



ATMO
sphere

business case

natural refrigerants

June 16 & 17, 2016 – Chicago



**Hydrocarbon
Service
Safety**

**Is pumping gasoline into
your vehicle safe?**

**Is cooking with propane
using your grill safe?**

**Is servicing a piece of equipment
with a hydrocarbon safe?**

YES

If you keep yourself informed.

BUT

How can you keep informed?

READ

and

RE-READ

INFORMATION



NATIONAL REFRIGERANTS, INC.

R-290

Material Safety Data Sheet

R290 PROPANE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: PROPANE
DISTRIBUTOR: National Refrigerants, Inc.
661 Kenyon Avenue
Bridgeton, New Jersey 08302

FOR MORE INFORMATION CALL:
(Monday-Friday, 8:00am-5:00pm)
1-800-262-0012

IN CASE OF EMERGENCY CALL:
CHEMTREC: 1-800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Propane	74-98-6	100

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: WARNING! Flammable gas. Contents under pressure. Causes damage to the following organs: Nervous System. Vapor may cause flash fire. Keep away from heat, sparks and flame. Do not puncture or incinerate container. Keep container closed. Use only with adequate ventilation. Contact with rapidly expanding gases can cause frostbite.

R-290

7. HANDLING AND STORAGE

NORMAL HANDLING:

Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire, minimize ignition sources. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not puncture or incinerate container. High pressure gas. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

STORAGE RECOMMENDATIONS:

Keep container tightly closed. Keep container in a cool, well-ventilated area. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52°C (125°F).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. The engineering controls also need to keep gas, vapor or dust concentrations below any explosive limits. Use explosion-proof ventilation equipment

PERSONAL PROTECTION:

SKIN: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

EYE: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

RESPIRATORY: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93

HANDS: Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

R-290

9. PHYSICAL AND CHEMICAL PROPERTIES

MOLECULAR WEIGHT:	44.11 g/mole
MOLECULAR FORMULA:	C3H8
BOILING/CONDENSATION POINT :	-43.2°F (-41.79°C)
MELTING/FREEZING POINT:	-302.6°F (-185.89°C)
CRITICAL TEMPERATURE:	205.9°F (96.6°C)
VAPOR PRESSURE :	109 psig
VAPOR DENSITY:	1.6 (Air=1)
SPECIFIC VOLUME (ft³/lb):	8.62069
GAS DENSITY(lb/ft³):	0.116
PHYSICAL CHEMICAL COMMENTS:	Not available

10. STABILITY AND REACTIVITY

STABILITY and REACTIVITY: The pr

INCOMPATIBILITIES with various sub

Immediately Dangerous to Life or Health

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

IDLH:	2100 ppm
Chronic effects on humans:	Causes damage to the following organs: the nervous system.
Other toxic effects on humans:	No specific information is available in our database regarding the other toxic effects of this material for humans.

SPECIFIC EFFECTS:

Carcinogenic effects:	No known significant effects or critical hazards.
Mutagenic effects:	No known significant effects or critical hazards.
Reproductive toxicity:	No known significant effects or critical hazards.

ASHRAE Refrigerant Ratings

		SAFETY GROUP	
		HC	
Increasing Flammability	Higher Flammability	A3	B3
	Lower Flammability	A2	B2
		A2L*	B2L*
	No Flame Propagation	A1	B1
		Lower Toxicity	Higher Toxicity
		Increasing Toxicity	
Refrigerant Safety Group Classification			

Risk Assessment

Propane

has a

Risk Phrase of R12

Extremely Flammable

Risk Assessment

Globally Harmonized System (GHS)

of

Classification and Labeling of Chemicals

Category 1

Extremely Flammable Gas

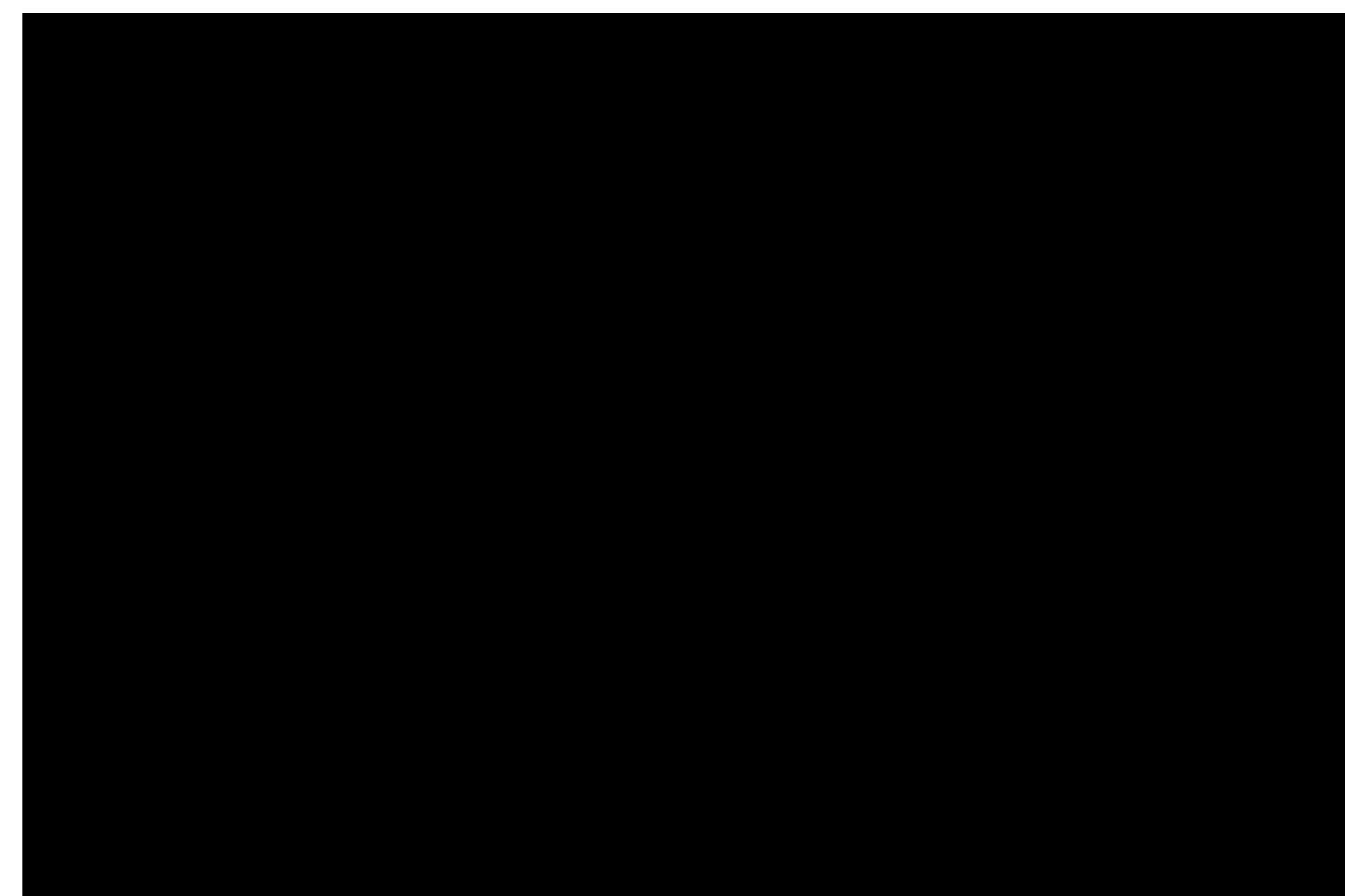
EPA Information Statement

**Only technicians specifically
trained in handling flammable
refrigerants should service
these systems.**



EPA Information Statement

Familiar with the safety precautions for flammable refrigerants, i.e.: the fire and explosion hazard.



Labeling Requirements for

ALL HC

Equipment



Safety Control Measures

Ventilation

Ignition Sources

Bonding and Earthing

Handling of Cylinders

Cylinder Safety

Cylinder Storage

Cylinder Transport

Conclusion

GET INFORMED

STAY INFORMED

**Then servicing a piece of equipment
with a hydrocarbon will be safe?**

RSES

is currently the only independent organization that has a

Hydrocarbon Training

Training Program



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Thank you very much!