

KERSOL STABILIZED nPB (n-PROPYL BROMIDE)

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SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product identifier used on the label

: **KERSOL STABILIZED nPB (n-PROPYL BROMIDE)**

Product Code(s) : N/Ap

Recommended use of the chemical and restrictions on use

: Cleaner / Degreaser. Industrial solvent.

Chemical family : Bromine hydrocarbon

Name, address, and telephone number of the manufacturer:

Refer to Supplier

Name, address, and telephone number of the supplier:

Kersol Incorporated

6580 Treviso Terrace
Mississauga, ON, Canada
L5N 4K3

Supplier's Telephone # : (416) 923-9120

24 Hr. Emergency Tel # : (866) 856-5366 (CHDS)

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Clear colourless liquid. Strong, sweet odour.

Most important hazards:

Causes serious eye damage. May cause respiratory irritation. May cause drowsiness or dizziness. Suspected of causing cancer. May damage fertility or the unborn child if inhaled. May cause damage to organs through prolonged or repeated exposure. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.

Harmful to aquatic life with long lasting effects. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. See Section 12 for more environmental information.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:

Eye damage/irritation - Category 1

Carcinogenicity - Category 2

Reproductive toxicity - Category 1B

Specific target organ toxicity, single exposure - Category 3

Specific target organ toxicity, repeated exposure - Category 2

Label elements

Hazard pictogram(s)



Signal Word

DANGER!

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Causes serious eye damage.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.
May damage fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe vapor.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/clothing and eye/face protection.

If exposed or concerned: Get medical advice/attention.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

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

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:

Toxic fumes may be released during a fire. May react slowly with water to form corrosive and toxic hydrobromic acid. Causes mild skin irritation. May cause gastrointestinal irritation.

Environmental precautions:

Harmful to aquatic life with long lasting effects. Avoid release to the environment. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. See Section 12 for more environmental information.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
n-Propyl bromide	1-Bromopropane Monobromopropane n-PB	106-94-5	95.0
n-propanol	n-Propyl alcohol Ethyl carbinol Hydroxypropane	71-23-8	3.5
1,2-Butylene oxide	1,2-Epoxybutane Ethylloxirane	106-88-7	0.75

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

- Ingestion* : Do not induce vomiting. Never give anything by mouth if victim is unconscious. If exposed or concerned: Get medical advice/attention.
- Inhalation* : If inhaled: Remove person to fresh air and keep comfortable for breathing. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Call a POISON CENTER or doctor/physician if you feel unwell.

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- Skin contact* : Remove contaminated clothing. Wash exposed area thoroughly with soap and water for at least 15 minutes. If exposed or concerned: Get medical advice/attention.
- Eye contact* : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Flush eyes with water for at least 15 minutes. Immediately call a POISON CENTER or doctor/physician.

Most important symptoms and effects, both acute and delayed

- : Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause irreversible eye damage.
May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties.
May cause drowsiness or dizziness. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects.
Suspected of causing cancer. Symptoms may include persistent coughing, shortness of breath, coughing up blood and wheezing.
May damage fertility or the unborn child. Symptoms may include decreased sperm motility and percentage of normal sperm in males; increased ovarian follicular cysts, longer oestrous cycle, decreased litter sizes and implantation sites in females; decreased foetal weights and increased incidences of skeletal variations in pups.
- : May cause damage to organs through prolonged or repeated exposure. Symptoms may include convulsions, incoordination and decrease in grip strength.
- : Causes mild skin irritation. Symptoms may include a burning sensation, redness, swelling, drying, and cracking of the skin.
- : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed

- : Immediate medical attention is required. Causes serious eye damage.
Provide general supportive measures and treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

- : Carbon dioxide, dry chemical or alcohol foam.

Unsuitable extinguishing media

- : May react slowly with water to form corrosive and toxic hydrobromic acid.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not considered flammable. Vapours are heavier than air and collect in confined and low-lying areas. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Toxic fumes may be released during a fire.

Flammability classification (OSHA 29 CFR 1910.106)

- : Non-flammable.

Hazardous combustion products

- : Carbon dioxide; Hydrogen bromide; Carbonyl bromide; Bromine; Propene

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. Do not get water inside containers. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

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SECTION 6. ACCIDENTAL RELEASE MEASURES
Personal precautions, protective equipment and emergency procedures

- : Restrict access to area until completion of clean-up. Individuals involved in the cleanup must wear appropriate personal protective equipment. Refer to protective measures listed in sections 7 and 8.

- Environmental precautions** : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.

Methods and material for containment and cleaning up

- : Ventilate area of release. Remove all sources of ignition. Stop the spill at source if it is safe to do so. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Contaminated absorbent material may pose the same hazards as the spilled product. Notify the appropriate authorities as required.

Special spill response procedures

- : For large quantities, refer to the environmental authorities. If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8802).
 US CERCLA Reportable quantity (RQ): 1,2-Epoxybutane (100 lbs / 45.4 kg).

SECTION 7. HANDLING AND STORAGE
Precautions for safe handling

- : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
 Use only outdoors or in a well-ventilated area. Wear suitable protective equipment during handling. Wear protective gloves/clothing and eye/face protection. Do not breathe vapor. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Keep away from incompatibles. Keep away from extreme heat and flame. Keep containers tightly closed when not in use. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

- Conditions for safe storage** : Store in a cool, dry, well-ventilated area. Store locked up. Store away from incompatible materials. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area. Keep from freezing.

- Incompatible materials** : Strong alkalis; Oxidizing agents; Bases; Reactive metals; Natural Rubber

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION
Exposure Limits:

<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
n-Propyl bromide	0.1 ppm	N/Av	N/Av	N/Av
n-propanol	100 ppm	N/Av	200 ppm (500 mg/m ³)	N/Av
1,2-Butylene oxide	2 ppm (AIHA WEEL)	N/Av	N/Av	N/Av

Note: The documentation for the ACGIH nPB TLV states that the TLV applies to nPB with an iPB content of 0.1 to 0.2% by weight. The iPB content of nPB in Kersol Stabilized NPB products is shown by GC analysis to be at or more than an order of magnitude below that level, at 0.01% or below. USEPA states an exposure level to nPB in the range of 18 to 30 ppm is protective of workers. (Federal Register May 30, 2007).

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SAFETY DATA SHEET**Biological Exposure Indices:**

No biological exposure limits noted for the ingredient(s).

Exposure controls**Ventilation and engineering measures**

: Use only outdoors or in a well-ventilated area. Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits. Ensure adequate ventilation, especially in confined areas.

Respiratory protection

: If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable approved respiratory protection. If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02. Seek advice from respiratory protection specialists.

Skin protection

: Wear protective gloves/clothing. Wear as appropriate: Viton; Silver Shield™. To protect against splashes from pouring: Nitrile rubber; Neoprene gloves; Butyl rubber. Avoid natural rubber gloves.

The suitability for a specific workplace should be discussed with the producers of the protective gloves. Wear a chemically resistant apron and long sleeves when dispensing, to prevent skin contact.

Eye / face protection

: Wear eye/face protection. Chemical resistant goggles must be worn. A full face shield may also be necessary.

Other protective equipment

: An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.

General hygiene considerations

: Do not breathe vapor. Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Clear colourless liquid.
Odour	: Sweet odour.
Odour threshold	: N/Av
pH	: 6.8 (estimation) (nPB)
Melting/Freezing point	: - 110°C (- 166°F) (nPB)
Initial boiling point and boiling range	: 70°C (158°F)
Flash point	: None.
Flashpoint (Method)	: ASTM D56 (Tag closed cup)
Evaporation rate (BuAe = 1)	: 4.7 (butyl acetate = 1)
Flammability (solid, gas)	: Not applicable.
Lower flammable limit (% by vol.)	: 3.8%
Upper flammable limit (% by vol.)	: 9.5%
Oxidizing properties	: None.
Explosive properties	: Not explosive
Vapour pressure	: 134 mmHg @ 25°C (77°F)
Vapour density	: > 1 (Air = 1.0)

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SAFETY DATA SHEET**Relative density / Specific gravity**

: 1.29 @ 25°C (77°F)

Solubility in water : Negligible. May react with water.**Other solubility(ies)** : N/Av**Partition coefficient: n-octanol/water or Coefficient of water/oil distribution**

: N/Av

Auto-ignition temperature : 460°C (860°F)**Decomposition temperature** : N/Av**Viscosity** : N/Av**Volatiles (% by weight)** : N/Av**Volatile organic Compounds (VOC's)**

: 1290 g/L (10.8 lbs/gal)

Absolute pressure of container

: N/Av

Flame projection length : N/Av**Other physical/chemical comments**

: No additional information.

SECTION 10. STABILITY AND REACTIVITY**Reactivity** : May react slowly with water to form corrosive and toxic hydrobromic acid.**Chemical stability** : Stable under the recommended storage and handling conditions prescribed.**Possibility of hazardous reactions**

: Hazardous polymerization does not occur.

Conditions to avoid : Avoid heat and open flame. Avoid contact with incompatible materials. Do not use in areas without adequate ventilation.**Incompatible materials** : Strong alkalis; Oxidizing agents; Bases; Reactive metals; Natural Rubber**Hazardous decomposition products**

: None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure:****Routes of entry inhalation** : YES**Routes of entry skin & eye** : YES**Routes of entry Ingestion** : YES**Routes of exposure skin absorption**

: YES

Potential Health Effects:**Signs and symptoms of short-term (acute) exposure***Sign and symptoms Inhalation*

: May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. May cause headache, nausea, dizziness and other symptoms of central nervous system depression.

Sign and symptoms ingestion

: May cause gastrointestinal irritation. Symptoms may include nausea, vomiting, dizziness, drowsiness and other symptoms of central nervous system depression.

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- Sign and symptoms skin* : Causes mild skin irritation. Prolonged contact, such as when trapped against the skin under clothing or jewelry, may be more irritating. May be absorbed through the skin.
- Sign and symptoms eyes* : Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling and blurred vision. May cause irreversible eye damage.

Potential Chronic Health Effects

- : Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Mutagenicity

- : No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

- : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Carcinogenicity - Category 2. Suspected of causing cancer. Symptoms may include persistent coughing, shortness of breath, coughing up blood and wheezing.
Contains: n-Propyl bromide; 1,2-Butylene oxide.
n-Propyl bromide is classified as reasonable anticipated to be a human carcinogen by the NTP (Group 2), and as an animal carcinogen by ACGIH (Category A3).
1,2-Butylene oxide is classified as possibly carcinogenic by IARC (Group 2B).

Reproductive effects & Teratogenicity

- : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Reproductive toxicity - Category 1B. May damage fertility or the unborn child.
Contains: n-Propyl bromide. Symptoms may include decreased sperm motility and percentage of normal sperm in males; increased ovarian follicular cysts, longer oestrous cycle, decreased litter sizes and implantation sites in females; decreased foetal weights and increased incidences of skeletal variations in pups.

Sensitization to material

- : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

- : Eyes, skin, respiratory system, digestive system, central nervous system.
This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Specific target organ toxicity, single exposure - Category 3. May cause respiratory irritation. May cause drowsiness or dizziness.
Specific target organ toxicity, repeated exposure - Category 2. May cause damage to organs through prolonged or repeated exposure. Symptoms may include convulsions, incoordination and decrease in grip strength.

Medical conditions aggravated by overexposure

- : Pre-existing skin, eye, respiratory and central nervous system disorders.

Synergistic materials

- : None known or reported by the manufacturer.

Toxicological data

- : There is no data available for this product. The calculated ATE values for this mixture are:
ATE oral = 53,429 mg/kg
ATE dermal = 115,714 mg/kg
ATE inhalation (vapours) = 813 mg/L/4H

<u>Chemical name</u>	<u>LC₅₀(4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
n-Propyl bromide	14 374 ppm (72.31 mg/L) (vapour)	> 2000 mg/kg	> 2000mg/kg
n-propanol	> 13 548 ppm (33.8 mg/L) (vapour) (No mortality)	1870 mg/kg	4050 mg/kg
1,2-Butylene oxide	2050 - 6550 ppm (6.1 -19.3 mg/L) (vapour)	900 mg/kg	1743 mg/kg

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Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : Harmful to aquatic life with long lasting effects. No data is available on the product itself. The product contains the following substances which are hazardous for the environment: n-Propyl bromide; 1,2-Butylene oxide. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
n-Propyl bromide	106-94-5	24.3mg/L (Rainbow trout)	N/Av	None.
n-propanol	71-23-8	4555 mg/L (Fathead minnow)	N/Av	None.
1,2-Butylene oxide	106-88-7	100 - 215 mg/L (Golden orfe)	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
n-Propyl bromide	106-94-5	99.3 mg/L (Daphnia magna)	N/Av	None.
n-propanol	71-23-8	3644 mg/L (Daphnia magna)	> 100 mg/L	None.
1,2-Butylene oxide	106-88-7	69.8 mg/L (Daphnia magna)	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
n-Propyl bromide	106-94-5	72.3 mg/L/96hr (Green algae)	12.4 mg/L/96hr	None.
n-propanol	71-23-8	N/Av	N/Av	None.
1,2-Butylene oxide	106-88-7	> 500 mg/L/72hr (Green algae)	N/Av	None.

Persistence and degradability

: No data is available on the product itself.
Contains the following chemicals which are not readily biodegradable: n-Propyl bromide.
The following ingredients are considered to be readily biodegradable: n-propanol;
1,2-Butylene oxide.

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Bioaccumulation potential : No data is available on the product itself. See the following data for ingredient information.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
n-Propyl bromide (CAS 106-94-5)	2.10	11.29 (calculated)
n-propanol (CAS 71-23-8)	1.6	3.0
1,2-Butylene oxide (CAS 106-88-7)	0.68	1 - 17 (Fish)

Mobility in soil : No data is available on the product itself.

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle in accordance with good industrial hygiene and safety practice. Handle waste according to recommendations in Section 7. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

Methods of Disposal : Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	None	Not regulated.	Not regulated	none	
TDG Additional information	None.				
49CFR/DOT	None	Not regulated.	Not regulated	none	
49CFR/DOT Additional information	None.				

Special precautions for user : Appropriate advice on safety must accompany the package. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

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

: This information is not available.

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SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
n-Propyl bromide	106-94-5	Yes	None.	None.	No	N/Ap
n-propanol	71-23-8	Yes	None.	None.	No	N/Ap
1,2-Butylene oxide	106-88-7	Yes	100 lb/ 45.4 kg	None.	Yes	0.1%

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Immediate (Acute) health hazard;Chronic Health Hazard. Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
n-Propyl bromide	106-94-5	No	Developmental; male; female	No	Yes	No	No	Yes	No
n-propanol	71-23-8	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
1,2-Butylene oxide	106-88-7	No	N/Ap	No	Yes	Yes	Yes	Yes	Yes

Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

Canadian National Pollutant Release Inventory (NPRI): This product contains the following substances listed on the NPRI:
 1,2-Butylene oxide (Part 1, Group A Substance)

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

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SAFETY DATA SHEET**International Information:**

Components listed below are present on the following International Inventory list:

Ingredients	CAS #	European EINECS	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
n-Propyl bromide	106-94-5	203-445-0	Present	Present	(2)-73	KE-03707	Present	May be used as a single component chemical under an appropriate group standard.
n-propanol	71-23-8	200-746-9	Present	Present	(2)-207	KE-29362	Present	HSR001215
1,2-Butylene oxide	106-88-7	203-438-2	Present	Present	(2)-229	KE-04286	Present	HSR005156

SECTION 16. OTHER INFORMATION**Legend**

: ACGIH: American Conference of Governmental Industrial Hygienists
AICS: Australian Inventory of Chemical Substances
AIHA: American Industrial Hygiene Association
ATE: Acute Toxicity Estimate
CA: California
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CSA: Canadian Standards Association
DOT: Department of Transportation
EC50: Effective Concentration 50%.
EINECS: European Inventory of Existing Commercial chemical Substances
ENCS: Existing and New Chemical Substances
EPA: Environmental Protection Agency
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IBC: Intermediate Bulk Container
IECSC: Inventory of Existing Chemical Substances
IMDG: International Maritime Dangerous Goods
Inh: Inhalation
IOC: Inventory of Chemicals
ISHL: Industrial Safety Health Law
KECI: Korean Existing Chemicals Inventory
KECL: Korean Existing Chemicals List
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MN: Minnesota
MSHA: Mine Safety and Health Administration
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NOEC: No observable effect concentration
NPRI: National Pollutant Release Inventory
NTP: National Toxicology Program
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
PICCS: Philippine Inventory of Chemicals and Chemical Substances
RCRA: Resource Conservation and Recovery Act

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RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TWA: Time Weighted Average
WEEL: Workplace Environmental Exposure Level
WHMIS: Workplace Hazardous Materials Identification System

References


- : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2015.
- 2. International Agency for Research on Cancer Monographs, searched 2015.
- 3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2015 (Chempendium, HSDB and RTECs).
- 4. Material Safety Data Sheets from manufacturer.
- 5. US EPA Title III List of Lists - March 2015 version.
- 6. California Proposition 65 List - December 4, 2015 version.
- 7. OECD - The Global Portal to Information on Chemical Substances, eChemPortal, 2015.

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Other special considerations for handling

: Provide adequate information, instruction and training for operators.

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