grill type cylinders should never be stored in an inverted position, unless completely void of liquid. ***NEVER use the OPD valve as the fill stop.***

Pre-Plan your local area and know what's being transported, stored and how!

EMERGENCY RESPONSE

Warning : Danger! Compressed Flammable gas. Simple asphyxiate: death possible in higher concentrations (IDLH 2200 ppm). Contact with liquid causes cryogenic type burns, can be extreme, similar to frost bite.

If responding to a tank on fire: **YOUR FIRST DECISION** must be whether to apply water or evacuate the area. If an attack is made, apply water to the point of flame contact first and continuously then to other tank surfaces to cool the tank. If possible use un-maned or remote nozzles. After the fire has been extinguished continue to apply water to the tank surface until the tank is cool. If possible you should NOT extinguish a flammable gas fire with-out shutting off the flow of gas first unless the flame is impinging on the vapor space. If this happens continually disperse product vapors until the hazard is removed.

If responding to a potential odor/leak: Arrive with your meter ready. Calibrated and warmed up, Wear all of you PPE, test LOW medium and high isn accordance with your departments SOP's and SOG's.

Liquid leaks may be able to be converted to a water leak using water injection.

PPE

***Respiratory:** SCBA for gas unknown concentrations and concentrations above occupational exposure limits and firefighting.

***Hands:** Use cold-impervious, insulating gloves where contact with liquid may occur that will not freeze to objects.

***Eyes:** Possibility of liquid contact, wear splash-proof safety glasses and face shield.

***Skin and Body:** Where contact with liquid may occur, wear appropriate cold insulating protective clothing and face shield (SCBA). Structural PPE required for firefighting.

Extinguishing Media: Shut off source, Water Injection, Water spray, Class A-B-C or BC extinguisher.

Product vapors will gather in low areas, check all low areas for gas vapor accumulations (ditches, sewers, river beds and structure), disperse product vapors with water fog or forced air.

CAUTION: Flammability limits (i.e., explosion hazard) should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.

Supplied BY: *Responder Training Enterprises LLC, P.O. Box 182, Shirley IN 47384, (765) 524-4848* respondertraining.rdh@gmail.com
Copyright RTE 2022 All information is believed to be as accurate as the information used to compile this form. Use this form in conjunction with other verified information sources.

Are the Propane Tanks in your first due area where they should be?

By Ron Huffman 2024/09/23
www.respondertraining.com

And how can it's location affect what you do?

Because of several factors, one being improper tank location, four people were killed and five others were seriously injured when propane vapors from a storage tank ignited and exploded at the Little General convenience store and gas station in Ghent, West Virginia. Had the tank been in the proper location, this incident would have never happed. As the local Authority Having Jurisdiction (AHJ) you can work with the tank owner to insure it's proper placement. Please take the time to watch the video produced by the Chemical Safety Board (CSB) titled "***Half an Hour to Tragedy***". *Scan the QR code provided to watch the video.*

SCAN HERE

The information below will help you identify if a propane tank has been properly located on a property.

100-Pound Tanks - 3 feet from all building openings and 5 feet away from any ignition source, direct vent intakes and mechanical air intakes.

120-Gallon Above-Ground Tanks - 5 feet from any building opening and 10 feet from ignition sources. You can install up to four 120-gallon tanks next to a building to meet your power generation needs.

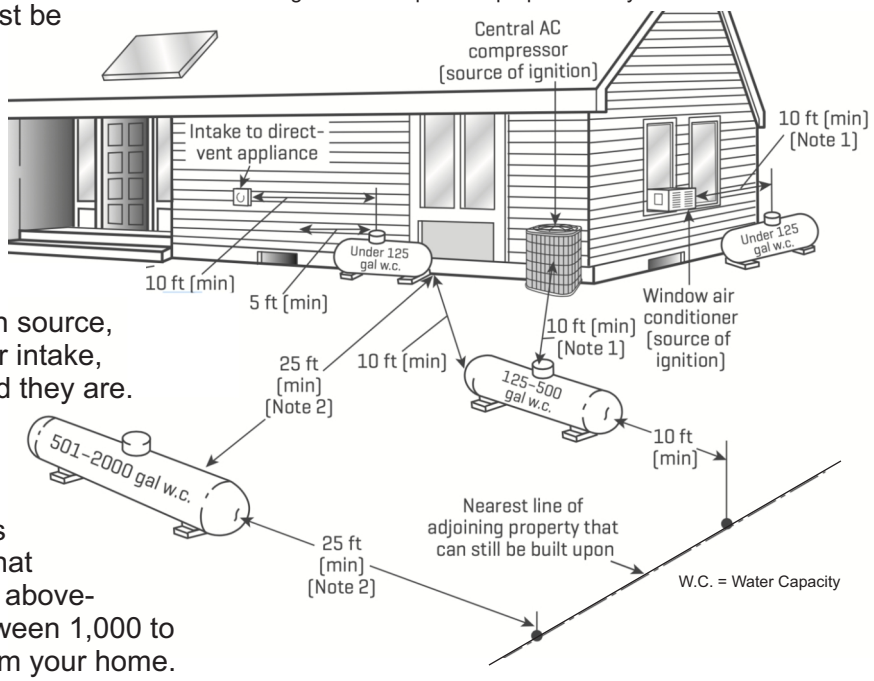
250-Gallon, 325-Gallon and 500-Gallon Above-Ground Tanks - 10 feet away from any building, these tanks must also be at least 10 feet away from property lines.

1,000-Gallon Above-Ground Tanks - must be at least 25 feet from buildings and property lines. However, this distance can be 10 feet if there are no other propane gas containers within 25 feet of the installation.

Underground Tanks - Underground tanks must follow similar clearance restrictions as aboveground tanks (check local CODES), while also adhering to depth guidelines. These measurements depend on tank size.

- **100-gallon tanks:** The NFPA requires burying these tanks 44 inches deep, and the hole must be 9 feet and 6 inches long and 4 feet wide.
- **500-gallon tanks:** Bury these tanks 4 feet and 6 inches deep, and the hole must be 14 feet long and 5 feet wide.
- **1,000-gallon tanks:** These larger tanks have the same depth requirements as 500-gallon tanks. However, the hole should be 5 feet and 6 inches wide and 20 feet long.
- All underground tanks up to 2,000-gallon water capacity must be 10 feet from any building, ignition source, direct vent intake and mechanical air intake, regardless of how deep underground they are.

The National Fire Protection Association (NFPA) regulates all aspects of propane safety.



Due to NFPA regulations, *most* propane tanks must be at least 10 feet from your home. However, this minimum distance applies to tanks starting at 500 gallons. This distance also includes underground tanks that can hold 2,000 gallons. If you have a larger above-ground tank, such as one that can hold between 1,000 to 2,000 gallons, it must be at least 25 feet from your home.

Propane tanks should not installed under building overhangs or awnings. *Venting propane from an activated pressure relief valve normally vents straight up. If possible,* the relief discharge should be directed away from the structure. They must also not be near ignition sources, mechanical ventilation intakes or direct-vent gas appliances. Ignition sources include central air conditioner compressors or window AC units. For safety, propane tank refills must occur at least 5 feet from your driveway.

Be sure and check and work with the local Authority Having Jurisdiction (AHJ) and your propane companies to correct any issues found.

The information above can be found online at https://fosterfuels.com/blog/propane-tank-placement/
Additional information can be found at:
https://www.nfpa.org/downloadable-resources/fact-sheets/placing-lp-gas-containers-fact-sheet

est. RESPONDER TRAINING ENTERPRISES, LLC 1989
Specializing in PROPANE Training & Response Equipment
RESPONDERTRAINING.COM