



SAFETY DATA SHEET

PROPANE

Section 1. Identification

GHS Product identifier	Propane
Chemical name :	Propane
Product use :	Synthetic/Analytical chemistry.
SDS #	001045
Synonym :	Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.
Supplier's details :	WelchGas, Inc. 2160 US HWY 67 West Mt. Pleasant, Texas 75455 903-577-1446
24 hour telephone:	903-577-1446

Section 2. Hazards identification

FLAMMABLE GASES - Category 2.1

GASES UNDER PRESSURE - Liquefied gas

Classification of the substance or mixture

:

Signal word : Danger

Hazard statements : Extremely flammable gas.

Contains gas under pressure; may explode if heated.

May cause frostbite.

May form explosive mixtures in Air.

May displace oxygen and cause rapid suffocation.

Hazard pictograms :

Precautionary statements

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a wellventilated place.

GHS label elements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use.

Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Date of issue/Date of revision : 6/28/2017 **Date of previous issue** : 10/20/2015 **Version** : 0.02 1/12
Propane

Section 2. Hazards identification

Disposal : Not applicable.

Hazards not otherwise classified

: In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Propane 100 74-98-6

Ingredient name % CAS number

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Chemical name : propane

Other means of identification

: Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl

hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.

CAS number : 74-98-6

Substance/mixture

Product code : 001045

CAS number/other identifiers

:

Occupational exposure limits, if available, are listed in Section 8.

Substance

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

As this product is a gas, refer to the inhalation section.

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Section 4. First aid measures

Eye contact

Skin contact

Inhalation

Ingestion :

:
:
:

Description of necessary first aid measures

Most important symptoms/effects, acute and delayed

Inhalation : No known significant effects or critical hazards.

Ingestion : As this product is a gas, refer to the inhalation section.

Skin contact : No known significant effects or critical hazards.

Eye contact : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Skin contact

Inhalation No specific data.

No specific data.

:
:

Eye contact : No specific data.

Potential acute health effects

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Date of issue/Date of revision : 6/28/2017 Date of previous issue : 10/20/2015 Version : 0.02 2/12

Propane

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may

be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Ingestion : No specific data.

See toxicological information (Section 11)

Indication of immediate medical attention and special treatment needed, if necessary

Section 5. Fire-fighting measures

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Hazardous thermal decomposition products

Specific hazards arising from the chemical

Decomposition products may include the following materials:

carbon dioxide

carbon monoxide

Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special protective equipment for fire-fighters

Use an extinguishing agent suitable for the surrounding fire.

Extinguishing media

:

:
:

None known.

Suitable extinguishing media

:

Unsuitable extinguishing media

:

Special protective actions for fire-fighters

:

Section 6. Accidental release measures

Environmental precautions

Personal precautions, protective equipment and emergency procedures

:

: Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Small spill :

**Methods and materials for containment and cleaning up
For non-emergency personnel**

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

*Date of issue/Date of revision : 6/28/2017 Date of previous issue : 10/20/2015 Version : 0.02 3/12
Propane*

Section 6. Accidental release measures

Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Large spill :

Section 7. Handling and storage

Advice on general

occupational hygiene

**Conditions for safe storage,
including any
incompatibilities**

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Store in accordance with local regulations. Store in a segregated and approved area.

Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. 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).

:
:

Protective measures Put on appropriate personal protective equipment (see Section 8). Contains gas under

pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. 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.

:

Precautions for safe handling

Propane **NIOSH REL (United States, 10/2013).**

TWA: 1800 mg/m³ 10 hours.

TWA: 1000 ppm 10 hours.

OSHA PEL (United States, 2/2013).

TWA: 1800 mg/m³ 8 hours.

TWA: 1000 ppm 8 hours.

OSHA PEL 1989 (United States, 3/1989).

TWA: 1800 mg/m³ 8 hours.

TWA: 1000 ppm 8 hours.

Section 8. Exposure controls/personal protection

Ingredient name Exposure limits

Environmental exposure

controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Appropriate engineering

controls

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

Control parameters

Individual protection measures

Occupational exposure limits

Date of issue/Date of revision : 6/28/2017 Date of previous issue : 10/20/2015 Version : 0.02 4/12

Propane

Section 8. Exposure controls/personal protection

Hand protection

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.

:

Appearance

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions:
open

flames, sparks and static discharge and oxidizing materials.

Lower and upper explosive (flammable) limits

: Lower: 1.8%

Upper: 8.4%

Burning rate : Not applicable.

Burning time : Not applicable.

-161.48°C (-258.7°F)

-187.6°C (-305.7°F)

96.55°C (205.8°F)

44.11 g/mole

Boiling/condensation point

Melting/freezing point

Molecular weight

Critical temperature

Molecular formula C3-H8

:
:
:
:
:
:

Date of issue/Date of revision : 6/28/2017 Date of previous issue : 10/20/2015 Version : 0.02 5/12

Propane

Section 9. Physical and chemical properties

Relative density

Solubility

Not applicable.

Not available.

Auto-ignition temperature 287°C (548.6°F)

1.09

Viscosity Not applicable.

Partition coefficient: noctanol/

water

:
:
:
:
:
:

SADT : Not available.

Decomposition temperature : Not available.

Solubility in water : 0.0244 g/l

Specific Volume (ft³/lb) : 8.6206

Gas Density (lb/ft³) : 0.116 (25°C / 77 to °F)

Section 10. Stability and reactivity

Hazardous decomposition

products

Conditions to avoid Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Chemical stability The product is stable.

Oxidizers

:
:
:

Incompatible materials :
Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Acute toxicity

Not available.

Carcinogenicity

Not available.

Mutagenicity

Not available.

Teratogenicity

Not available.

Reproductive toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Information on toxicological effects

IDLH : 2100 ppm

Date of issue/Date of revision : 6/28/2017 Date of previous issue : 10/20/2015 Version : 0.02 6/12

Propane

Section 11. Toxicological information

Not available.

Information on the likely routes of exposure

Inhalation : No known significant effects or critical hazards.

Ingestion : As this product is a gas, refer to the inhalation section.

Skin contact : No known significant effects or critical hazards.

Eye contact : No known significant effects or critical hazards.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Skin contact

Ingestion

Inhalation No specific data.

No specific data.

No specific data.

:
:
:

Eye contact : No specific data.

Potential chronic health effects

Delayed and immediate effects and also chronic effects from short and long term exposure

Specific target organ toxicity (single exposure)

Specific target organ toxicity (repeated exposure)

Not available.

Not available.

Numerical measures of toxicity

Not available.

Acute toxicity estimates

Aspiration hazard

Not available.

: Not available.

Potential acute health effects

Potential immediate

effects

: Not available.

Short term exposure

Potential delayed effects : Not available.

Potential immediate

effects

: Not available.

Long term exposure

Potential delayed effects : Not available.

Date of issue/*Date of revision* : 6/28/2017 *Date of previous issue* : 10/20/2015 *Version* : 0.02 7/12

Propane

Section 12. Ecological information

LogP_{ow} BCF Potential

Bioaccumulative potential

Other adverse effects : No known significant effects or critical hazards.

Product/ingredient name

Propane 1.09 - low

Toxicity

Not available.

Persistence and degradability

Soil/water partition

coefficient (K_{oc})

: Not available.

Mobility in soil

Not available.

Section 13. Disposal considerations

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty WelchGas-owned pressure vessels should be returned to WelchGas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Disposal methods :

Section 14. Transport information

PROPANE

2.1

-

PROPANE

2.1

-

PROPANE

UN1978

2.1

-

UN1978 UN1075

Limited quantity

Yes.

Packaging instruction

Passenger aircraft

Quantity limitation:

Forbidden.

Cargo aircraft

Quantity limitation: 150

kg

Special provisions

19, T50

- **Passenger and Cargo**

AircraftQuantity

limitation: 0 Forbidden

Cargo Aircraft Only

Quantity limitation: 150

kg

DOT IMDG IATA

UN number

UN proper

shipping name

Transport

hazard class(es)

Packing group

Additional

information

Environment No. No. No.

TDG

UN1978

PROPANE

2.1

-

No.

Product classified as

per the following

sections of the

Transportation of

Dangerous Goods

Regulations: 2.13-2.17

(Class 2).

Explosive Limit and
Limited Quantity Index

0.125

ERAP Index

3000

Mexico

UN1978

PROPANE

2.1

-

No.

-

Section 14. Transport information

Special precautions for user

Transport in bulk according

to Annex II of MARPOL

73/78 and the IBC Code

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

: Not available.

:

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

For domestic transportation only, UN1075 may be substituted for the UN number

shown as long as the substitution is consistent on package markings, shipping papers, and emergency response information. See 49 CFR 172.102 Special Provision 19.

Containers of NONODORIZED liquefied

petroleum gas must be marked either

NON-ODORIZED or NOT ODORIZED as of September 30, 2006.

[49 CFR 172.301(f), 326(d), 330(c) and 338 (e)]

Passenger Carrying Ship Index

65

Passenger Carrying Road or Rail Index

Forbidden

Special provisions

29, 42

Section 15. Regulatory information

U.S. Federal regulations

Clean Air Act (CAA) 112 regulated flammable substances: propane

:

Clean Air Act Section 112

(b) Hazardous Air

Pollutants (HAPs)

: Not listed

Clean Air Act Section 602

Class I Substances

: Not listed

Clean Air Act Section 602

Class II Substances

: Not listed

DEA List I Chemicals

(Precursor Chemicals)

: Not listed

DEA List II Chemicals

(Essential Chemicals)

: Not listed

State regulations

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

SARA 302/304

SARA 304 RQ : Not applicable.

No products were found.

Composition/information on ingredients

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

Date of issue/Date of revision : 6/28/2017 Date of previous issue : 10/20/2015 Version : 0.02 9/12

Propane

Section 15. Regulatory information

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

International lists

National inventory

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Malaysia : This material is listed or exempted.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Taiwan : This material is listed or exempted.

CEPA Toxic substances: This material is not listed.

Canadian ARET: This material is not listed.

Canadian NPRI: This material is listed.

Alberta Designated Substances: This material is not listed.

Ontario Designated Substances: This material is not listed.

Quebec Designated Substances: This material is not listed.

WHMIS (Canada) Class A: Compressed gas.

Class B-1: Flammable gas.

:

Canada

Section 16. Other information

Hazardous Material Information System (U.S.A.)

1

4

2

*

National Fire Protection Association (U.S.A.)

Health

Flammability

Physical hazards

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.

1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials

may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency

Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is

not the complete and official position of the National Fire Protection Association, on the referenced subject

which is represented only by the standard in its entirety.

4

Health 2 0

Special

Instability/Reactivity

Flammability

Canada Label requirements : Class A: Compressed gas.

Class B-1: Flammable gas.

Date of issue/Date of revision : 6/28/2017 Date of previous issue : 10/20/2015 Version : 0.02 10/12

Propane

Section 16. Other information

6/28/2017

History

Date of printing

Date of issue/Date of revision

Version

Notice to reader

Date of previous issue

:
:
:
:
:

Indicates information that has changed from previously issued version.

References : Not available.

Key to abbreviations : ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

6/28/2017

10/20/2015

0.02

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to

be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification Justification

Flam. Gas 1, H220 Expert judgment

Press. Gas Liq. Gas, H280 Expert judgment

The information below is given to call attention to the issue of "Naturally occurring radioactive materials". Although Radon-222 levels in the product represented by this MSDS do not present any direct Radon exposure hazard, customers should be aware of the potential for Radon daughter build up within their processing systems, whatever the source of their product streams. Radon-222 is a naturally occurring radioactive gas which can be a contaminant in natural gas. During subsequent processing, Radon tends to be concentrated in Liquefied Petroleum Gas streams and in product streams having a similar boiling point range. Industry experience has shown that this product may contain small amounts of Radon-222 and its radioactive decay products, called Radon "daughters". The actual concentration of Radon-222 and radioactive daughters in the delivered product is dependent on the geographical source of the natural gas and storage time prior to delivery. Process equipment (i.e. lines, filters, pumps and reaction units) may accumulate significant levels of radioactive daughters and show a gamma radiation reading during operation. A potential external radiation hazard exists at or near any pipe valve or vessel containing a Radon enriched stream, or containing internal deposits of radioactive material due to the transmission of gamma radiation through its wall. Field studies reported in the literature have not shown any conditions that subject workers to cumulative exposures in excess of general population limits. Equipment emitting gamma radiation should be presumed to be internally contaminated with alpha emitting decay products which may be a hazard if inhaled or ingested. Protective equipment such as coveralls, gloves, and respirator (NIOSH/MHSA approved for high efficiency particulates and radionuclides, or supplied air) should be worn by personnel entering a vessel or working on contaminated process equipment to prevent skin contamination, ingestion, or inhalation of any residues containing alpha radiation. Airborne contamination may be minimized by handling scale and/or contaminated materials in a wet state.

**Other special :
considerations**

Date of issue/Date of revision : 6/28/2017 Date of previous issue : 10/20/2015 Version : 0.02 11/12

Propane

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Date of issue January 1, 2018