

## Safety Data Sheet

### Section 1: Identification

#### Product identifier

- Product Name** • **Natural Gas**
- Synonyms** • Natural gas-dry; Pipeline gas
- SDS Number/Grade** • NG 2008-01

#### Relevant identified uses of the substance or mixture and uses advised against

- Recommended use** • Residential, commercial and industrial heating, industrial feedstock, power generation and vehicle transportation

#### Details of the supplier of the safety data sheet

- Manufacturer** • NW Natural  
220 NW 2nd Ave.  
Portland, OR 97209  
United States  
www.nwnatural.com
- Telephone (General)** • 800-422-4012

#### Emergency telephone number

- Manufacturer** • 800-882-3377

### Section 2: Hazard Identification

#### United States (US)

According to OSHA 29 CFR 1910.1200 HCS

#### Classification of the substance or mixture

- OSHA HCS 2012** • Flammable Gases 1 - H220  
Compressed Gas - H280  
Simple Asphyxiant

#### Label elements

OSHA HCS 2012

#### DANGER



- Hazard statements** • Extremely flammable gas - H220  
Contains gas under pressure; may explode if heated - H280  
May displace oxygen and cause rapid suffocation.

#### Precautionary statements

- Prevention** • Keep away from heat, sparks, open flames and/or hot surfaces. - P210
- Response** • Leaking gas fire: Do not extinguish, unless leak can be stopped safely. - P377  
Eliminate all ignition sources if safe to do so. - P381

**Storage/Disposal** • Protect from sunlight. Store in a well-ventilated place. - P410+P403

## Other hazards

### OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

## Section 3 - Composition/Information on Ingredients

### Substances

- Material does not meet the criteria of a substance.

### Mixtures

Composition				
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive
Methane	CAS:74-82-8	93.5%	NDA	OSHA HCS 2012: Flam. Gas 1; Press. Gas - Comp.; Simp. Asphyx
Ethane	CAS:74-84-0	3.8%	NDA	OSHA HCS 2012: Flam. Gas 1; Press. Gas - Comp., Simp. Asphyx.
Nitrogen	CAS:7727-37-9	1.2%	NDA	OSHA HCS 2012: Press. Gas - Comp.; Simp. Asphyx.
Propane	CAS:74-98-6	1%	NDA	OSHA HCS 2012: Flam. Gas 1; Press. Gas - Comp., Simp. Asphyx.
Carbon dioxide	CAS:124-38-9	0.3%	Inhalation-Rat LC50 • 470000 ppm 30 Minute(s)	OSHA HCS 2012: Press. Gas - Comp.; Simp. Asphyx.
Isobutane	CAS:75-28-5	0.1%	Inhalation-Rat LC50 • 658000 mg/m <sup>3</sup> 4 Hour(s)	OSHA HCS 2012: Flam. Gas 1; Press Gas - Comp.; Simp. Asphyx.
Butane	CAS:106-97-8	0.1%	Inhalation-Rat LC50 • 658 g/m <sup>3</sup> 4 Hour(s)	OSHA HCS 2012: Flam. Gas 1; Press Gas - Comp.; Simp. Asphyx.
Pentane	CAS:109-66-0	< 0.1%	Inhalation-Rat LC50 • 364 g/m <sup>3</sup> 4 Hour(s)	OSHA HCS 2012: Exposure limit(s)
Hexane	CAS:110-54-3	< 0.1%	Inhalation-Rat LC50 • 627000 mg/m <sup>3</sup> 3 Minute(s)	OSHA HCS 2012: Exposure limit(s)
2-Methylbutane (In Liquid form)	CAS:78-78-4	< 0.1%	Inhalation-Rat LC50 • 280000 mg/m <sup>3</sup> 4 Hour(s)	OSHA HCS 2012: Exposure limit(s)
2-Propanethiol, 2-methyl-	CAS:75-66-1	< 30ppm	Ingestion/Oral-Rat LD50 • 4729 mg/kg Inhalation-Rat LC50 • 22200 ppm 4 Hour(s)	OSHA HCS 2012: Exposure limit(s)
Methyl ethyl sulfide	CAS:624-89-5	< 8ppm	NDA	OSHA HCS 2012: Exposure limit(s)
Hydrogen sulfide	CAS:7783-06-4	< 5ppm	Inhalation-Rat LC50 • 700 mg/m <sup>3</sup> 4 Hour(s)	OSHA HCS 2012: Exposure limit(s)

All percentages provided are approximate.

## Section 4: First-Aid Measures

## Description of first aid measures

### Inhalation

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

### Skin

- Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.

### Eye

- First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If irritation develops and persists, get medical attention.

### Ingestion

- Ingestion is not considered a potential route of exposure.

## Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

## Indication of any immediate medical attention and special treatment needed

### Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. A potential health hazard associated with this gas is anoxia.

## Section 5: Fire-Fighting Measures

### Extinguishing media

- Suitable Extinguishing Media** • Dry Chemical, (Potassium Bicarbonate based \*Purple K\* most effective), Carbon dioxide, Water.

### Unsuitable Extinguishing Media

- No data available

### Special hazards arising from the substance or mixture

#### Unusual Fire and Explosion Hazards

- EXTREMELY FLAMMABLE  
Will form explosive mixtures with air.  
Vapors may travel to source of ignition and flash back.  
Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.  
Containers may explode when heated.  
Ruptured cylinders may rocket.

#### Hazardous Combustion Products

- No data available

### Advice for firefighters

- Gas fires should not be extinguished unless flow of gas can be stopped. Only authorized personnel should turn off valves or attempt repairs. Fire crews should wear self-contained breathing apparatus (SCBA). Natural gas is lighter than air and will vent upward but special consideration should be given to areas that may trap or contain explosive concentrations including areas of potential migration underground or through structures. Water mist may be used to cool surrounding structures including compressed gas cylinders or tanks.

## Section 6 - Accidental Release Measures

### Personal precautions, protective equipment and emergency procedures

#### Personal Precautions

- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not touch or walk through spilled material. Ventilate the area before entry.

#### Emergency Procedures

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. **LARGE SPILL:**

Consider initial downwind evacuation for at least 800 meters (1/2 mile)

## Environmental precautions

- Prevent spreading of vapors through sewers, ventilation systems and confined areas.

## Methods and material for containment and cleaning up

### Containment/Clean-up Measures

- All equipment used when handling the product must be grounded. Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container. Do not direct water at spill or source of leak. Isolate area until gas has dispersed.

## Section 7 - Handling and Storage

### Precautions for safe handling

#### Handling

- Keep away from heat and ignition sources – No Smoking. Take precautionary measures against static charges. All equipment used when handling the product must be grounded. Use only non-sparking tools. Use only with adequate ventilation. Ventilate closed spaces before entering. Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Cylinders should be firmly secured to prevent falling or being knocked-over. Use explosion-proof - electrical, ventilating and/or lighting equipment. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

### Conditions for safe storage, including any incompatibilities

#### Storage

- Store in a cool/low-temperature, well-ventilated dry place away from heat and ignition sources. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over.

## Section 8 - Exposure Controls/Personal Protection

### Control parameters

Exposure Limits/Guidelines				
	Result	ACGIH	NIOSH	OSHA
Pentane (109-66-0)	TWAs	600 ppm TWA (listed under Pentane, all isomers)	120 ppm TWA; 350 mg/m <sup>3</sup> TWA	1000 ppm TWA; 2950 mg/m <sup>3</sup> TWA
	Ceilings	Not established	610 ppm Ceiling (15 min); 1800 mg/m <sup>3</sup> Ceiling (15 min)	Not established
Hexane (110-54-3)	TWAs	50 ppm TWA	50 ppm TWA; 180 mg/m <sup>3</sup> TWA	500 ppm TWA; 1800 mg/m <sup>3</sup> TWA
Isobutane (75-28-5)	STELs	1000 ppm STEL	Not established	Not established
	TWAs	Not established	800 ppm TWA; 1900 mg/m <sup>3</sup> TWA	Not established
Butane (106-97-8)	STELs	1000 ppm STEL	Not established	Not established
	TWAs	Not established	800 ppm TWA; 1900 mg/m <sup>3</sup> TWA	Not established
2-Methylbutane (In Liquid form) (78-78-4)	TWAs	600 ppm TWA (listed under Pentane, all isomers)	Not established	Not established
Carbon dioxide	TWAs	5000 ppm TWA	5000 ppm TWA; 9000 mg/m <sup>3</sup> TWA	5000 ppm TWA; 9000 mg/m <sup>3</sup> TWA

(124-38-9)	STELs	30000 ppm STEL	30000 ppm STEL; 54000 mg/m3 STEL	Not established
Propane (74-98-6)	TWAs	1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)	1000 ppm TWA; 1800 mg/m3 TWA	1000 ppm TWA; 1800 mg/m3 TWA
Ethane (74-84-0)	TWAs	1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)	Not established	Not established
Hydrogen sulfide (7783-06-4)	Ceilings	Not established	10 ppm Ceiling (10 min); 15 mg/m3 Ceiling (10 min)	20 ppm Ceiling
	STELs	5 ppm STEL	Not established	Not established
	TWAs	1 ppm TWA	Not established	Not established
Methane (74-82-8)	TWAs	1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)	Not established	Not established

**Exposure controls**

**Engineering Measures/Controls**

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof - electrical, ventilating and/or lighting equipment.

**Personal Protective Equipment**

**Respiratory**

- In case of insufficient ventilation, wear suitable respiratory equipment. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

**Eye/Face**

- Wear safety glasses.

**Skin/Body**

- Wear leather gloves when handling cylinders.

**Environmental Exposure Controls**

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

**Key to abbreviations**

ACGIH = American Conference of Governmental Industrial Hygiene  
 NIOSH = National Institute of Occupational Safety and Health  
 OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures  
 TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

**Section 9 - Physical and Chemical Properties**

**Information on Physical and Chemical Properties**

Material Description			
Physical Form	Gas	Appearance/Description	Colorless, tasteless gas that has no odor or if trace amounts of sulfur compounds are added as an odorant the gas has a garlic/rotten-egg/skunk odor.
Color	Colorless	Odor	Odorless or with trace amounts of sulfur compounds added as an odorant resulting in a garlic/rotten-egg/skunk odor.
Odor Threshold	No data available		
General Properties			

Boiling Point	-258.7 F(-161.5 C) at 14.73 psig	Melting Point	No data available
Decomposition Temperature	No data available	pH	No data available
Specific Gravity/Relative Density	0.55 to 0.64 Water=1 depending on composition	Density	0.044 lb(s)/ft <sup>3</sup>
Bulk Density	No data available	Water Solubility	Slightly Soluble 0.1 to 1 %
Viscosity	No data available		
<b>Volatility</b>			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available		
<b>Flammability</b>			
Flash Point	-306 F(-187.7778 C)	UEL	15 % Limits vary slightly with composition
LEL	4.8 % Limits vary slightly with composition	Autoignition	1004 F(540 C)
Flammability (solid, gas)	Flammable gas.		
<b>Environmental</b>			
Octanol/Water Partition coefficient	No data available		

## Section 10: Stability and Reactivity

### Reactivity

- No dangerous reaction known under conditions of normal use.

### Chemical stability

- Stable under normal temperatures and pressures.

### Possibility of hazardous reactions

- Hazardous polymerization will not occur.

### Conditions to avoid

- Keep away from heat, sparks, and flame.

### Incompatible materials

- Strong oxidizers.

### Hazardous decomposition products

- Oxides of carbon (CO, CO<sub>2</sub>), "soot"

## Section 11 - Toxicological Information

### Information on toxicological effects

Components		
Methane (93.5%)	74-82-8	<b>Acute Toxicity:</b> Inhalation-Mouse LC50 • 326 g/m <sup>3</sup> 2 Hour(s)
Isobutane (0.1%)	75-28-5	<b>Acute Toxicity:</b> Inhalation-Rat LC50 • 57 pph 15 Minute(s); <i>Behavioral:Tremor; Behavioral:Convulsions or effect on seizure threshold; Lungs, Thorax, or Respiration:Respiratory depression</i>
Butane (0.1%)	106-97-8	<b>Acute Toxicity:</b> Inhalation-Rat LC50 • 658 g/m <sup>3</sup> 4 Hour(s)

2-Methylbutane (In Liquid form) (< 0.1%)	78-78-4	<b>Acute Toxicity:</b> Inhalation-Rat LC50 • 280000 mg/m <sup>3</sup> 4 Hour(s)
Pentane (< 0.1%)	109-66-0	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • >2000 mg/kg
Hexane (< 0.1%)	110-54-3	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 25 g/kg; Inhalation-Rat LC50 • 48000 ppm 4 Hour(s); <b>Irritation:</b> Eye-Rabbit • 10 mg • Mild irritation
Carbon dioxide (0.3%)	124-38-9	<b>Acute Toxicity:</b> Inhalation-Rat LC50 • 470000 ppm 30 Minute(s); <b>Reproductive:</b> Inhalation-Rat TCLO • 6 pph 24 Hour(s)(10D preg); <i>Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system; Reproductive Effects:Specific Developmental Abnormalities:Cardiovascular (circulatory) system; Reproductive Effects:Specific Developmental Abnormalities:Respiratory system</i>

GHS Properties	Classification
Acute toxicity	OSHA HCS 2012 • No data available
Aspiration Hazard	OSHA HCS 2012 • No data available
Carcinogenicity	OSHA HCS 2012 • No data available
Germ Cell Mutagenicity	OSHA HCS 2012 • No data available
Skin corrosion/Irritation	OSHA HCS 2012 • No data available
Skin sensitization	OSHA HCS 2012 • No data available
STOT-RE	OSHA HCS 2012 • No data available
STOT-SE	OSHA HCS 2012 • No data available
Toxicity for Reproduction	OSHA HCS 2012 • No data available
Respiratory sensitization	OSHA HCS 2012 • No data available
Serious eye damage/Irritation	OSHA HCS 2012 • No data available

**Route(s) of entry/exposure** ● Inhalation, Skin, Eye, Ingestion

**Potential Health Effects**

**Inhalation**

**Acute (Immediate)**

- If this material is released in a small, poorly ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with decreased levels of oxygen: increase in breathing and pulse rate, emotional upset, abnormal fatigue, nausea, vomiting, collapse, loss of consciousness, convulsive movements, respiratory collapse and death.

**Chronic (Delayed)**

- No data available

**Skin**

**Acute (Immediate)**

- Under normal conditions of use, no health effects are expected.

**Chronic (Delayed)**

- Under normal conditions of use, no health effects are expected.

**Eye**

**Acute (Immediate)**

- Under normal conditions of use, no health effects are expected.

**Chronic (Delayed)**

- Under normal conditions of use, no health effects are expected.

**Ingestion**

**Acute (Immediate)**

- Ingestion is not anticipated to be a likely route of exposure to this product.

**Chronic (Delayed)**

- Ingestion is not anticipated to be a likely route of exposure to this product.

**Key to abbreviations**

- LD = Lethal Dose
- MLD = Mild
- TC = Toxic Concentration

**Section 12 - Ecological Information**

**Toxicity**

- Material data lacking.

**Persistence and degradability**

- Material data lacking.

**Bioaccumulative potential**

- Material data lacking.

**Mobility in Soil**

- Material data lacking.

**Results of PBT and vPvB assessment**

- PBT and vPvB assessment has not been conducted for this material.

**Other adverse effects**

- No studies have been found.

**Section 13 - Disposal Considerations**

**Waste treatment methods**

**Product waste**

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Packaging waste**

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Section 14 - Transport Information**

	UN number	UN proper shipping name	Transport hazard class(es)	Packing group	Environmental hazards
DOT	UN1971	Methane, compressed or Natural gas, compressed (with high methane content)	2.1	NDA	NDA

**Special precautions for user**

- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

- Not relevant.

**Section 15 - Regulatory Information**



**Safety, health and environmental regulations/legislation specific for the substance or mixture****SARA Hazard Classifications** • Acute, Fire, Pressure(Sudden Release of)

Inventory		
Component	CAS	TSCA
2-Methylbutane (In Liquid form)	78-78-4	Yes
2-Propanethiol, 2-methyl-	75-66-1	Yes
Butane	106-97-8	Yes
Carbon dioxide	124-38-9	Yes
Ethane	74-84-0	Yes
Hexane	110-54-3	Yes
Hydrogen sulfide	7783-06-4	Yes
Isobutane	75-28-5	Yes
Methane	74-82-8	Yes
Methyl ethyl sulfide	624-89-5	Yes
Nitrogen	7727-37-9	Yes
Pentane	109-66-0	Yes
Propane	74-98-6	Yes

**United States****Labor****U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**

• Hydrogen sulfide	7783-06-4	1500 lb TQ
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - OSHA - Specifically Regulated Chemicals**

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**Environment**

**U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities**

• Hydrogen sulfide	7783-06-4	100 lb final RQ; 45.4 kg final RQ
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	5000 lb final RQ; 2270 kg final RQ
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities**

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs**

• Hydrogen sulfide	7783-06-4	100 lb EPCRA RQ
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• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs**

• Hydrogen sulfide	7783-06-4	500 lb TPQ
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - CERCLA/SARA - Section 313 - Emission Reporting**

• Hydrogen sulfide	7783-06-4	1.0 % de minimis concentration
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	1.0 % de minimis concentration
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing**

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed

• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**United States - California**

**Environment**

**U.S. - California - Proposition 65 - Carcinogens List**

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - California - Proposition 65 - Developmental Toxicity**

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)**

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

**U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)**

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

#### U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

#### U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Hydrogen sulfide	7783-06-4	Not Listed
• Pentane	109-66-0	Not Listed
• Ethane	74-84-0	Not Listed
• 2-Methylbutane (In Liquid form)	78-78-4	Not Listed
• Isobutane	75-28-5	Not Listed
• Carbon dioxide	124-38-9	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Methane	74-82-8	Not Listed
• 2-Propanethiol, 2-methyl-	75-66-1	Not Listed
• Methyl ethyl sulfide	624-89-5	Not Listed

## Section 16 - Other Information

### Last Revision Date

- 17/June/2014

### Preparation Date

- 26/February/2006

### Disclaimer/Statement of Liability

- The data contained in this SDS are believed to be accurate, but are not so warranted whether or not they originated at NW Natural. Recipients of this SDS are advised to confirm ahead of time that the data are current and suitable to their needs.

**Key to abbreviations**

NDA = No Data Available

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## SAFETY DATA SHEET 5W-40 FULLY SYNTHETIC OIL

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Product name 5W-40 FULLY SYNTHETIC OIL  
Product No. DRF001, DRF005, DRF025, DRF199, GFY025, GFY050, HBS105, HBS106, JSB126, JSB130, JSB131, MAC310, MAC939, MOR126, XAK010, XAK050, XAK455, XFS401, YAK025, YAK199, YAK020

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Engine oil.

#### 1.3. Details of the supplier of the safety data sheet

Supplier TETROSYL LIMITED  
BEVIS GREEN WORKS  
WALMERSLEY  
BURY  
BL9 6RE  
0161 764 5981  
0161 797 5899  
info@tetrosyl.com  
Manufacturer TETROSYL LIMITED  
BEVIS GREEN WORKS  
WALMERSLEY  
BURY  
BL9 6RE  
0161 764 5981  
0161 797 5899  
info@tetrosyl.com

#### 1.4. Emergency telephone number

0161 764 5981

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture

Classification (EC 1272/2008)  
Physical and Chemical Hazards Not classified.  
Human health Not classified.  
Environment Not classified.

Classification (1999/45/EEC) Not classified.

The Full Text for all R-Phrases and Hazard Statements are Displaved in Section 16.

#### 2.2. Label elements

**5W-40 FULLY SYNTHETIC OIL**

Label In Accordance With (EC) No. 1272/2008

No pictogram required.

**Precautionary Statements**

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

**2.3. Other hazards****SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS****3.2. Mixtures**

ORGANOMOLYBDENUM AMIDE	<0.5
CAS-No.: 445409-27-8	EC No.:
Classification (EC 1272/2008) Aquatic Chronic 2 - H411	Classification (67/548/EEC) N;R51/53.
ZINC DIALKYL DITHIOPHOSPHATE	<1%
CAS-No.: 68649-42-3	EC No.: 272-028-3
Classification (EC 1272/2008) Skin Irrit. 2 - H315 Eye Dam. 1 - H318 Aquatic Chronic 2 - H411	Classification (67/548/EEC) Xi;R38,R41. N;R51/53.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**SECTION 4: FIRST AID MEASURES****4.1. Description of first aid measures**

## General information

Get medical attention if any discomfort continues. Remove affected person from source of contamination.

General first aid, rest, warmth and fresh air.

## Inhalation

In case of inhalation of spray mist: Move person into fresh air and keep at rest.

## Ingestion

Contact physician if larger quantity has been consumed. Rinse mouth thoroughly.

## Skin contact

Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Contact physician if irritation continues or sores develop.

## Eye contact

Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Do not rub eye.

**4.2. Most important symptoms and effects, both acute and delayed**

## General information

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

NOTE! Effects may be delayed. Keep affected person under observation.



## 5W-40 FULLY SYNTHETIC OIL

### Inhalation

May cause an asthma-like shortness of breath. Vapours may cause headache, fatigue, dizziness and nausea.

### Ingestion

May cause discomfort if swallowed. May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.

### Skin contact

Prolonged or repeated contact with skin may cause redness, itching, irritation and eczema/chapping. Allergic rash.

### Eye contact

May cause temporary eye irritation.

### **4.3. Indication of any immediate medical attention and special treatment needed**

No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

## SECTION 5: FIREFIGHTING MEASURES

### **5.1. Extinguishing media**

#### Extinguishing media

Use: Foam, carbon dioxide or dry powder. Use fire-extinguishing media appropriate for surrounding materials.

#### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

### **5.2. Special hazards arising from the substance or mixture**

#### Hazardous combustion products

During fire, toxic gases (CO, CO<sub>2</sub>) are formed.

#### Unusual Fire & Explosion Hazards

No unusual fire or explosion hazards noted.

#### Specific hazards

Fire creates: Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

### **5.3. Advice for firefighters**

#### Protective equipment for fire-fighters

Leave danger zone immediately.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### **6.1. Personal precautions, protective equipment and emergency procedures**

Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapours and aerosol spray. Avoid contact with eyes and prolonged skin contact. Provide adequate ventilation. In case of spills, beware of slippery floors and surfaces.

### **6.2. Environmental precautions**

Avoid discharge into drains, water courses or onto the ground. The product should not be dumped in nature but collected and delivered according to agreement with the local authorities.

### **6.3. Methods and material for containment and cleaning up**

Stop leak if possible without risk. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Provide ventilation and confine spill. Do not allow runoff to sewer. Collect with absorbent, non-combustible material into suitable containers.

### **6.4. Reference to other sections**

Wear protective clothing as described in Section 8 of this safety data sheet. Collect and dispose of spillage as indicated in section 13.

## SECTION 7: HANDLING AND STORAGE

**5W-40 FULLY SYNTHETIC OIL****7.1. Precautions for safe handling**

Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Do not eat, drink or smoke when using the product. Avoid forming spray/aerosol mists. Provide good ventilation. Avoid contact with skin and eyes. Always remove oil with soap and water or skin cleaning agent, never use organic solvents. Do not use oil-contaminated clothing or shoes, and do not put rags moistened with oil into pockets.

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

Keep upright. Store in tightly closed original container.

**7.3. Specific end use(s)**

The identified uses for this product are detailed in Section 1.2.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1. Control parameters****8.2. Exposure controls**

Protective equipment



Engineering measures

Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours.

Respiratory equipment

No specific recommendations.

Hand protection

Protective gloves should be used if there is a risk of direct contact or splash. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Eye protection

Wear approved, tight fitting safety glasses where splashing is probable.

Other Protection

Wear suitable protective clothing as protection against splashing or contamination.

Hygiene measures

Wash contaminated clothing before reuse. Wash promptly with soap & water if skin becomes contaminated.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****9.1. Information on basic physical and chemical properties**

Appearance	Clear liquid.
Colour	Brown.
Odour	Mineral. Oil smell.
Solubility	Insoluble in water
Initial boiling point and boiling range (°C)	>250°C
Melting point (°C)	Not determined.
Relative density	Scientifically unjustified. 0.855

**5W-40 FULLY SYNTHETIC OIL**

Vapour density (air=1)	
Not determined.	Scientifically unjustified.
Vapour pressure	
Not determined.	Scientifically unjustified.
Evaporation rate	
Not determined.	Scientifically unjustified.
Evaporation Factor	
Not determined.	Scientifically unjustified.
pH-Value, Conc. Solution	
Not determined.	Scientifically unjustified.
Viscosity	85.2 cSt @ 40°C
Decomposition temperature (°C)	
Not determined.	Scientifically unjustified.
Odour Threshold, Lower	
Not determined.	Scientifically unjustified.
Odour Threshold, Upper	
Not determined.	Scientifically unjustified.
Flash point (°C)	220°C
Auto Ignition Temperature (°C)	
Not determined.	Scientifically unjustified.
Flammability Limit - Lower(%)	
Not determined.	Scientifically unjustified.
Flammability Limit - Upper(%)	
Not determined.	Scientifically unjustified.
Partition Coefficient (N-Octanol/Water)	
Not determined.	Scientifically unjustified.
Oxidising properties	
Not determined.	

**9.2. Other information**

None.

**SECTION 10: STABILITY AND REACTIVITY****10.1. Reactivity**

No specific reactivity hazards associated with this product.

**10.2. Chemical stability**

No particular stability concerns.

**10.3. Possibility of hazardous reactions**

Not applicable.

**5W-40 FULLY SYNTHETIC OIL****10.4. Conditions to avoid**

No specific conditions are likely to result in a hazardous situation.

**10.5. Incompatible materials**

Materials To Avoid  
Strong oxidising substances.

**10.6. Hazardous decomposition products**

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

**SECTION 11: TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects**

Toxicological information  
No information available.

**SECTION 12: ECOLOGICAL INFORMATION**

Ecotoxicity  
The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

**12.1. Toxicity**

Acute Toxicity - Fish  
Not available.  
Acute Toxicity - Aquatic Invertebrates  
Not available.

**12.2. Persistence and degradability**

Degradability  
There are no data on the degradability of this product.

**12.3. Bioaccumulative potential**

Bioaccumulative potential  
No data available on bioaccumulation.  
Partition coefficient  
Not determined.  
Scientifically unjustified.

**12.4. Mobility in soil**

Mobility:  
The product is insoluble in water.

**12.5. Results of PBT and vPvB assessment**

Not Classified as PBT/vPvB by current EU criteria.

**12.6. Other adverse effects**

Not available.

**SECTION 13: DISPOSAL CONSIDERATIONS**

General information  
Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority.

**5W-40 FULLY SYNTHETIC OIL****13.1. Waste treatment methods**

Confirm disposal procedures with environmental engineer and local regulations.

**SECTION 14: TRANSPORT INFORMATION****14.1. UN number****14.2. UN proper shipping name****14.3. Transport hazard class(es)****14.4. Packing group****14.5. Environmental hazards****14.6. Special precautions for user****14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code****SECTION 15: REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

EU Legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

**15.2. Chemical Safety Assessment**

No chemical safety assessment has been carried out.

**SECTION 16: OTHER INFORMATION**

Revision Comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision Date 30/10/2012  
Revision 22  
Supersedes date 14/06/2012 V21  
Safety Data Sheet Status Approved.

Risk Phrases In Full

R38 Irritating to skin.  
NC Not classified.  
R41 Risk of serious damage to eyes.  
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Hazard Statements In Full

H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H411 Toxic to aquatic life with long lasting effects.

## SAFETY DATA SHEET

Creation Date 19-Nov-2009

Revision Date 18-Jan-2018

Revision Number 6

### 1. Identification

**Product Name** Propylene Glycol

**Cat No. :** P355-1; P355-4; P355-20; P355-200; S801501; XXBA147

**CAS-No** 57-55-6

**Synonyms** 1,2-Propanediol; 1,2-Dihydroxypropane; Methyl Glycol (USP/FCC)

**Recommended Use** Laboratory chemicals.

**Uses advised against** Not for food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	

#### Label Elements

##### **Signal Word**

Warning

##### **Hazard Statements**

Causes skin irritation  
Causes eye irritation  
May cause drowsiness or dizziness

**Precautionary Statements****Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area

**Response**

Get medical attention/advice if you feel unwell

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
Call a POISON CENTER or doctor/physician if you feel unwell

**Storage**

Store in a well-ventilated place. Keep container tightly closed  
Store locked up

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
1,2-Propylene glycol	57-55-6	>95

### 4. First-aid measures

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
<b>Inhalation</b>	Move to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration.
<b>Ingestion</b>	Do not induce vomiting. Get medical attention immediately if symptoms occur.
<b>Most important symptoms and effects</b>	Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	99 °C / 210.2 °F
<b>Method -</b>	No information available

**Autoignition Temperature** 400 °C / 752 °F

**Explosion Limits**

**Upper** 12.6 vol %  
**Lower** 2.6 vol %  
**Sensitivity to Mechanical Impact** No information available  
**Sensitivity to Static Discharge** No information available

**Specific Hazards Arising from the Chemical**

Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

**Hazardous Combustion Products**

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>)

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

Health	Flammability	Instability	Physical hazards
2	1	1	N/A

## 6. Accidental release measures

**Personal Precautions** Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

**Environmental Precautions** Should not be released into the environment. See Section 12 for additional ecological information.

**Methods for Containment and Clean Up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

**Handling** Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Wear personal protective equipment.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

## 8. Exposure controls / personal protection

**Exposure Guidelines**

**Engineering Measures** Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal Protective Equipment**

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.



**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties**

<b>Physical State</b>	Viscous liquid
<b>Appearance</b>	Clear Colourless
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	6.5-7.5 100g/l aq. sol
<b>Melting Point/Range</b>	-60 °C / -76 °F
<b>Boiling Point/Range</b>	187 °C / 368.6 °F
<b>Flash Point</b>	99 °C / 210.2 °F
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	12.6 vol %
<b>Lower</b>	2.6 vol %
<b>Vapor Pressure</b>	0.13 mbar @ 20 °C
<b>Vapor Density</b>	2.62 (Air = 1.0)
<b>Specific Gravity</b>	1.03 - 1.04
<b>Solubility</b>	Soluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	400 °C / 752 °F
<b>Decomposition Temperature</b>	No information available
<b>Viscosity</b>	45 mPa.s at 20 °C
<b>Molecular Formula</b>	C3 H8 O2
<b>Molecular Weight</b>	76.10

**10. Stability and reactivity**

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Hygroscopic.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Exposure to moist air or water.
<b>Incompatible Materials</b>	Strong oxidizing agents, Acids
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

**11. Toxicological information****Acute Toxicity****Product Information****Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,2-Propylene glycol	LD50 = 20 g/kg ( Rat )	LD50 = 20800 mg/kg ( Rabbit )	Not listed

**Toxicologically Synergistic Products** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** Irritating to eyes and skin

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
1,2-Propylene glycol	57-55-6	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Central nervous system (CNS)

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
1,2-Propylene glycol	EC50: = 19000 mg/L, 96h (Pseudokirchneriella subcapitata)	LC50: = 710 mg/L, 96h (Pimephales promelas) LC50: 41 - 47 mL/L, 96h static (Oncorhynchus mykiss) LC50: = 51600 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 51400 mg/L, 96h static (Pimephales promelas)	= 710 mg/L EC50 Photobacterium phosphoreum 30 min	EC50: > 10000 mg/L, 24h (Daphnia magna) EC50: > 1000 mg/L, 48h Static (Daphnia magna)

**Persistence and Degradability** Miscible with water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

Component	log Pow
1,2-Propylene glycol	-0.9

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

<b>DOT</b>	Not regulated
<b>TDG</b>	Not regulated
<b>IATA</b>	Not regulated
<b>IMDG/IMO</b>	Not regulated

## 15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
1,2-Propylene glycol	X	X	-	200-338-0	-		X	X	X	X	X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

### U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration  
Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

### U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
1,2-Propylene glycol	-	X	X	-	X

### U.S. Department of Transportation

Reportable Quantity (RQ): N

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

### U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

### Other International Regulations

Mexico - Grade Slight risk, Grade 1

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## 16. Other information

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<b>Creation Date</b>	19-Nov-2009
<b>Revision Date</b>	18-Jan-2018
<b>Print Date</b>	18-Jan-2018
<b>Revision Summary</b>	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**