SAFETY DATA SHEET

DOW CHEMICAL (AUSTRALIA) PTY LTD

Product name: DOWCAL™ 100 Heat Transfer Fluid

Issue Date: 18.04.2017
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DOW CHEMICAL (AUSTRALIA) PTY LTD encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1: IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

Product name: DOWCAL™ 100 Heat Transfer Fluid

Recommended use of the chemical and restrictions on use
Identified uses: Intended as a heat transfer fluid for closed-loop systems. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

COMPANY IDENTIFICATION
DOW CHEMICAL (AUSTRALIA) PTY LTD
LEVEL 17
8 EXHIBITION STREET
MELBOURNE VIC 3000
AUSTRALIA

Customer Information Number: 1800-780-074
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 1800-033-882
Local Emergency Contact: 1800-033-882
For advice, contact a doctor (at once) or the Australian Poisons Information Centre: 131 126
Transport Emergency Only Dial 000

SECTION 2: HAZARD(S) IDENTIFICATION

GHS Classification
Acute toxicity - Category 4 - Oral
Skin corrosion/irritation - Category 2
Serious eye damage/eye irritation - Category 2A
Reproductive toxicity - Category 1B
Specific target organ toxicity - repeated exposure - Category 2 - Oral

GHS label elements
Hazard pictograms

Signal word: **DANGER!**

Hazard statements
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May damage fertility or the unborn child.
May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/ eye protection/ face protection.
Use personal protective equipment as required.

Response
IF exposed or concerned: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.

Disposal
Dispose of contents/ container to an approved waste disposal plant.

Other hazards
No data available

SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

This product is a mixture.

Component	CASRN	Concentration
Ethylene glycol	107-21-1	>= 25.0 - <= 96.0 %
Water	7732-18-5	<= 75.0 %
Sebacic acid (decanedioic acid)	111-20-6	< 5.0 %

Sodium benzoate	532-32-1	< 3.5 %
Boron potassiium oxide (B4K2O7), tetrahydrate	12045-78-2	< 3.0 %
Sodium hydroxide	1310-73-2	< 2.0 %

SECTION 4: FIRST AID MEASURES

Description of first aid measures
General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Immediately flush skin with water while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: Do not induce vomiting. Seek medical attention immediately. If person is fully conscious give 1 cup or 8 ounces (240 ml) of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 Cup) (90-120 ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounce (1 1/2 tsp.) (8 ml) liquor for each 10 pounds of body weight, or 2 ml per kg body weight [e.g., 1.2 ounce (2 1/3 tbsp.) for a 40 pound child or 36 ml for an 18 kg child].

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed
Notes to physician: If several ounces (60 - 100 ml) of ethylene glycol have been ingested, early administration of ethanol may counter the toxic effects (metabolic acidosis, renal damage). Consider hemodialysis or peritoneal dialysis & thiamine 100 mg plus pyridoxine 50 mg intravenously every 6 hours. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage

cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

Hazchem Code
None Allocated

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture
Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Liquid mist of this product can burn. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.

Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Cat litter. Sawdust. Vermiculite. Zorb-all®. Collect in suitable and properly labeled containers. Large spills: Dike area to contain spill. See Section 13, Disposal Considerations, for additional information.

SECTION 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling: Do not swallow. Avoid contact with eyes. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Conditions for safe storage: Do not store in: Galvanized steel. Opened or unlabeled containers. Store in the following material(s): Carbon steel. Stainless steel. Store in original unopened container. Store away from direct sunlight. Store in tightly closed container. Use only with adequate ventilation. See Section 10 for more specific information. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

Storage stability

Shelf life: Use within
24 Month

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Ethylene glycol	ACGIH	STEL Aerosol only	10 mg/m3
	ACGIH	TWA Vapour and inhalable aerosols	25 ppm
	ACGIH	STEL Vapour and inhalable aerosols	50 ppm
	Dow IHG	TWA	50 mg/m3
	Dow IHG	STEL	100 mg/m3
	AU OEL	TWA particulate	10 mg/m3
	AU OEL	TWA particulate	SKIN
	AU OEL	TWA Vapour	52 mg/m3 20 ppm
	AU OEL	TWA Vapour	SKIN

	AU OEL	STEL Vapour	104 mg/m3 40 ppm
	AU OEL	STEL Vapour	SKIN
Sebacic acid (decanedioic acid)	Dow IHG	TWA	4 mg/m3
Sodium benzoate	Dow IHG	TWA	10 mg/m3
Sodium hydroxide	ACGIH	C	2 mg/m3
	AU OEL	Peak limit	2 mg/m3

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under standard AS/NZS 2161.10: Protective gloves against chemicals and micro-organisms. Use gloves with insulation for thermal protection, when needed. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 or higher (breakthrough time greater than 480 minutes according to AS/NZS 2161.10) is recommended. When only brief contact is expected , a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to AS/NZS 2161.10) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task. When handling hot material, protect skin from thermal burns as well as from skin absorption.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, use an approved air-purifying respirator.
The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Other Information: Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including: AS/NZS 1336: Eye and face protection – Guidelines.

AS/NZS 1337: Personal eye protection - Eye and face protectors for occupational applications.
AS/NZS 1715: Selection, use and maintenance of respiratory protective equipment.
AS/NZS 2161: Occupational protective gloves.
AS/NZS 2210: Occupational protective footwear.
AS/NZS 4501: Occupational protective clothing Set

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Color	Color is variable
Odor	Characteristic
Odor Threshold	No test data available
pH	7.6 - 8.2 50% *Literature*
Melting point/range	Not applicable to liquids
Freezing point	-51 - -14 °C *Literature*
Boiling point (760 mmHg)	170 °C *Literature*
Flash point	**closed cup** 120 °C at 760 mmHg *Literature*
Evaporation Rate (Butyl Acetate = 1)	< 0.5 *Estimated.*
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	3.2 % vol Liquid. *Literature* Ethylene glycol
Upper explosion limit	*Not determined.*
Vapor Pressure	3 mbar at 20 °C *Literature*
Relative Vapor Density (air = 1)	>1 *Literature*
Relative Density (water = 1)	1.044 - 1.134 at 20 °C / 20 °C *Literature*
Water solubility	Miscible in all proportions
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	435 °C *Literature* Ethylene glycol
Decomposition temperature	No test data available
Kinematic Viscosity	10 - 30 mm2/s at 20 °C *Literature*
Explosive properties	No data available
Oxidizing properties	No data available
Molecular weight	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Oral toxicity is expected to be moderate in humans due to ethylene glycol even though tests with animals show a lower degree of toxicity. Ingestion of quantities (approximately 65 mL (2 oz.) for diethylene glycol or 100 mL (3 oz.) for ethylene glycol) has caused death in humans. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea.

For Ethylene glycol:
Lethal Dose, Human, adult, 100 ml
For Ethylene glycol:
LD50, Rat, 6,000 - 13,000 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts. Repeated skin exposure to large quantities may result in absorption of harmful amounts. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in absorption of potentially lethal amounts.

For Ethylene glycol:
LD50, Rabbit, > 22,270 mg/kg

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility. With good ventilation, single exposure is not expected to cause adverse effects. If material is heated or areas are poorly ventilated, vapor/mist may accumulate and cause respiratory irritation and symptoms such as headache and nausea.
As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.
Prolonged contact may cause slight skin irritation with local redness.
Repeated contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight eye irritation.
Corneal injury is unlikely.
Vapor or mist may cause eye irritation.

Sensitization
Based on information for component(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on information for component(s):
Observations in humans include:
Nystagmus (involuntary eye movement).
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Blood
Testes

Carcinogenicity
Ethylene glycol did not cause cancer in long-term animal studies.

Teratogenicity
Based on animal studies, ingestion of very large amounts of ethylene glycol appears to be the major and possibly only route of exposure to produce birth defects. Exposures by inhalation or skin contact, the primary routes of occupational exposure, had minimal effect on the fetus, in animal studies. In laboratory animals, boron compounds have caused birth defects only at doses toxic to the mother and have been toxic to the fetus at doses nontoxic to the mother.

Reproductive toxicity
Ingestion of large amounts of ethylene glycol has been shown to interfere with reproduction in animals. In animal studies, boron compounds have been shown to interfere with fertility in males, and to a lesser degree in females.

Mutagenicity
For the component(s) tested: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Ethylene glycol

Acute inhalation toxicity
LC50, Rat, male and female, 6 Hour, dust/mist, > 2.5 mg/l

Sebacic acid (decanedioic acid)

Acute inhalation toxicity

As product: The LC50 has not been determined.

Sodium benzoate

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

The LC50 has not been determined.

Boron potassiium oxide (B4K2O7), tetrahydrate

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Dust may cause irritation to upper respiratory tract (nose and throat).

Typical for this family of materials. LC50, Rat, male and female, 4 Hour, dust/mist, > 2.03 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

Sodium hydroxide

Acute inhalation toxicity

The LC50 has not been determined.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity

Ethylene glycol

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 72,860 mg/l, Other guidelines

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapita, 96 Hour, Growth rate inhibition, 6,500 - 13,000 mg/l, Other guidelines

Toxicity to bacteria

EC50, activated sludge, 30 min, 225 mg/l, OECD 209 Test

Sebacic acid (decanedioic acid)

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Brachydanio rerio (zebrafish), 96 Hour, > 100 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent

Sodium benzoate

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, > 100 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 96 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, > 100 mg/l

Boron potassiium oxide (B4K2O7), tetrahydrate

Acute toxicity to fish
For this family of materials:
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
For this family of materials:
LC50, dab (Limanda limanda), flow-through, 96 Hour, 74 mg/l

Acute toxicity to aquatic invertebrates
For this family of materials:
LC50, Daphnia magna (Water flea), static test, 48 Hour, 173 mg/l, OECD Test Guideline 202 or Equivalent

Sodium hydroxide

Acute toxicity to fish
May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.

Persistence and degradability

Ethylene glycol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Pass
Biodegradation: 90 - 100 %
Exposure time: 10 d
Method: OECD Test Guideline 301A or Equivalent
10-day Window: Not applicable
Biodegradation: 90 %
Exposure time: 1 d
Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 1.29 mg/mg

Sebacic acid (decanedioic acid)

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 98 %
Exposure time: 7 d
Method: OECD Test Guideline 301E or Equivalent

Sodium benzoate

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: > 74 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

Boron potassiium oxide (B4K2O7), tetrahydrate

Biodegradability: Biodegradation is not applicable.

Sodium hydroxide

Biodegradability: Biodegradability is not applicable to inorganic substances.

Bioaccumulative potential

Ethylene glycol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -1.36 Measured

Sebacic acid (decanedioic acid)

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 1.5 OECD Test Guideline 117 or Equivalent **Partition coefficient: n-octanol/water(log Pow):** 1.5 OECD Test Guideline 117 or Equivalent

Sodium benzoate

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -2.27 Estimated.

Boron potassiium oxide (B4K2O7), tetrahydrate

Bioaccumulation: No relevant data found.

Sodium hydroxide

Bioaccumulation: No bioconcentration is expected because of the relatively high water solubility.

Mobility in Soil

Ethylene glycol

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 1 Estimated.

Sebacic acid (decanedioic acid)

No relevant data found.

Sodium benzoate
No relevant data found.

Boron potassiium oxide (B4K2O7), tetrahydrate
No relevant data found.

Sodium hydroxide
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 14 Estimated.

Results of PBT and vPvB assessment

Ethylene glycol
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Sebacic acid (decanedioic acid)
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Sodium benzoate
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Boron potassiium oxide (B4K2O7), tetrahydrate
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Sodium hydroxide
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Other adverse effects

Ethylene glycol
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Sebacic acid (decanedioic acid)
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Sodium benzoate
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Boron potassiium oxide (B4K2O7), tetrahydrate
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Sodium hydroxide
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local

laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

SECTION 14: TRANSPORT INFORMATION

ADG

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

Hazchem Code
None Allocated

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

Poison Schedule
S6

Product repackaged for public consumer use should be labelled in accordance with the current Standard for the Uniform Scheduling of Medicines and Poisons.

Australia Inventory of Chemical Substances (AICS)

All ingredients in this preparation are listed in the Australian Inventory of Chemical Substances, AICS, or are exempt.

SECTION 16: ANY OTHER RELEVANT INFORMATION

Revision
Identification Number: 101207400 / A142 / Issue Date: 18.04.2017 / Version: 2.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
AU OEL	Australia. Workplace Exposure Standards for Airborne Contaminants.
C	Ceiling limit
Dow IHG	Dow Industrial Hygiene Guideline
Peak limit	Exposure standard - peak
SKIN	Absorbed via skin
STEL	Short term exposure limit
TWA	Time weighted average

DOW CHEMICAL (AUSTRALIA) PTY LTD urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.