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Safety Data Sheet (SDS)

MISWA CHEMICALS - POLYGARD - ANTIFREEZE

SAFETY DATA SHEET POLYGARD (GREEN) HOAT ANTIFREEZE COOLANT

SECTION 1: Identification of the substance/mixture and of the company/undertaking 1.1.

Product identifier

Product name POLYGARD (GREEN) HOAT ANTIFREEZE COOLANT 16521, 16522,

Product number 16523, 16524, 16526

Internal identification B16921

Container size 1 Litre Cans to 25 Litre Drums, 205 Litre Drums, 1000L IBC

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

Identified uses Antifreeze liquid.

Uses advised against This product is not recommended for any industrial, professional or consumer use other than the identified uses stated above.

1.3. Details of the supplier of the safety data sheet

Supplier Miswa Chemicals Ltd
Caswell Road
Brackmills
Northampton
England
NN4 7PW
T: +44 (0)1604 701111 F:
+44 (0)1604 701120
SDSAdmin@miswa.com

1.4. Emergency telephone number Emergency

telephone Tel.: +44 (0)1604 701111 (Miswa Office Hours Monday - Friday (0900Hrs - 1700Hrs))

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

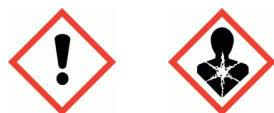
Physical hazards Not Classified

Health hazards Acute Tox. 4 - H302 STOT RE 2 - H373 Not

Environmental hazards Classified

2.2. Label elements

Hazard pictograms



Signal word Hazard

Warning

statements

H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.



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Precautionary statements

P260 Do not breathe vapour/ spray.
P264 Wash contaminated skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P314 Get medical advice/ attention if you feel unwell.
P330 Rinse mouth.
P501 Dispose of contents/ container in accordance with national regulations. P102 Keep out of reach of children.

Contains

ETHANEDIOL, SODIUM NITRITE

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

ETHANEDIOL			60-100%
CAS number: 107-21-1	EC number: 203-473-3	REACH registration number: 01-2119456816-28-XXXX	
Classification			
Acute Tox. 4 - H302			
STOT RE 2 - H373			
SODIUM BENZOATE CAS			1-5%
number: 532-32-1	EC number: 208-534-8	REACH registration number: 01-2119460683-35-XXXX	
Classification			
Eye Irrit. 2 - H319			
DISODIUM TETRABORATE PENTAHYDRATE			1-5%
CAS number: 12179-04-3	EC number: 215-540-4	REACH registration number: 01-2119490790-32-XXXX	
Substance included in the Candidate List of Substances of Very High Concern according to article 59 (1,10) of regulation EC No. 1907/2006 ('REACH').			
Classification			
Eye Irrit. 2 - H319			
Repr. 1B - H360FD			



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SODIUM NITRITE		<1%
CAS number: 7632-00-0	EC number: 231-555-9	REACH registration number: 01-2119471836-27-XXXX
M factor (Acute) = 1		
Classification Ox. Sol. 3 - H272 Acute Tox. 3 - H301 Eye Irrit. 2 - H319 Aquatic Acute 1 - H400		

The full text for all hazard statements is displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	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	Get medical attention. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.
Ingestion	Do not induce vomiting. Remove affected person from source of contamination. Get medical attention immediately.
Skin contact	Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
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.

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

General information	Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.
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4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
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

Specific hazards	Combustible 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.
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POLYGARD (GREEN) HOAT ANTIFREEZE COOLANT

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. Nitrogen oxides.

5.3. Advice for firefighters**Protective actions during firefighting**

Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Fight advanced or massive fires from safe distance or protected location. Do not use water jet as an extinguisher, as this will spread the fire. Extinguishing waters may present a risk of damage to the environmental, collect and dispose of as hazardous waste, in accordance with local legislation.

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). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****Personal precautions**

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. No smoking, sparks, flames or other sources of ignition near spillage. Avoid inhalation of vapours and contact with skin and eyes.

6.2. Environmental precautions**Environmental precautions**

Avoid from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

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

Contain spilled material if possible. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Large spills: Dike area to contain spill. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

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

For personal protection, see Section 8. See Section 11 for additional information on health hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage 7.1.**Precautions for safe handling****Usage precautions**

Avoid spilling. Good personal hygiene procedures should be implemented. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Avoid contact with skin and eyes.

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

Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep away from food, drink and animal feeding stuffs. Keep only in the original container.

7.3. Specific end use(s)**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****Occupational exposure limits**

ETHANEDIOL



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Long-term exposure limit (8-hour TWA): WEL 52 mg/m³ 20 ppm Short-term

exposure limit (15-minute): WEL 104 mg/m³ 40 ppm vapour Sk

Long-term exposure limit (8-hour TWA): WEL 10 mg/m³ particulate

SODIUM BENZOATE

No exposure limit value known.

DISODIUM TETRABORATE PENTAHYDRATE

Long-term exposure limit (8-hour TWA): 1 mg/m³

WEL = Workplace Exposure Limit.

Sk = Can be absorbed through skin.

Ingredient comments

WEL = Workplace Exposure Limits

ETHANEDIOL (CAS: 107-21-1)

DNEL Industry - Dermal; Long term systemic effects: 106 mg/kg bw/day
Industry - Inhalation; Long term local effects: 35 mg/m³
Consumer - Dermal; Long term systemic effects: 53 mg/kg bw/day
Consumer - Inhalation; Long term local effects: 7 mg/m³

PNEC - Fresh water; 10 mg/l
- marine water; 1 mg/l
- Sediment (Freshwater); 37 mg/kg sediment dw
- Intermittent release; 10 mg/l
- Soil; 1.53 mg/kg
- STP; 199.5 mg/l
- Sediment (Marinewater); 3.7 mg/kg sediment dw
- Soil; 1.53 mg/kg soil dw

SODIUM BENZOATE (CAS: 532-32-1)

DNEL Workers - Inhalation; Long term systemic effects: 3 mg/m³
Workers - Dermal; Long term systemic effects: 62.5 mg/kg bw/day
Workers - Inhalation; Long term local effects: 0.1 mg/m³
General population - Inhalation; Long term systemic effects: 1.5 mg/m³
General population - Inhalation; Long term local effects: 0.06 mg/m³
General population - Dermal; Long term systemic effects: 31.25 mg/kg bw/day
General population - Oral; Long term systemic effects: 16.6 mg/kg bw/day

PNEC - Fresh water; 0.13 mg/l
- marine water; 0.013 mg/l
- Intermittent release; 0.305 mg/l
- STP; 10 mg/l
- Sediment (Freshwater); 1.76 mg/kg sediment dw
- Sediment (Marinewater); 0.176 mg/kg sediment dw
- Soil; 0.000265 mg/kg soil dw

DISODIUM TETRABORATE PENTAHYDRATE (CAS: 12179-04-3)

POLYGARD (GREEN) HOAT ANTIFREEZE COOLANT

DNEL

Workers - Inhalation; Long term, Short term local effects, Acute: 11.7 mg/m³
 Workers - Inhalation; Long term systemic effects: 6.7 mg/m³
 General population - Oral; Long term, Short term systemic effects, Acute: 0.79 mg/kg bw/day
 General population - Inhalation; Long term, Short term local effects, Acute: 11.7 mg/m³ General
 population - Dermal; Long term systemic effects: 159.5 mg/kg bw/day
 Workers - Dermal; Long term systemic effects: 316.4 mg/kg bw/day
 General population - Inhalation; Long term systemic effects: 3.4 mg/m³

PNEC

- Fresh water; 2.9 mg/l
- marine water; 2.9 mg/l
- Intermittent release; 13.7 mg/l
- STP; 10 mg/l
- Soil; 5.7 mg/kg soil dw

SODIUM NITRITE (CAS: 7632-00-0)

DNEL

Industry - Inhalation; Long term, Short term systemic effects, Acute: 2 mg/m³

PNEC

- Fresh water; 0.0054 mg/l
- Intermittent release; 0.0054 mg/l
- marine water; 0.00616 mg/l
- Sediment (Freshwater); 0.0195 mg/kg sediment dw
- Sediment (Marinewater); 0.0223 mg/kg sediment dw
- Soil; 0.000733 mg/kg soil dw
- STP; 21 mg/l

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

Use safety glasses (with side shields), consistent with EN 166 or equivalent.

Hand protection

Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Use gloves with insulation for thermal protection (EN 407), when needed. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) 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 EN 374) 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 skin and body protection

Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact.



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Hygiene measures	Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated. Wash promptly with soap and water if skin becomes contaminated.
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 discomfort is experienced, use an approved air-purifying respirator. Use CE approved air-purifying respirator with combination filter type A1P2 minimum.
Environmental exposure controls	Do not allow material to contaminate ground water system.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
Colour Odour	Green.
pH	Almost odourless.
Initial boiling point and range	pH (diluted solution): 7.2-8.5 @ 50% SOLUTION
Flash point	>150°C @ 760 mm Hg
Relative density	117°C Closed cup.
Solubility(ies)	1.12-1.15 @ 20°C

9.2. Other information

Completely soluble in water.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity

10.2. Chemical stability

Stability

Stable at normal ambient temperatures and when used as recommended.

Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Will not polymerise.

10.4. Conditions to avoid

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

10.5. Incompatible materials

Materials to avoid Strong acids. Strong oxidising agents. Strong alkalis.

10.6. Hazardous decomposition products

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. Ethers. Alcohols.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Miswa Chemicals Ltd

53-54 Caswell Road, Brackmills Industrial Estate, Northampton, NN4 7PW
Tel: (0)1604 701111 - www.miswa.com





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Toxicological effects	The product is not expected to be toxic to aquatic organisms.
Acute toxicity - oral	
Notes (oral LD ₅₀)	Harmful if swallowed.
ATE oral (mg/kg)	543.05
Specific target organ toxicity - repeated exposure	
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure.
General information	To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated.
Inhalation	Unlikely to be hazardous by inhalation because of the low vapour pressure of the product at ambient temperature. Vapour may irritate respiratory system/lungs.
Ingestion	Harmful: possible risk of irreversible effects if swallowed. Headache. Nausea, vomiting. There may be soreness and redness of the mouth and throat. Prolonged and frequent contact may cause redness and irritation. Not a skin sensitiser.
Skin contact	May cause eye irritation.
Eye contact	May cause damage to kidneys and liver through prolonged or repeated exposure (oral).
Acute and chronic health hazards	Ingestion.
Route of exposure	Headache. Nausea, vomiting.
Medical symptoms	
Toxicological information on ingredients.	

ETHANEDIOL

Acute toxicity - oral	Acute
toxicity oral (LD ₅₀ mg/kg)	7,712.0
Species	Rat
Notes (oral LD ₅₀)	Acute oral toxicity is expected to be moderate in humans even though animals test results would suggest a low toxicity. Ingestion of approximately 100ml has caused death in humans. Ingestion may cause nausea, vomiting, abdominal discomfort or diarrhea. Excessive exposure may cause central nervous system effects, cardiopulmonary effects and kidney failure.
ATE oral (mg/kg)	500.0
Acute toxicity - dermal	
Acute toxicity dermal (LD ₅₀ mg/kg)	3,501.0
Species	Mouse
ATE dermal (mg/kg)	3,501.0
Acute toxicity - inhalation	
Acute toxicity inhalation (LC ₅₀ vapours mg/l)	2.6
Species	Rat

POLYGARD (GREEN) HOAT ANTIFREEZE COOLANT

Notes (inhalation LC ₅₀)	At room temperature exposure to vapour is minimal due to low volatility. With good ventilation single exposure is not expected to cause adverse effect. If the product is heated or the working area has poor ventilation, vapour/mist may accumulate and cause respiratory irritation and symptoms such as headache and nausea.
Skin corrosion/irritation Animal data	Not irritating. Rabbit
Serious eye damage/irritation	
Serious eye damage/irritation	Not irritating. Rabbit
Respiratory sensitisation	
Respiratory sensitisation	Guinea pig: Not sensitising.
Skin sensitisation	
Skin sensitisation	- Guinea pig: Not sensitising.
Germ cell mutagenicity	
Genotoxicity - in vitro	Negative.
Genotoxicity - in vivo	Negative.
Carcinogenicity	
Carcinogenicity	The current toxicological knowledge allows to not classify the product as a carcinogen.
Reproductive toxicity	
Reproductive toxicity - fertility	Ingestion of large amounts has been shown to interfere with reproduction in animals.
Specific target organ toxicity - repeated exposure	
STOT - repeated exposure	Observations in humans include: Nystagmus (involuntary eye movement). In animals effects have been reported on the following organs: kidneys and liver. NOAEL 150 mg/kg/day, Oral, Rat
Target organs	Kidneys
Inhalation	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.
Ingestion	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. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. For Ethylene glycol: Lethal Dose, Human, adult 100 ml LD50, rat, male and female 7,712 mg/kg.
Skin contact	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.
Eye contact	May cause temporary eye irritation.



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Route of exposure Ingestion.
Target organs Kidneys Liver

SODIUM BENZOATE

Acute toxicity - oral
Acute toxicity oral (LD₅₀ 3,450.0
mg/kg)
Species Rat
ATE oral (mg/kg) 3,450.0
Acute toxicity - dermal
Acute toxicity dermal (LD₅₀ 2,001.0
mg/kg)
Species ATE dermal (mg/kg)
Acute toxicity - inhalation Rabbit
Notes (inhalation LC₅₀) 2,001.0
Skin corrosion/irritation
Animal data Data lacking.
Serious eye damage/irritation
Serious eye damage/irritation Not irritating.
Respiratory sensitisation
Respiratory sensitisation Irritating to eyes: Category 2.
Skin sensitisation
Skin sensitisation Conclusive data but not sufficient for classification.
Germ cell mutagenicity
Genotoxicity - in vitro Conclusive data but not sufficient for classification.
Genotoxicity - in vivo
Carcinogenicity Conclusive data but not sufficient for classification.
Carcinogenicity Conclusive data but not sufficient for classification.
Reproductive toxicity
Reproductive toxicity - fertility Conclusive data but not sufficient for classification.

Conclusive data but not sufficient for classification.
Specific target organ toxicity - single exposure
STOT - single exposure Conclusive data but not sufficient for classification.
Specific target organ toxicity - repeated exposure
STOT - repeated exposure Conclusive data but not sufficient for classification.
Aspiration hazard



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Aspiration hazard	Conclusive data but not sufficient for classification.
	DISODIUM TETRABORATE PENTAHYDRATE
Acute toxicity - oral	
Acute toxicity oral (LD ₅₀ mg/kg)	3,305.0
Species	Rat
Notes (oral LD ₅₀)	Low acute oral toxicity.
ATE oral (mg/kg)	3,305.0
Acute toxicity - dermal	
Acute toxicity dermal (LD ₅₀ mg/kg)	2,001.0
Species	Rabbit
Notes (dermal LD ₅₀)	The substance is poorly absorbed through intact skin. Low acute dermal toxicity.
ATE dermal (mg/kg)	
Acute toxicity - inhalation	2,001.0
Notes (inhalation LC ₅₀)	
Skin corrosion/irritation	Low acute inhalation toxicity.
Animal data	
Serious eye damage/irritation	Not irritating.
Serious eye damage/irritation	
Respiratory sensitisation	Moderately irritating.
Respiratory sensitisation	
Skin sensitisation	Data lacking.
Skin sensitisation	
Carcinogenicity	Not sensitising.
Carcinogenicity	
Reproductive toxicity	No evidence of carcinogenicity in animal studies.
Reproductive toxicity - fertility	
Reproductive toxicity - development	Known reproductive toxicant based on animal evidence.
Specific target organ toxicity - single exposure	Known reproductive toxicant based on animal evidence.
STOT - single exposure	Conclusive data but not sufficient for classification.
Specific target organ toxicity - repeated exposure	
STOT - repeated exposure	Conclusive data but not sufficient for classification.
Aspiration hazard	
Aspiration hazard	
hazard	Conclusive data but not sufficient for classification.



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Skin contact Not irritating. Not a skin sensitiser.

Eye contact Mild eye irritant in rabbits.

SODIUM NITRITE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 180.0

Species ATE oral (mg/kg) Rat

Acute toxicity - dermal 180.0

Notes (dermal LD₅₀)

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Scientifically unjustified.

Skin corrosion/irritation

Animal data Scientifically unjustified.

Serious eye damage/irritation

Serious eye damage/irritation Not irritating.

Respiratory sensitisation

Respiratory sensitisation Irritating to eyes.

Skin sensitisation

Skin sensitisation Data lacking.

Germ cell mutagenicity

Genotoxicity - in vitro Not irritating. Not sensitising.

Genotoxicity - in vivo

Carcinogenicity Conclusive data but not sufficient for classification.

Carcinogenicity Conclusive data but not sufficient for classification.

IARC carcinogenicity

Reproductive toxicity Conclusive data but not sufficient for classification.

Reproductive toxicity - fertility IARC Group 2A Probably carcinogenic to humans.

Conclusive data but not sufficient for classification.

Specific target organ toxicity - single exposure

STOT - single exposure There is a risk of damage to the blood (methemoglobinemia) after a single ingestion. Conclusive data but not sufficient for classification.

Target organs Blood

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Conclusive data but not sufficient for classification.



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Target organs	Blood
Aspiration hazard	
Aspiration hazard	No data available.

SECTION 12: Ecological information

Ecotoxicity The product is not expected to be hazardous to the environment. The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

Ecological information on ingredients.

DISODIUM TETRABORATE PENTAHYDRATE

Ecotoxicity Boron occurs naturally in sea water at an average concentration of 5 mg B/l and fresh water at 1 mg B/l or less. In dilute aqueous solutions the predominant boron species present is undissociated boric acid.

12.1. Toxicity

Toxicity The product is not expected to be toxic to aquatic organisms.

Ecological information on ingredients.

ETHANEDIOL

Toxicity Product not classified as dangerous to aquatic organisms.

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 72860 mg/l, Pimephales promelas (Fat-head Minnow) EC₅₀, 48 hours: > 100 mg/l, Daphnia magna

Acute toxicity - aquatic invertebrates EC₅₀, 96 hours: 6500 - 13000 mg/l, Selenastrum capricornutum EC₂₀, 30 minutes: > 1995 mg/l, Activated sludge

Acute toxicity - microorganisms

Chronic aquatic toxicity NOEC, 7 days: 15380 mg/l, Pimephales promelas (Fat-head Minnow)

Chronic toxicity - fish early life stage NOEC, 7 days: 8590 mg/l, Ceriodaphnia Sp.

Chronic toxicity - aquatic invertebrates

SODIUM BENZOATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 484 mg/l, Pimephales promelas (Fat-head Minnow) LC₅₀, 96 hours: >100 mg/l, Daphnia magna

Acute toxicity - aquatic invertebrates

DISODIUM TETRABORATE PENTAHYDRATE

MISWA CHEMICALS - POLYGARD - ANTIFREEZE**POLYGARD (GREEN) HOAT ANTIFREEZE COOLANT**

Toxicity	All toxicity values relate to Boron (Boron = Disodium Tetraborate Pentahydrate multiplied by 0.1484).
Acute aquatic toxicity	
Acute toxicity - fish	LC ₅₀ , 96 hours: 79.7 mg B/L, Pimephales promelas (Fat-head Minnow) LC ₅₀ ,
Acute toxicity - aquatic invertebrates	48 hours: 133 mg B/L, Daphnia magna
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: 40 mg B/L, Selenastrum capricornutum
Chronic aquatic toxicity	
Toxicity to terrestrial plants	Boron is an essential micronutrient for healthy growth of plants, however, it can be harmful to boron sensitive plants in higher quantities. Care should be taken to minimise the amount of borate product released to the environment.

SODIUM NITRITE

Toxicity	Very toxic to aquatic organisms.
Acute aquatic toxicity	
LE(C) ₅₀	0.1 < L(E)C ₅₀ ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC ₅₀ , 96 hours: 0.54 - 26.3 mg/l, Oncorhynchus mykiss (Rainbow trout) EC ₅₀ ,
Acute toxicity - aquatic invertebrates	48 hours: 15.4 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: > 100 mg/l, Scenedesmus subspicatus EC ₅₀ ,
Acute toxicity - microorganisms	48 hours: 421 mg/l, Protozoa.
Chronic aquatic toxicity	
Chronic toxicity - aquatic invertebrates	NOEC, 80 days: 9.86 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability	The product is biodegradable but it must not be discharged into drains without permission from the authorities. The product is degraded completely by photochemical oxidation.
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Ecological information on ingredients.

ETHANEDIOL

Persistence and degradability	The product is biodegradable.
Biodegradation	Water - Degradation (%) 90 - 100%: 10 days Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% biodegradation in OECD test(s) for inherent biodegradability).

SODIUM BENZOATE

Persistence and degradability	The substance is readily biodegradable.
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MISWA CHEMICALS - POLYGARD - ANTIFREEZE

POLYGARD (GREEN) HOAT ANTIFREEZE COOLANT

DISODIUM TETRABORATE PENTAHYDRATE

Persistence and degradability Boron is naturally occurring and ubiquitous in the environment. Borax pentahydrate decomposes in the environment to natural borate.

SODIUM NITRITE

Persistence and degradability The product contains only inorganic substances which are not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.

Ecological information on ingredients.

ETHANEDIOL

Bioaccumulative potential Not potentially bioaccumulative

Partition coefficient log Pow: -1.36

SODIUM BENZOATE

Bioaccumulative potential No data available on bioaccumulation.

DISODIUM TETRABORATE PENTAHYDRATE

Bioaccumulative potential The product is not bioaccumulating.

SODIUM NITRITE

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.

12.4. Mobility in soil

Mobility The product is soluble in water. Volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Ecological information on ingredients.

ETHANEDIOL

Mobility The product is soluble in water. 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.

Adsorption/desorption coefficient Water - Koc: ~ 1 @ °C

Henry's law constant ~ 8.05E-09 atm m³/mol @ 25°C

SODIUM BENZOATE

Mobility No data available.

DISODIUM TETRABORATE PENTAHYDRATE

Mobility The product is soluble in water. Potential for mobility in soil is very high.

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SODIUM NITRITE

Mobility

Adsorption to solid soil phase is expected.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

This product does not contain any substances classified as PBT or vPvB.

Ecological information on ingredients.

ETHANEDIOL

Results of PBT and vPvB assessment

This substance is not classified as PBT or vPvB according to current EU criteria.

SODIUM BENZOATE

Results of PBT and vPvB assessment

This substance is not classified as PBT or vPvB according to current EU criteria.

DISODIUM TETRABORATE PENTAHYDRATE

Results of PBT and vPvB assessment

PBT assessment does not apply.

SODIUM NITRITE

Results of PBT and vPvB assessment

This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects

Not applicable.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

Disposal methods

Residues and empty containers should be taken care of as hazardous waste according to local and national provisions. Avoid the spillage or runoff entering drains, sewers or watercourses.

SECTION 14: Transport information

General

The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

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No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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

Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Control of Pollution (Special Waste) Regulations 1980 (as amended).

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019 No. 720 (as amended)

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019 No. 758 (as amended)

EU legislation

Dangerous Substances Directive 67/548/EEC.

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) (as amended).

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Guidance

Workplace Exposure Limits EH40.

Introduction to Local Exhaust Ventilation HS(G)37.

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. HS&E

Issued by

Manager.

Revision date

11/11/2021

Revision Supersedes

9

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10043

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Safety Data Sheet (SDS)

MISWA CHEMICALS - POLYGARD - ANTIFREEZE

POLYGARD (GREEN) HOAT ANTIFREEZE COOLANT

Hazard statements in full

H272 May intensify fire; oxidiser.

H301 Toxic if swallowed.

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H360FD May damage fertility if swallowed. May damage the unborn child if swallowed.

H373 May cause damage to organs through prolonged or repeated exposure.

H373 May cause damage to organs (Kidneys) through prolonged or repeated exposure if swallowed. H400

Very toxic to aquatic life.

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.