



SAFETY DATA SHEET
STAR ENGINE COOLING WATER TREATMENT
 Product code: 00950070

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

1.1. Product identifier

Product name STAR ENGINE COOLING WATER TREATMENT

Product number ENCOWATR

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

Identified uses Not available

1.3. Details of the supplier of the safety data sheet

Supplier Star House Turbine Road Turbine
 Business Park Birkenhead P.O. Box
 CH41 9BA Merseyside
 United Kingdom
 T + 44 (0) 1244 504 500
 enquiries@star-international.co.uk

1.4. Emergency telephone number

Emergency telephone + 44 (0) 1244 504 500

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (SI 2019 No. 720)

Physical hazards Met. Corr. 1 - H290

Health hazards Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Repr. 1B - H360FD

Environmental hazards Not Classified

2.2. Label elements

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.
 H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.
 H360FD May damage fertility. May damage the unborn child.

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Precautionary statements

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P234 Keep only in original packaging.
 P260 Do not breathe vapour/ spray.
 P261 Avoid breathing vapour/ spray.
 P264 Wash contaminated skin thoroughly after handling.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308+P313 IF exposed or concerned: Get medical advice/ attention.
 P310 Immediately call a POISON CENTER/ doctor.
 P321 Specific treatment (see medical advice on this label).
 P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P363 Wash contaminated clothing before reuse.
 P390 Absorb spillage to prevent material damage.
 P405 Store locked up.
 P406 Store in a corrosion-resistant container with a resistant inner liner.
 P501 Dispose of contents/ container in accordance with national regulations.

Contains

SODIUM METASILICATE, SODIUM HYDROXIDE, SODIUM TETRABORATE, MIXTURE OF:
 5-CHLORO-2-METHYL-4-ISOTIAZOLIN-3-ONE [EC NO. 247-500-7] AND 2-METHYL-4-ISOTIAZOLIN-3-ONE [EC NO. 220-239-6] (3:1)

2.3. Other hazards

Not available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

SODIUM NITRITE	5-10%
CAS number: 7632-00-0	EC number: 231-555-9
M factor (Acute) = 1	
Classification	
Ox. Sol. 3 - H272	
Acute Tox. 3 - H301	
Eye Irrit. 2 - H319	
Aquatic Acute 1 - H400	

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SODIUM METASILICATE	1-5%
CAS number: 10213-79-3 EC number: 229-912-9	
Classification Met. Corr. 1 - H290 Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335	
SODIUM HYDROXIDE	1-5%
CAS number: 1310-73-2 EC number: 215-185-5	
Classification Met. Corr. 1 - H290 Skin Corr. 1A - H314 Eye Dam. 1 - H318	
SODIUM TETRABORATE	1-5%
CAS number: 1303-96-4 EC number: 215-540-4	
Classification Eye Irrit. 2 - H319 Repr. 1B - H360FD	
MAGNESIUM NITRATE	<1%
CAS number: 10377-60-3 EC number: 233-826-7	
Classification Ox. Sol. 3 - H272 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319	
MIXTURE OF: 5-CHLORO-2-METHYL-4-ISOTIAZOLIN-3-ONE [EC NO. 247-500-7] AND 2-METHYL-4-ISOTHIAZOLIN-3-ONE [EC NO. 220-239-6] (3:1)	<1%
CAS number: 55965-84-9	
M factor (Acute) = 1	
Classification Acute Tox. 3 - H301 Acute Tox. 3 - H311 Acute Tox. 3 - H331 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	

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COPPER (II) NITRATE TRIHYDRATE	<1%
CAS number: 10031-43-3	EC number: 221-838-5
M factor (Acute) = 1	
Classification Ox. Sol. 2 - H272 Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318 Aquatic Acute 1 - H400	

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

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention if any discomfort continues.
Ingestion	Rinse mouth thoroughly with water. Do not induce vomiting. Give plenty of water to drink. Get medical attention.
Skin contact	Remove affected person from source of contamination. Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention.
Eye contact	Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention.

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

Skin contact	Causes severe skin burns and eye damage. May cause an allergic skin reaction.
Eye contact	Causes severe skin burns and eye damage.

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

Notes for the doctor	No information available.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Use fire-extinguishing media suitable for the surrounding fire.
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5.2. Special hazards arising from the substance or mixture

Specific hazards	Oxides of the following substances: Carbon.
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5.3. Advice for firefighters

Protective actions during firefighting	Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Follow precautions for safe handling described in this safety data sheet.
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6.2. Environmental precautions

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Environmental precautions Avoid discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb in vermiculite, dry sand or earth and place into containers. Avoid the spillage or runoff entering drains, sewers or watercourses. Flush contaminated area with plenty of water.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid spilling. Avoid contact with skin and eyes. Provide adequate ventilation. Avoid inhalation of vapours and spray/mists.

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.

Storage class Chemical storage.

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

SODIUM HYDROXIDE

Short-term exposure limit (15-minute): WEL 2 mg/m³

SODIUM TETRABORATE

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

WEL = Workplace Exposure Limit.

SODIUM NITRITE (CAS: 7632-00-0)

Ingredient comments	No exposure limits known for ingredient(s).
DNEL	Industry - Inhalation; Long term systemic effects: 2 mg/m ³ Industry - Inhalation; Short term systemic effects: 2 mg/m ³
PNEC	- Fresh water; 0.0054 mg/l - marine water; 0.00616 mg/l - Intermittent release; 0.0054 mg/l - Sediment (Freshwater); 0.0195 mg/kg - Sediment (Marinewater); 0.0223 mg/kg - Soil; 0.000733 mg/kg - STP; 21 mg/l

SODIUM METASILICATE (CAS: 10213-79-3)

Ingredient comments	No exposure limits known for ingredient(s).
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DNEL	Industry - Dermal; Long term : 1.49 mg/kg/day
	Industry - Inhalation; Long term : 6.22 mg/m ³
	Consumer - Dermal; Long term : 0.74 mg/kg/day
	Consumer - Inhalation; Long term : 1.55 mg/m ³
	Consumer - Oral; Long term : 0.74 mg/kg/day

PNEC	- Fresh water; 7.5 mg/l
	- marine water; 1 mg/l
	- Intermittent release; 7.5 mg/l
	- STP; 1000 mg/l

SODIUM HYDROXIDE (CAS: 1310-73-2)

DNEL	Consumer - Inhalation; Long term local effects: 1 mg/m ³
	Workers - Dermal; Short term local effects: 2 mg/kg/day
	Workers - Inhalation; Short term local effects: 2 mg/m ³
	Workers - Inhalation; Long term local effects: 1 mg/m ³

SODIUM TETRABORATE (CAS: 1303-96-4)

DNEL	Consumer - Oral; Short term systemic effects: 1.51 mg/kg/day
	Consumer - Oral; Long term systemic effects: 1.51 mg/kg/day
	Professional - Inhalation; Short term local effects: 22.3 mg/m ³
	Professional - Inhalation; Long term local effects: 22.3 mg/m ³
	Professional - Inhalation; Long term systemic effects: 12.76 mg/m ³
	Consumer - Inhalation; local effects: 22.3 mg/m ³
	Consumer - Inhalation; Long term systemic effects: 6.50 mg/m ³
	Industry - Dermal; Long term systemic effects: 599.6 mg/kg/day
	Consumer - Dermal; Long term systemic effects: 303.5 mg/kg/day
	PNEC
- marine water; 2.02 mg/l	
- Intermittent release; 13.7 mg/l	
- Soil; 5.4 mg/kg	
- STP; 10 mg/l	

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment that provides appropriate eye and face protection should be worn. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. To protect hands from chemicals, wear gloves that are proven to be impervious to the chemical and resist degradation. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material.

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Other skin and body protection	Wear appropriate clothing to prevent reasonably probable skin contact.
Hygiene measures	When using do not eat, drink or smoke. Wash promptly if skin becomes contaminated. Wash at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection	No specific recommendations. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Cloudy
Odour	Ammonia.
pH	pH (concentrated solution): 13.87
Relative density	~ 1.116 @ 20°C

9.2. Other information

Other information	Not available.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	No information available.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Not available.
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10.4. Conditions to avoid

Conditions to avoid	Avoid excessive heat for prolonged periods of time.
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10.5. Incompatible materials

Materials to avoid	Strong oxidising agents.
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10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion products may include the following substances: Carbon monoxide (CO). Carbon dioxide (CO ₂).
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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg)	2,400.0
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Skin corrosion/irritation

Skin corrosion/irritation	Causes skin irritation.
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Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye damage.
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Respiratory sensitisation

Respiratory sensitisation Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation Sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Reproductive toxicity - development Suspected of damaging the unborn child

Specific target organ toxicity - single exposure

STOT - single exposure Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met

Inhalation May cause respiratory system irritation.

Ingestion May cause irritation. Symptoms following overexposure may include the following: Stomach pain. Nausea, vomiting. Diarrhoea.

Skin contact Causes severe skin burns and eye damage. May cause an allergic skin reaction.

Eye contact Causes severe skin burns and eye damage.

Toxicological information on ingredients.

SODIUM NITRITE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 180.0

Species Rat

ATE oral (mg/kg) 180.0

Skin corrosion/irritation

Animal data Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Irritating to eyes.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

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Skin sensitisation	Not sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Inconclusive.
<u>Carcinogenicity</u>	
Carcinogenicity	There is no evidence that the product can cause cancer. Under certain conditions the substance can form nitrosamines. nitrosamines are carcinogenic in animal studies.
<u>Reproductive toxicity</u>	
Reproductive toxicity - development	This substance has no evidence of toxicity to reproduction.
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	No information available.
<u>Specific target organ toxicity - repeated exposure</u>	
Target organs	Blood
<u>Aspiration hazard</u>	
Aspiration hazard	Not applicable
<u>Inhalation</u>	
Inhalation	No significant hazard at normal ambient temperatures. Heating may generate the following products: Toxic gases or vapours.
<u>Ingestion</u>	
Ingestion	Toxic if swallowed.
<u>Skin contact</u>	
Skin contact	May cause skin irritation/eczema.
<u>Eye contact</u>	
Eye contact	May cause severe eye irritation.
<u>Medical considerations</u>	
Medical considerations	Inhale Corticosteroid dose aerosol Treat with Tolonium chloride to reverse Methaemoglobinanaemia

SODIUM METASILICATE

<u>Skin corrosion/irritation</u>	
Skin corrosion/irritation	Corrosive to skin.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Causes serious eye damage.
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	Not sensitising.
<u>Skin sensitisation</u>	
Skin sensitisation	Not sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Negative.
Genotoxicity - in vivo	Negative.
<u>Carcinogenicity</u>	

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Carcinogenicity	No information available.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Fertility - NOAEL >159 mg/kg/day, , Rat - NOAEL >200 mg/kg/day, , Mouse
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	Irritating to respiratory system.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	NOAEL 227 mg/kg, Oral, Rat
<u>Aspiration hazard</u>	
Aspiration hazard	No information available.
<u>Inhalation</u>	
Inhalation	May cause respiratory irritation.
<u>Ingestion</u>	
Ingestion	May cause severe internal injury.
<u>Skin contact</u>	
Skin contact	Causes severe skin burns and eye damage.
<u>Eye contact</u>	
Eye contact	Causes severe skin burns and eye damage.
<u>Acute and chronic health hazards</u>	
Acute and chronic health hazards	Contact with this chemical can be hazardous. This product is corrosive. This product may cause skin and eye irritation. Prolonged contact may cause burns.

SODIUM HYDROXIDE

<u>Acute toxicity - oral</u>	
Acute toxicity oral (LD₅₀ mg/kg)	325.0
Species	Rat
Notes (oral LD₅₀)	LD ₅₀ >500 mg/kg, Oral, Rabbit
<u>Acute toxicity - dermal</u>	
Acute toxicity dermal (LD₅₀ mg/kg)	1,350.0
Species	Rabbit
<u>Acute toxicity - inhalation</u>	
Notes (inhalation LC₅₀)	No specific test data are available.
<u>Skin corrosion/irritation</u>	
Skin corrosion/irritation	Causes severe burns.
<u>Animal data</u>	
Animal data	Corrosive.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Causes serious eye damage.
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	No information available.
<u>Skin sensitisation</u>	

STAR ENGINE COOLING WATER TREATMENT

Skin sensitisation	No information available.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	No information available.
<u>Carcinogenicity</u>	
Carcinogenicity	No information available.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	No information required.
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	No information available.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	No information available.
<u>Aspiration hazard</u>	
Aspiration hazard	No information available.
<u>Inhalation</u>	
Inhalation	Dust is severely irritating to the upper respiratory system. Symptoms following overexposure may include the following: Coughing. Wheezing/breathing difficulties. May cause an asthmalike shortness of breath. Sore throat. Burning sensation in mouth. Upper respiratory irritation. Tracheobronchitis, pulmonary oedema
<u>Ingestion</u>	
Ingestion	Causes severe burns. May cause burns in mucous membranes, throat, oesophagus and stomach. Symptoms following overexposure may include the following: Chemical burns. Burning sensation in mouth. Nausea, vomiting. Vomiting of blood Swallowing concentrated chemical may cause severe internal injury.
<u>Skin contact</u>	
Skin contact	Causes severe burns. Blistering may occur. May cause serious chemical burns to the skin. Prolonged contact causes serious tissue damage.
<u>Eye contact</u>	
Eye contact	Causes serious eye damage. May cause chemical eye burns. Symptoms following overexposure may include the following: Severe irritation, burning and tearing. Corneal damage. May cause permanent damage if eye is not immediately irrigated
<u>Acute and chronic health hazards</u>	
Acute and chronic health hazards	This chemical can be hazardous when inhaled and/or touched. Dust is severely irritating to the upper respiratory system. Corrosive. Prolonged contact causes serious eye and tissue damage.

SODIUM TETRABORATE

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.0

Species Rabbit

Skin corrosion/irritation

Skin corrosion/irritation Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage. Fully reversible within 14 days Rabbit

STAR ENGINE COOLING WATER TREATMENT

Respiratory sensitisation

Respiratory sensitisation Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - : Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Bacterial reverse mutation test: Negative. Read-across data.

Genotoxicity - in vivo Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met. Negative., Dose level: 446 - 1150 mg/kg/day, Oral, Mouse

Reproductive toxicity

Reproductive toxicity - fertility May damage fertility. Fertility, Multi-generation study - NOAEL 17.5 mg B/kg , Oral, Rat, Male

Reproductive toxicity - development May damage the unborn child. Developmental toxicity: - NOAEL: 9.6 mg B/kg , Oral, Rat

Specific target organ toxicity - single exposure

STOT - single exposure Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met

Inhalation May cause respiratory system irritation. Dust in high concentrations may irritate the respiratory system.

Ingestion May cause discomfort if swallowed. No harmful effects expected from quantities likely to be ingested by accident. Symptoms following overexposure may include the following: Nausea, vomiting. Diarrhoea.

Skin contact May be slightly irritating to skin.

Eye contact Causes serious eye irritation.

Acute and chronic health hazards May damage fertility. May damage the unborn child.

MIXTURE OF: 5-CHLORO-2-METHYL-4-ISOTIAZOLIN-3-ONE[EC NO. 247-500-7] AND 2-METHYL-4-ISOTHIAZOLIN-3-ONE [EC NO. 220-239-6] (3:1)

Acute toxicity - oral

ATE oral (mg/kg) 100.0

Acute toxicity - dermal

ATE dermal (mg/kg) 300.0

Acute toxicity - inhalation

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Acute toxicity inhalation (LC₅₀ vapours mg/l)	2.36
ATE inhalation (vapours mg/l)	2.36
<u>Skin corrosion/irritation</u>	
Skin corrosion/irritation	May cause skin irritation.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	May cause temporary eye irritation.
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	No information available.
<u>Skin sensitisation</u>	
Skin sensitisation	Sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	No information available.
<u>Carcinogenicity</u>	
Carcinogenicity	No information available.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	No information available.
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	No information available.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	No information available.
<u>Aspiration hazard</u>	
Aspiration hazard	No information available.

COPPER (II) NITRATE TRIHYDRATE

<u>Acute toxicity - oral</u>	
ATE oral (mg/kg)	500.0

SECTION 12: Ecological information

Ecological information on ingredients.

SODIUM NITRITE

Ecotoxicity	Very toxic to aquatic life.
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SODIUM METASILICATE

Ecotoxicity	The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment. The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.
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STAR ENGINE COOLING WATER TREATMENT

SODIUM HYDROXIDE

Ecotoxicity The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

SODIUM TETRABORATE

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

12.1. Toxicity

Toxicity The product is not expected to be hazardous to the environment.

Ecological information on ingredients.

SODIUM NITRITE

Toxicity Very toxic to aquatic organisms.

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Acute toxicity - fish LC₅₀, 96 hours: 0.54 mg/l, Fish, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 15.4 mg/l, Daphnia magna
EC₅₀, 96 hours: 4.93 mg/l,

Acute toxicity - aquatic plants EC₅₀, 72 hours: >100 mg/l, Scenedesmus subspicatus

Acute toxicity - microorganisms EC₅₀, 48 hours: 421 mg/l,

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOEC, : 6.16 mg/l,

Chronic toxicity - aquatic invertebrates NOEC, : 9.86 mg/l, Daphnia magna

SODIUM METASILICATE

Toxicity The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 180 mg/l, Fish

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 1700 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: ~ 207 mg/l, Scenedesmus subspicatus

SODIUM HYDROXIDE

STAR ENGINE COOLING WATER TREATMENT

Toxicity The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 33-189 mg/l, Fish
LC₅₀, 96 hour: 45.5 mg/l, rainbow trout (*Oncorhynchus mykiss*)
LC₅₀, 96 hour: 125 mg/l, Freshwater fish

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 40 - 240 mg/l, *Daphnia magna*

SODIUM TETRABORATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 79.7 mg/l, *Pimephales promelas* (Fat-head Minnow)

Acute toxicity - aquatic invertebrates NOEC, : 14.2 mg/l, *Daphnia magna*

Acute toxicity - aquatic plants EC₅₀, : 52.4 mg/l, *Pseudokirchneriella subcapitata*

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Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Acute toxicity - fish LC₅₀, 96 hours: 0.19 mg/l, *Oncorhynchus mykiss* (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 0.16 mg/l, *Daphnia magna*

Acute toxicity - aquatic plants EC₅₀, 72 hours: 0.027 mg/l, *Selenastrum capricornutum*

Chronic aquatic toxicity

NOEC 0.001 < NOEC ≤ 0.01

Degradability Rapidly degradable

COPPER (II) NITRATE TIHYDRATE

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

12.2. Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

SODIUM NITRITE

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

STAR ENGINE COOLING WATER TREATMENT

SODIUM METASILICATE

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

SODIUM HYDROXIDE

Persistence and degradability The product contains inorganic substances which are not biodegradable. The other substances in the product are slowly biodegradable.

SODIUM TETRABORATE

Persistence and degradability Not applicable. Substance is inorganic

12.3. Bioaccumulative potential

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

Ecological information on ingredients.

SODIUM NITRITE

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient Scientifically unjustified.

SODIUM METASILICATE

Bioaccumulative potential The product is not bioaccumulating.

SODIUM HYDROXIDE

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient No information available.

SODIUM TETRABORATE

Bioaccumulative potential Bioaccumulation is unlikely.

Partition coefficient log Pow: -0.757

12.4. Mobility in soil

Mobility The product is soluble in water.

Ecological information on ingredients.

SODIUM NITRITE

Mobility The product is soluble in water.

SODIUM METASILICATE

Mobility The product is soluble in water.

SODIUM HYDROXIDE

Mobility The product is soluble in water.

STAR ENGINE COOLING WATER TREATMENT

SODIUM TETRABORATE

Mobility Soluble in water.

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.

SODIUM NITRITE

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current UK criteria.

SODIUM METASILICATE

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current UK criteria.

SODIUM HYDROXIDE

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current UK criteria.

SODIUM TETRABORATE

Results of PBT and vPvB assessment Substance is inorganic.

12.6. Other adverse effects

Other adverse effects Not available.

Ecological information on ingredients.

SODIUM NITRITE

Other adverse effects Not available.

SODIUM METASILICATE

Other adverse effects The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

SODIUM HYDROXIDE

Other adverse effects The pH of the product is very high and may effect the surrounding environment as such.

SODIUM TETRABORATE

Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

STAR ENGINE COOLING WATER TREATMENT

General information	When handling waste, the safety precautions applying to handling of the product should be considered.
Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	3266
UN No. (IMDG)	3266
UN No. (ICAO)	3266
UN No. (ADN)	3266

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (CONTAINS SODIUM HYDROXIDE, SODIUM METASILICATE)
Proper shipping name (IMDG)	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (CONTAINS SODIUM HYDROXIDE, SODIUM METASILICATE)
Proper shipping name (ICAO)	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (CONTAINS SODIUM HYDROXIDE, SODIUM METASILICATE)
Proper shipping name (ADN)	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (CONTAINS SODIUM HYDROXIDE, SODIUM METASILICATE)

14.3. Transport hazard class(es)

ADR/RID class	8
ADR/RID classification code	C5
ADR/RID label	8
IMDG class	8
ICAO class/division	8
ADN class	8

Transport labels



14.4. Packing group

ADR/RID packing group	II
IMDG packing group	II
ICAO packing group	II
ADN packing group	II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

STAR ENGINE COOLING WATER TREATMENT

IMDG Code segregation group	18. Alkalis
EmS	F-A, S-B
ADR transport category	2
Emergency Action Code	2X
Hazard Identification Number (ADR/RID)	80
Tunnel restriction code	(E)

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

15.2. Chemical safety assessment

Not available.

SECTION 16: Other information

General information	Only trained personnel should use this material.
Key literature references and sources for data	Health and Safety Executive (HSE). European Chemicals Agency (ECHA) (www.echa.europa.eu). MARPOL 73/78 Annex II - Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk. International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code).
Revision date	27/02/2023
Revision	1
Supersedes date	05/10/2020
Hazard statements in full	H272 May intensify fire; oxidiser. H290 May be corrosive to metals. H301 Toxic if swallowed. H302 Harmful if swallowed. H311 Toxic in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H319 Causes serious eye irritation. H331 Toxic if inhaled. H335 May cause respiratory irritation. H360FD May damage fertility. May damage the unborn child. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.
Signature	Edita Dabasinskaite