ROCOR NB LIQUID

Wilhelmsen Ships Service AS

Part Number: **571356**
Version No: **11.21**
Safety Data Sheet (Conforms to Annex II of REACH (1907/2006) - Regulation 2020/878)

Issue Date: **04/05/2022**
Print Date: **08/11/2023**
L.REACH.NOR.EN

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

1.1. Product Identifier

Product name	ROCOR NB LIQUID
Chemical Name	Not Applicable
Synonyms	571356 (25 liter), PR No: 17129
Chemical formula	Not Applicable
Other means of identification	571356

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

Chemical Product Category	PC37	Water treatment chemicals
Sectors of Use	SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
	SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
Relevant identified uses	Water treatment	
Uses advised against	No specific uses advised against are identified.	

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	**Wilhelmsen Ships Service AS**	**Outback (M)SDS portal: http://jr.chemwatch.net/outb/account/autologin?login=wilhelmsen**	**Wilhelmsen Ships Service AS* Central Warehouse**
Address	Strandveien 20 Lysaker 1366 Norway	--------Use our Outback portal to obtain our (M)SDSs in other languages and/or format.--------- For questions relating to our SDSs please use Email: WSS.GLOBAL.SDSINFO@wilhelmsen.com --------- Norway	Willem Barentszstraat 50 Rotterdam Netherlands
Telephone	+47 67 58 40 00	Not Available	+31 10 4877 777
Fax	Not Available	Not Available	Not Available
Website	http://www.wilhelmsen.com/	http://www.wilhelmsen.com	http://www.wilhelmsen.com
Email	wss.norway.cs@wilhelmsen.com	wss.global.sdsinfo@wilhelmsen.com	wss.rotterdam@wilhelmsen.com

Registered company name	**Wilhelmsen Ships Service AS* Central Warehouse**
Address	Willem Barentszstraat 50 Rotterdam Netherlands
Telephone	+31 10 4877 777
Fax	Not Available
Website	http://www.wilhelmsen.com

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Email	wss.rotterdam@wilhelmsen.com

1.4. Emergency telephone number

Association / Organisation	**Giftinformasjonssentralen - 24 timer**	**24hrs - Chemwatch**	**Dutch nat. poison centre**
Emergency telephone numbers	**+47 22591300**	**+31-10-4877700**	**+ 31 88 7558561**
Other emergency telephone numbers	**+31-10-4877700**	**+31-10-4877700**	**+ 31 10 4877700**

Association / Organisation	**Dutch nat. poison centre**	**CHEMWATCH EMERGENCY RESPONSE (24/7)**
Emergency telephone numbers	**+ 31 30 274 88 88**	**+47 23 25 25 84**
Other emergency telephone numbers	**+ 31-10-4877700**	**+61 3 9573 3188**

Once connected and if the message is not in your preferred language then please dial 01

SECTION 2 Hazards identification

2.1. Classification of the substance or mixture

Considered a hazardous mixture according to Reg. (EC) No 1272/2008 and their amendments. Not classified as Dangerous Goods for transport purposes.

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments [1]	H302 - Acute Toxicity (Oral) Category 4, H319 - Serious Eye Damage/Eye Irritation Category 2
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

2.2. Label elements

Hazard pictogram(s)	
Signal word	**Warning**

Hazard statement(s)

H302	Harmful if swallowed.
H319	Causes serious eye irritation.

Supplementary statement(s)

EUH208	Contains sodium 2-mercaptobenzothiazole. May produce an allergic reaction.

CLP classification (additional)

Not Applicable

Precautionary statement(s) Prevention

P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves, protective clothing, eye protection and face protection.

Precautionary statement(s) Response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider if you feel unwell.

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Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

2.3. Other hazards

sodium borate anhydrous (na2b4o7)	Listed in the European Chemicals Agency (ECHA) Candidate List of Substances of Very High Concern for Authorisation
sodium borate anhydrous (na2b4o7)	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)

SECTION 3 Composition / information on ingredients

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1. CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	SCL / M-Factor	Nanoform Particle Characteristics
1. 1330-43-4* 2.215-540-4 3.005-011-00-4 4.Not Available	1-2	sodium borate anhydrous (na2b4o7)	Reproductive Toxicity Category 1B, Serious Eye Damage/Eye Irritation Category 2; H360D, H319 [1]	Not Available	Not Available
1. 7632-00-0 2.231-555-9 3.007-010-00-4 4.Not Available	10-25	sodium nitrite	Oxidizing Solids Category 3, Acute Toxicity (Oral) Category 3, Hazardous to the Aquatic Environment Acute Hazard Category 1; H272, H301, H400 [2]	*	Not Available
1. 2492-26-4 2.219-660-8 3.Not Available 4.Not Available	<1	sodium 2-mercaptobenzothiazole	Skin Corrosion/Irritation Category 1C, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 1, Hazardous to the Aquatic Environment Acute Hazard Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 1; H314, H317, H318, H400, H410 [3]	Not Available	Not Available
1. 7732-18-5 2.231-791-2 3.Not Available 4.Not Available	60-100	water	Not Classified [3]	Not Available	Not Available

Legend:	*1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties*

SECTION 4 First aid measures

4.1. Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Wash out immediately with fresh running water. ▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▸ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	▸ If fumes or combustion products are inhaled remove from contaminated area. ▸ Lay patient down. Keep warm and rested. ▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▸ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

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	▸ Transport to hospital, or doctor, without delay.
Ingestion	▸ **IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.** ▸ For advice, contact a Poisons Information Centre or a doctor. ▸ Urgent hospital treatment is likely to be needed. ▸ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ▸ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist. ▸ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. **Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:** ▸ **INDUCE** vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. **NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

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

Treat symptomatically.

The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methaemoglobin.

- Most produce a peak effect within 30 minutes.
- Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin.
- Initial attention should be directed towards improving oxygen delivery, with assisted ventilation, if necessary. Hyperbaric oxygen has not demonstrated conclusive benefits.
- Institute cardiac monitoring, especially in patients with coronary artery or pulmonary disease.
- Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.
- Naloxone, glucose and thiamine should be given if a multiple ingestion is suspected.
- Decontaminate using Ipecac Syrup for alert patients or lavage for obtunded patients who present within 2-4 hours of ingestion.
- Symptomatic patients with methaemoglobin levels over 30% should receive methylene blue.(Cyanosis alone, is not an indication for treatment). The usual dose is 1-2 mg/kg of a 1% solution (10 mg/ml) IV over 5 minutes; repeat, using the same dose if symptoms of hypoxia fail to subside within 1 hour.

[*Ellenhorn and Barceloux: Medical Toxicology*]

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Methaemoglobin in blood	1.5% of haemoglobin	During or end of shift	B,NS,SQ

B: Background levels occur in specimens collected from subjects **NOT** exposed

NS: Non-specific determinant;also observed after exposure to other materials

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

SECTION 5 Firefighting measures

5.1. Extinguishing media

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.

5.3. Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves in the event of a fire. ▸ Prevent, by any means available, spillage from entering drains or water courses.

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Fire/Explosion Hazard	**WARNING**: May **EXPLODE** on heating!!! ‣ Non combustible. ‣ Not considered a significant fire risk, however containers may burn. Decomposition may produce toxic fumes of: , nitrogen oxides (NOx) May emit poisonous fumes. May emit corrosive fumes.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	‣ Clean up all spills immediately. ‣ Avoid breathing vapours and contact with skin and eyes. ‣ Control personal contact with the substance, by using protective equipment.
Major Spills	Moderate hazard. ‣ Clear area of personnel and move upwind. ‣ Alert Fire Brigade and tell them location and nature of hazard.

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Safe handling	‣ Avoid all personal contact, including inhalation. ‣ Wear protective clothing when risk of exposure occurs. ‣ Use in a well-ventilated area. ‣ **DO NOT** allow clothing wet with material to stay in contact with skin
Fire and explosion protection	See section 5
Other information	

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	‣ Polyethylene or polypropylene container. ‣ Packing as recommended by manufacturer. ‣ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	‣ Inorganic reducing agents react with oxidizing agents to generate heat and products that may be flammable, combustible, or otherwise reactive. Their reactions with oxidizing agents may be violent. ‣ Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions. for metal nitrates: ‣ Segregate from heavy metals, phosphides, sodium acetate, lead nitrate, tartrates, trichloroethylene, ‣ Avoid shock and heat. ‣ Mixtures of metal nitrates with alkyl esters may explode due to the formation of unstable alkyl nitrates. ‣ Mixtures of a nitrate with phosphorous, tin(II) chloride and other reducing agents may react explosively. ‣ Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous ‣ Avoid storage with reducing agents.
Hazard categories in accordance with Regulation (EC) No 1272/2008	Not Available
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	Not Available

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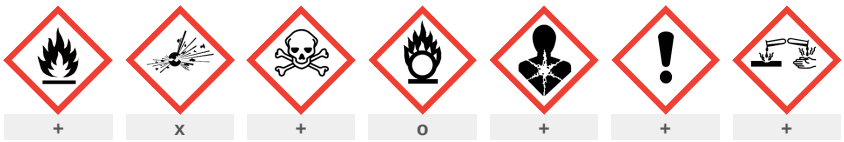

+	x	+	o	+	+	+

X — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Note: Depending on other risk factors, compatibility assessment based on the table above may not be relevant to storage situations, particularly where large volumes of dangerous goods are stored and handled. Reference should be made to the Safety Data Sheets for each substance or article and risks assessed accordingly.

7.3. Specific end use(s)

See section 1.2

SECTION 8 Exposure controls / personal protection

8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
sodium nitrite	Inhalation 2 mg/m³ (Systemic, Chronic) Inhalation 2 mg/m³ (Systemic, Acute)	0.005 mg/L (Water (Fresh)) 0.005 mg/L (Water - Intermittent release) 0.006 mg/L (Water (Marine)) 0.019 mg/kg sediment dw (Sediment (Fresh Water)) 0.022 mg/kg sediment dw (Sediment (Marine)) 0.001 mg/kg soil dw (Soil) 21 mg/L (STP)
sodium 2-mercaptobenzothiazole	Dermal 2.8 mg/kg bw/day (Systemic, Chronic) Inhalation 10 mg/m³ (Systemic, Chronic) Inhalation 1 mg/m³ (Local, Chronic) Dermal 2.8 mg/kg bw/day (Systemic, Acute) Inhalation 10 mg/m³ (Systemic, Acute) Inhalation 1 mg/m³ (Local, Acute) *Dermal 1.5 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 2.5 mg/m³ (Systemic, Chronic) ** *Oral 1.5 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 1 mg/m³ (Local, Chronic) ** *Dermal 1.5 mg/kg bw/day (Systemic, Acute) ** *Inhalation 2.5 mg/m³ (Systemic, Acute) ** *Oral 1.5 mg/kg bw/day (Systemic, Acute) ** *Inhalation 1 mg/m³ (Local, Acute) **	0.004 mg/L (Water (Fresh)) 0.005 mg/L (Water - Intermittent release) 0 mg/L (Water (Marine)) 0.147 mg/kg sediment dw (Sediment (Fresh Water)) 0.015 mg/kg sediment dw (Sediment (Marine)) 0.027 mg/kg soil dw (Soil) 0.3 mg/L (STP)
water	Dermal 0.02 mg/kg bw/day (Systemic, Chronic) Inhalation 0.12 mg/m³ (Systemic, Chronic) Inhalation 0.11 mg/m³ (Local, Chronic) Dermal 5 mg/kg bw/day (Systemic, Acute) Inhalation 2.5 mg/m³ (Systemic, Acute) Inhalation 0.33 mg/m³ (Local, Acute) *Dermal 0.35 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 0.144 mg/m³ (Systemic, Chronic) ** *Oral 0.08 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 0.03 mg/m³ (Local, Chronic) ** *Dermal 2.5 mg/kg bw/day (Systemic, Acute) ** *Inhalation 1.96 mg/m³ (Systemic, Acute) ** *Oral 2.5 mg/kg bw/day (Systemic, Acute) ** *Inhalation 0.09 mg/m³ (Local, Acute) **	Not Available

* Values for General Population

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Norway regulations on action rvalues and limit values physical and chemical factors in the work environment and infection risk groups for biological	sodium borate anhydrous (na2b4o7)	Natriumtetraborater: Vannfritt	1 mg/m3	Not Available	Not Available	Not Available

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Source	Ingredient	Material name	TWA	STEL	Peak	Notes
factors (Norwegian)						
Europe ECHA Occupational exposure limits substance evaluations	sodium borate anhydrous (na2b4o7)	Not Available	Not Available	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
sodium borate anhydrous (na2b4o7)	6 mg/m3	88 mg/m3	530 mg/m3
sodium nitrite	6.4 mg/m3	71 mg/m3	240 mg/m3

Ingredient	Original IDLH	Revised IDLH
sodium borate anhydrous (na2b4o7)	Not Available	Not Available
sodium nitrite	Not Available	Not Available
sodium 2-mercaptobenzothiazole	Not Available	Not Available
water	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
sodium nitrite	E	≤ 0.01 mg/m³
sodium 2-mercaptobenzothiazole	E	≤ 0.01 mg/m³
Notes:	*Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.*	

MATERIAL DATA

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more.

8.2. Exposure controls

8.2.1. Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk.
8.2.2. Individual protection measures, such as personal protective equipment	
Eye and face protection	‣ Safety glasses with side shields. ‣ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent] ‣ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.
Skin protection	See Hand protection below
Hands/feet protection	‣ Wear chemical protective gloves, e.g. PVC. ‣ Wear safety footwear or safety gumboots, e.g. Rubber The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
Body protection	See Other protection below
Other protection	‣ Overalls. ‣ P.V.C apron. ‣ Barrier cream.

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Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
ROCOR NB LIQUID

Material	CPI
BUTYL	A
NEOPRENE	A
VITON	A
NATURAL RUBBER	C
PVA	C

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

· Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
· The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
· Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
· Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
· Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
· Use approved positive flow mask if significant quantities of dust becomes airborne.
· Try to avoid creating dust conditions.
Class P2 particulate filters are used for protection against mechanically and thermally generated particulates or both.
P2 is a respiratory filter rating under various international standards, Filters at least 94% of airborne particles
Suitable for:
· Relatively small particles generated by mechanical processes eg. grinding, cutting, sanding, drilling, sawing.
· Sub-micron thermally generated particles e.g. welding fumes, fertilizer and bushfire smoke.
· Biologically active airborne particles under specified infection control applications e.g. viruses, bacteria, COVID-19, SARS

8.2.3. Environmental exposure controls

See section 12

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Red

Physical state	Liquid	**Relative density (Water = 1)**	1.11 - 1.13
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	9.5 - 10.5	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	100	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available BuAC = 1	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Miscible	**pH as a solution (1%)**	Not Available

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Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available
Nanoform Solubility	Not Available	**Nanoform Particle Characteristics**	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10 Stability and reactivity

10.1.Reactivity	See section 7.2
10.2. Chemical stability	‣ Unstable in the presence of incompatible materials. ‣ Product is considered stable. ‣ Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Inhaled	Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Not normally a hazard due to non-volatile nature of product
Ingestion	Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. The substance and/or its metabolites may bind to haemoglobin inhibiting normal uptake of oxygen. This condition, known as "methaemoglobinemia", is a form of oxygen starvation (anoxia). Symptoms include cyanosis (a bluish discolouration skin and mucous membranes) and breathing difficulties. The lethal oral dose of nitrite for adults has been variously reported to be between 0.7 and 6 g NO2- (approximately 10 to 100 mg NO2-/kg). Lower doses may apply for children (especially neonates), the elderly and people with certain enzyme deficiencies. The first symptoms of oral nitrite poisoning develop within 15 to 45 minutes In humans, inorganic nitrites produce smooth muscle relaxation, methaemoglobinaemia and cyanosis.The primary effect of nitrite intoxication in animals is methaemoglobinaemia whilst secondary effects include vasodilation, relaxation of smooth muscle and lowering of blood pressure.
Skin Contact	Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. The material may accentuate any pre-existing dermatitis condition Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals. Repeated or prolonged eye contact may cause inflammation (similar to windburn) characterised by a temporary redness of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
Chronic	Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. There is sufficient evidence to provide a strong presumption that human exposure to the material may result in impaired fertility on the basis of: - clear evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects.

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	The major concern of possible long-term effects of exposure to nitrate and nitrite is associated with formation of nitroso compounds, many of which are carcinogenic. This formation may take place wherever nitrite and nitrosable compounds are present, but it is favoured by acidic conditions or the presence of some bacteria. The gastrointestinal tract and especially the stomach is regarded as the main formation site, but nitrosation reactions can also take place in an infected urinary bladder. On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems.

ROCOR NB LIQUID	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
sodium borate anhydrous (na2b4o7)	**TOXICITY**	**IRRITATION**
	Oral (man) LDLo: 709 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Oral (Rat) LD50: 2660 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
sodium nitrite	**TOXICITY**	**IRRITATION**
	Inhalation(Rat) LC50: 0.006 mg/L4h[2]	Eye (rabbit): 500 mg/24hr - mild
	Oral (Rat) LD50: 180 mg/kg[2]	
sodium 2-mercaptobenzothiazole	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 5010 mg/kg[2]	Eye : SEVERE*
	Oral (Rat) LD50: 5200 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
		Skin: adverse effect observed (corrosive)[1]
		Skin: SEVERE / Sensitiser* [Vanderbilt]
water	**TOXICITY**	**IRRITATION**
	Oral (Rat) LD50: >90000 mg/kg[2]	Not Available
Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*	

sodium borate anhydrous (na2b4o7)	Reproductive effector in rats Mutagenic towards bacteria
SODIUM NITRITE	Tumorigenic - Carcinogenic by RTECS criteria. Exposure to the material may result in a possible risk of irreversible effects. The material may produce mutagenic effects in man. This concern is raised, generally, on the basis of appropriate studies using mammalian somatic cells in vivo.
SODIUM 2-MERCAPTOBENZOTHIAZOLE	Data for 50% aqueous solution Evidence of carcinogenic activity in rats; increased incidence of mononuclear cell leukemias, pancreatic cell and pituitary adenomas and adrenal gland pheochromocytomas following vegetable oil gavage.* The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. The material may produce respiratory tract irritation. Symptoms of pulmonary irritation may include coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and a burning sensation. Unlike most organs, the lung can respond to a chemical insult or a chemical agent, by first removing or neutralising the irritant and then repairing the damage (inflammation of the lungs may be a consequence). The repair process (which initially developed to protect mammalian lungs from foreign matter and antigens) may, however, cause further damage to the lungs (fibrosis for example) when activated by hazardous chemicals. Often, this results in an impairment of gas exchange, the primary function of the lungs. for 2-mercaptobenzothiazole (MBT) The sulfenamide group (-NH-C(=S)-S-) is the prime determinant of toxicity for all members of the Benzothiazole-based Thiazoles category. The acute and subchronic toxicity of MBT is relatively low. Skin and eye irritation effects are not present or are mild, but allergic skin reaction is possible in susceptible persons. Data from *in vitro* and *in vivo* studies indicate a low concern for mutagenicity caused by MBT. Mercaptobenzothiazole (MBT) is a potent skin sensitiser in man and cross reactions with other rubber chemicals can occur. The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.
WATER	No significant acute toxicological data identified in literature search.

Continued...

ROCOR NB LIQUID & sodium borate anhydrous (na2b4o7) & SODIUM 2-MERCAPTOBENZOTHIAZOLE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant.
SODIUM NITRITE & SODIUM 2-MERCAPTOBENZOTHIAZOLE	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Acute Toxicity	✔	**Carcinogenicity**	✘
Skin Irritation/Corrosion	✘	**Reproductivity**	✘
Serious Eye Damage/Irritation	✔	**STOT - Single Exposure**	✘
Respiratory or Skin sensitisation	✘	**STOT - Repeated Exposure**	✘
Mutagenicity	✘	**Aspiration Hazard**	✘

Legend: ✘ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

11.2.2. Other information

See Section 11.1

SECTION 12 Ecological information

12.1. Toxicity

ROCOR NB LIQUID

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

sodium borate anhydrous (na2b4o7)

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	96h	Algae or other aquatic plants	2.6-21.8mg/l	4
LC50	96h	Fish	1900mg/l	4
EC50(ECx)	96h	Algae or other aquatic plants	2.6-21.8mg/l	4

sodium nitrite

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	>100mg/l	2
EC50	48h	Crustacea	ca.12.51mg/l	1
EC50	96h	Algae or other aquatic plants	1600mg/l	4
LC50	96h	Fish	0.00016mg/l	4
NOEC(ECx)	672h	Fish	0.01mg/l	4

sodium 2-mercaptobenzothiazole

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	0.1-2mg/l	4
EC50	48h	Crustacea	0.71mg/l	2
EC50	96h	Algae or other aquatic plants	0.04-3mg/l	4
EC50(ECx)	96h	Algae or other aquatic plants	0.04-3mg/l	4
LC50	96h	Fish	0.31-9.03mg/L	4

water

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

Continued...

Toxic to aquatic organisms.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.
The nitrates are of environmental concern because of their high water solubility and consequent leaching, diffusion, and environmental mobility in soil and water. Nitrate can contaminate groundwater to unacceptable levels. Nitrite is formed from nitrate or ammonium ion by micro-organisms in soil, water, sewage and the alimentary tract.
DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
sodium nitrite	LOW	LOW
sodium 2-mercaptobenzothiazole	HIGH	HIGH
water	LOW	LOW

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
sodium nitrite	LOW (LogKOW = 0.0564)
sodium 2-mercaptobenzothiazole	LOW (LogKOW = 1.8295)

12.4. Mobility in soil

Ingredient	Mobility
sodium nitrite	LOW (KOC = 23.74)
sodium 2-mercaptobenzothiazole	LOW (KOC = 21.41)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗

PBT Criteria fulfilled?	No
vPvB	No

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

SECTION 13 Disposal considerations

13.1. Waste treatment methods

Product / Packaging disposal	‣ Containers may still present a chemical hazard/ danger when empty. ‣ Return to supplier for reuse/ recycling if possible. Otherwise: ‣ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. ‣ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ‣ It may be necessary to collect all wash water for treatment before disposal. ‣ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ‣ Recycle wherever possible. ‣ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable

Continued...

	treatment or disposal facility can be identified. ▸ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or incineration in a licensed apparatus (after admixture with suitable combustible material).
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number or ID number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	Class: Not Applicable Subsidiary Hazard: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Hazard identification (Kemler): Not Applicable Classification code: Not Applicable Hazard Label: Not Applicable Special provisions: Not Applicable Limited quantity: Not Applicable Tunnel Restriction Code: Not Applicable

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	ICAO/IATA Class: Not Applicable ICAO / IATA Subsidiary Hazard: Not Applicable ERG Code: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Special provisions: Not Applicable Cargo Only Packing Instructions: Not Applicable Cargo Only Maximum Qty / Pack: Not Applicable Passenger and Cargo Packing Instructions: Not Applicable Passenger and Cargo Maximum Qty / Pack: Not Applicable Passenger and Cargo Limited Quantity Packing Instructions: Not Applicable Passenger and Cargo Limited Maximum Qty / Pack: Not Applicable

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable

Continued...

14.3. **Transport hazard class(es)**	IMDG Class	Not Applicable
	IMDG Subsidiary Hazard	Not Applicable
14.4. **Packing group**	Not Applicable	
14.5 **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	EMS Number	Not Applicable
	Special provisions	Not Applicable
	Limited Quantities	Not Applicable

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	Not Applicable	Not Applicable
14.4. **Packing group**	Not Applicable	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	Classification code	Not Applicable
	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Equipment required	Not Applicable
	Fire cones number	Not Applicable

14.7. Maritime transport in bulk according to IMO instruments

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
sodium borate anhydrous (na2b4o7)	Not Available
sodium nitrite	Not Available
sodium 2-mercaptobenzothiazole	Not Available
water	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
sodium borate anhydrous (na2b4o7)	Not Available
sodium nitrite	Not Available
sodium 2-mercaptobenzothiazole	Not Available
water	Not Available

SECTION 15 Regulatory information

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

sodium borate anhydrous (na2b4o7) is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
EU REACH Regula\tion (EC) No 1907/2006 - Annex XVII (Appendix 6) Reproductive toxicants: Category 1 B
EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances,

Continued...

mixtures and articles
EU REACH Regulation (EC) No 1907/2006 - Proposals to identify Substances of Very High Concern: Annex XV reports for commenting by Interested Parties previous consultation
Europe EC Inventory
Europe European Chemicals Agency (ECHA) Candidate List of Substances of Very High Concern for Authorisation
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
sNorway regulations on action values and limit valuesfor physical and chemical factors in the work environment and infection risk groups for biological fact (Norwegian)

sodium nitrite is found on the following regulatory lists

Europe EC Inventory
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2A: Probably carcinogenic to humans

sodium 2-mercaptobenzothiazole is found on the following regulatory lists

Europe EC Inventory
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

water is found on the following regulatory lists

Europe EC Inventory
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

Information according to 2012/18/EU (Seveso III):

Seveso Category	Not Available

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (sodium borate anhydrous (na2b4o7); sodium nitrite; sodium 2-mercaptobenzothiazole; water)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	No (sodium 2-mercaptobenzothiazole)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*

SECTION 16 Other information

Revision Date	04/05/2022

Continued...

Initial Date	19/09/2017

CONTACT POINT

- For quotations contact your local Customer Services - http://wssdirectory.wilhelmsen.com/#/customerservices - - Responsible for safety data sheet Wilhelmsen Ships Service AS - Prepared by: Compliance Manager, - Email: Email: wss.global.sdsinfo@wilhelmsen.com - Telephone: Tel.: +47 67584000

Full text Risk and Hazard codes

H272	May intensify fire; oxidiser.
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H360D	May damage the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

SDS Version Summary

Version	Date of Update	Sections Updated
10.21	04/05/2022	Toxicological information - Acute Health (inhaled), Toxicological information - Acute Health (skin), Toxicological information - Acute Health (swallowed), Toxicological information - Chronic Health, Hazards identification - Classification, Exposure controls / personal protection - Engineering Control, Ecological Information - Environmental, First Aid measures - First Aid (eye), First Aid measures - First Aid (skin), Composition / information on ingredients - Ingredients, Exposure controls / personal protection - Personal Protection (Respirator), Accidental release measures - Spills (major), Accidental release measures - Spills (minor), Identification of the substance / mixture and of the company / undertaking - Synonyms

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

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