

Propane Safety In the HOME

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ALABAMA SMOKE DETECTOR



Malgusto.com





Batkhela.com

Physical Properties of Propane

- Organic
- Hydrocarbon
- Flammable Limits
- Ignition Temperature
- BTU Value

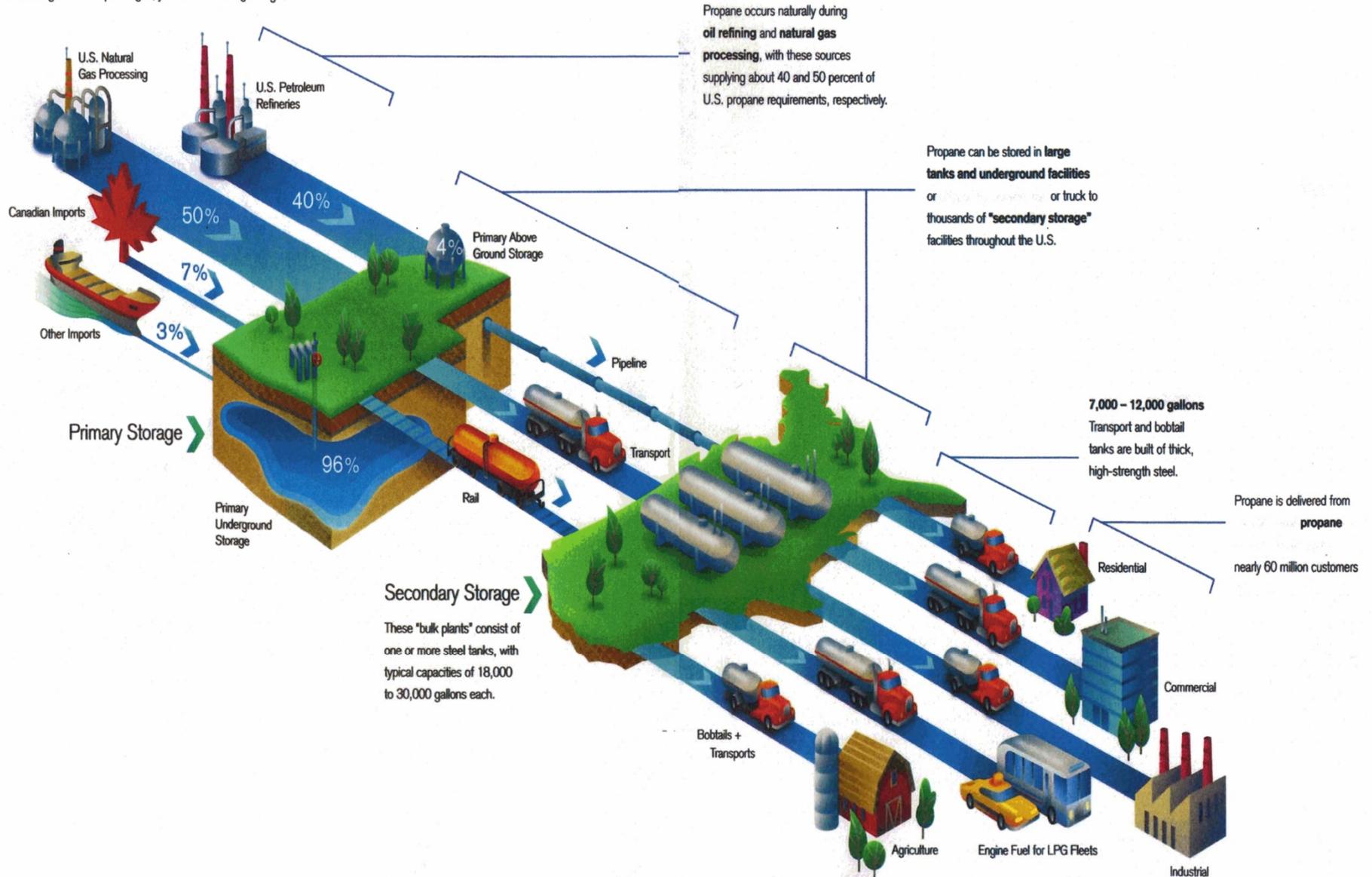


Characteristics of Propane

- Transported in Liquid form
- Non-Toxic
- Colorless
- Odorless-**New London, Tex. 1937**
- Heavier than air – accumulate in low areas – basements, ditches.
- Flammable when mixed with air
- Vaporization rate – 270:1

How Propane Gets to Where It's Needed,

The U.S. propane industry has created a vast and safe distribution network to get propane from the source to customer sites. U.S. Department of Transportation regulations and other codes and standards provide for the safe transport of propane on our highways, railroads, and waterways. However propane reaches you, this wide-ranging distribution system means that even if you live far from the natural gas main or power grid, you can be cooking with gas.



Pressure/Temperature Relationship

Temperature(°F)

Pressure (PSIG)

Propane

Butane

-44

0

-30

5.5

-10

16.7

0

23.5

10

31.3

40

63.3

3

70

109.3

16.5

80

128.1

22

100

172.3

37

110

197.3

46

Physical Properties of Various Explosive Liquids and Gases

Physical Properties of Various Explosive Liquids and Gases

Material	Chemical Formula	Specific Gravity Air=1	Ignition Temp Deg. F in Air	Lower Expl. Limit (% gas)	Upper Expl. Limit (% gas)
Methane	CH ₄	.55	1193	5.3	15.0
Natural Gas	Blend	.65	1163	4.5	14.5
Ethane	C ₂ H ₆	1.04	993-1101	3.0	12.5
Propane	C ₃ H ₈	1.56	957-1090	2.2	9.5
Butane	C ₄ H ₁₀	2.01	912-1056	1.9	8.5
Hexane	C ₆ H ₁₄	3.0	437	1.1	7.5
Gasoline	Blend	3-4.0	632	1.4	7.6
Acetone	C ₃ H ₆ O	2.0	869	2.5	12.8
Benzene	C ₆ H ₆	2.8	928	1.2	7.8
Carbon Monoxide	CO	1.0	1128	12.5	74.0
Hydrogen	H ₂	.1	932	4.0	75.0
Hydrogen Sulfide	H ₂ S	1.2	500	4.0	44.0

1 Part Per Million (PPM)

One penny
in
Ten Thousand
Dollars



Potential Affects of Carbon Exposure

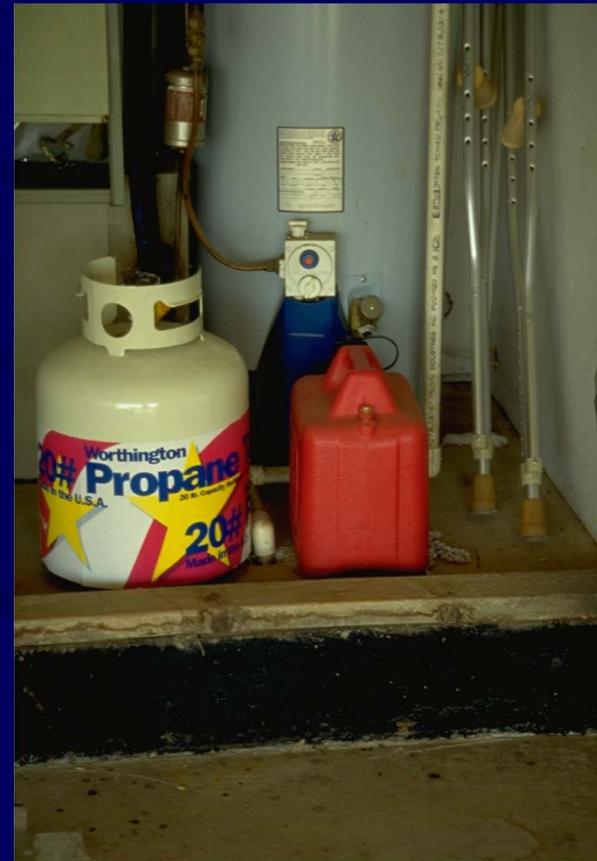
(EXCERPTS FROM OSHA CHART BASED ON INDUSTRIAL USE)

<u>PPM</u>	<u>EFFECTS & SYMTOMS</u>	<u>TIME</u>
50	PERMISSIBLE EXPOSURE LVL	8 HOURS
200	SLIGHT HEADACHE	3 HOURS
400- 600	HEADACHE, DISCOMFORT	1-2 HOURS
1000- 2000	HEADACHE, CONFUSION, NAUSEA, MAY STAGGER	1.5 HOURS
2000- 2500	HEART PALPITATION	30 MIN
2500- 3500	UNCONSCIOUSNESS	30 MIN
4000	FATAL	30 MIN

*(EFFECTS MAY VARY FROM
PERSON TO PERSON)*

Sources of Combustible Vapors

- n Propane Gas
- n Natural Gas -
Methane, Ethane
- n Gasoline -
C5's and heavy HC's
- n Soil and Landfill Gas -
Methane, CO₂
- n Gases in Sewers -
Solvents, Alcohols
- n Sewer Gas -
Methane, CO₂, H₂S







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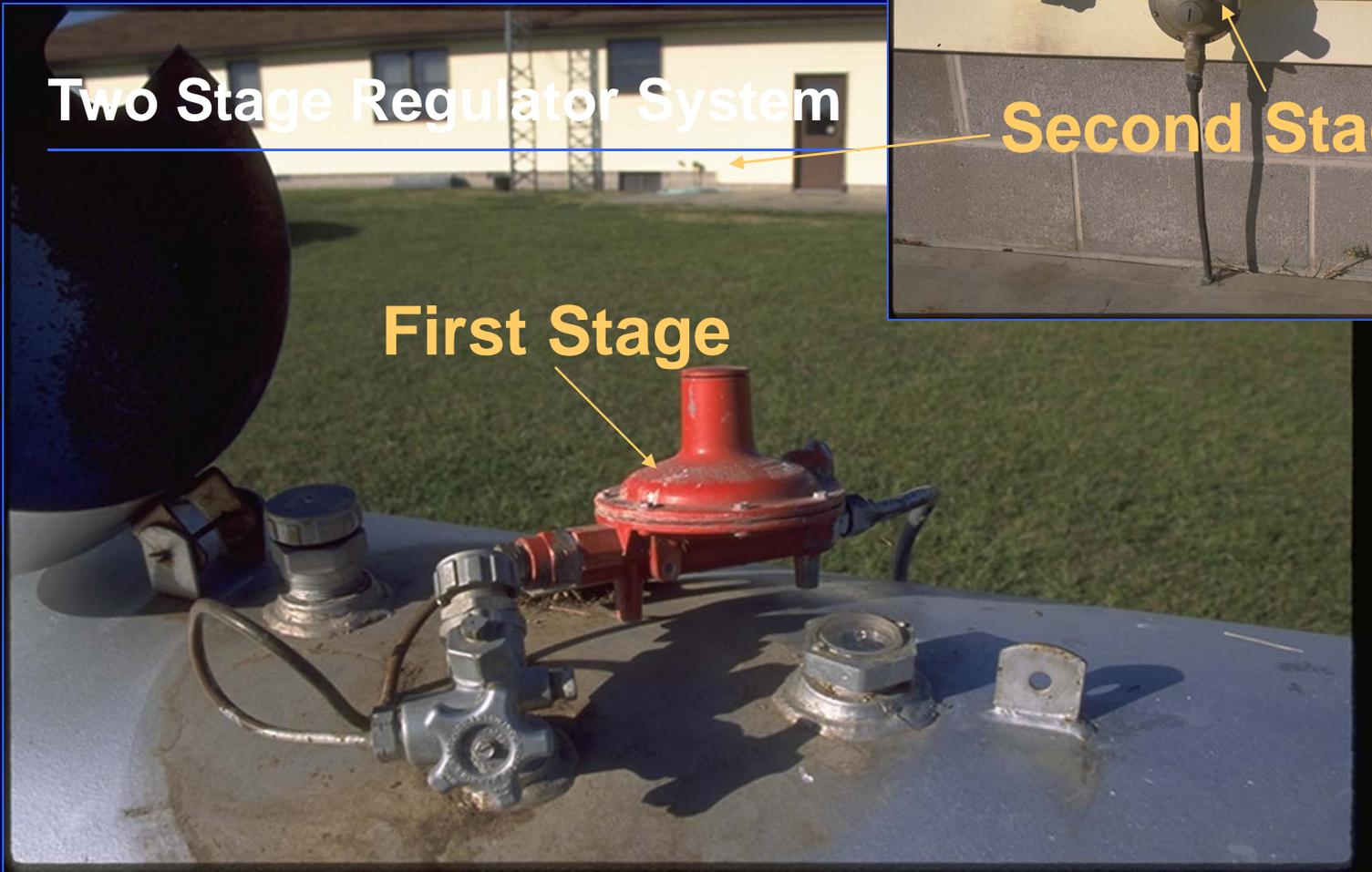


Pressure Regu

Two Stage Regulator System

First Stage

Second Stage



Pressure Relief Devices

Propane Containers Are Equipped with PRV to Relieve Excess Pressure

PRV's are Usually Set to Open between 250 psig and 375 psig

Opening Pressure Depends on if It is an ASME tank or DOT cylinder



Pressure Relief Valve

Liquid Fill

Vapor Connection

% Gauge

Service Valve









Call Before You DIG



Static Electricity



Know what's below.
Call before you dig.





Fire Statistics – '03-'07

- 1170 homes had structural fires involving propane gas
- 34 Deaths
- \$48,000,000 total cost

Propane

Recognizing and Avoiding the Hazard

- **Treat all propane gas leaks as hazards until determined otherwise. Is the tank empty?**
- **Notify the gas company immediately from a SAFE location. If necessary call 911.**
- **Never store propane cylinders or containers inside any enclosed bldg.**
- **Only shut off above-ground meter valves/tanks (IF CAN DO IT SAFELY)**

Propane

Recognizing and Avoiding the Hazard

- **All lines not attached to appliances must be closed and terminated with caps or plugs.**
- **When Evacuating structures do not operate doorbells, light switches or other possible ignition sources**
- **Never modify or repair your propane system without contacting your propane supplier.**
- **Think before you act!**

Propane

Weather Emergencies

Flood & Hurricane

- Properly secure tank if possible
- Turn off gas supply valve at tank
- Fasten protective dome at tank
- Ensure there is an adequate supply of fuel in the tank
- After flood or Hurricane look for damages to propane tank, e.g. smells gas, tank shifted, gas lines broke, etc.

Gas Grilling Tips

- Do not use a propane gas cylinder if shows signs of damage (dents, gouges, bulges, corrosion, leakage or excessive rust.
- Always open the grill hood before lighting
- Use foil or a drip pan to catch flammable juices.
- To turn the cylinder valve on or off, remember “Righty, tighty/Lefty, loosey.”
- Do not grill indoors or close to bldg.

Smell Gas?

Act
FAST!

SafeGasMaryland.org



More information on Propane Safety in the Home can be found :

- <http://www.propane.tx.gov/safety/safety.pdf>
- <http://www.usepropane.com>
- <http://www.propane101.com>