

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Direct TIBC R1

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

1.1 Product identifier

Product Name: Direct TIBC R1

Product code: I7517-R1

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

Relevant identified uses: For use in the determination of total iron-binding capacity in serum on automated chemistry analyzers.

Uses advised against: Not determined or not applicable.

Reasons why uses advised against: Not determined or not applicable.

1.3 Details of the manufacturer/supplier of the safety data sheet

Manufacturer:

United States

HORIBA Instruments Incorporated

5449 Research Drive

Canton, MI 48188

734-487-8300

horiba.com

1.4 Emergency telephone number:

United States

HORIBA Instruments Incorporated

1-800-445-9853 (24 hours per day)

France

Organisme de conseil/centre antipoison national

+33 1 45 42 59 59 (24 hours per day)

Portugal

Órgão consultor nacional/Centro Antivenenos

+351 800 250 250 (24 hours per day)

Spain

Centro de información toxicológica/organismo asesor nacional

+34 91 562 04 20 (24 hours per day)

Czech Republic

Národní poradní orgán/toxikologické středisko

+420 224 919 293 (24 hours per day)

Greece

Εθνικό συμβουλευτικό όργανο/Κέντρο Δηλητηριάσεων

+30 210 779 3777 (24 hours per day)

Italy

Organismo ufficiale di consultazione nazionale/Centro antiveleni

+39 06 305 4343 (24 hours per day)

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Romania

Organism consultativ național/Centru pentru otrăviri
+40 21 3183606 (24 hours per day)

Poland

Krajowa instytucja doradcza/Ośrodek zatruc
+48 22 619 66 54 (24 hours per day)

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture:

Classification according to Regulation (EC) No. 1272/2008 (CLP):

Skin corrosion, category 1A

Serious eye damage, category 1

Hazard-determining components of labeling:

2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one

Thiourea

Ferric Chloride

Acetic Acid

Additional Information: None

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Hazard pictograms:



Signal Word: Danger

Hazard statements:

H319 Causes serious eye irritation

H315 Causes skin irritation

Precautionary statements:

P280 Wear protective gloves, protective clothing, eye protection and face protection.

P264 Wash skin thoroughly after handling.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P332+P313 If skin irritation occurs: Get medical advice or attention.

P337+P313 If eye irritation persists: Get medical advice or attention.

P302+P352 IF ON SKIN: Wash with plenty of water and soap.

P362 Take off contaminated clothing

P405 Store locked up

2.3 Other hazards: None known

SECTION 3: Composition/information on ingredients

3.1 Substance: Not applicable.

3.2 Mixture:

Identification	EU REACH Registration No.	Name	Classification according to Regulation (EC) No. 1272/2008 (CLP)	Weight %

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CAS number: 9005-64-5 EC number: 500-018-3	-	Sorbitan monolaurate, ethoxylated	Not classified;	5-10
CAS number: 7705-08-0 EC number: 231-729-4	-	Ferric Chloride	Met. Corr. 1; H290 Acute Tox. 4 (Oral); H302 Skin Irrit. 2; H315 Eye Dam. 1; H318	1-5
CAS number: 64-19-7 EC number: 200-580-7	-	Acetic Acid	Skin Corr. 1A; H314 Flam. Liq. 3; H226 Eye Dam. 1; H318 Specific concentration limit(s): Eye Irrit. 2; H319: 10% ≤ C < 25% Skin Irrit. 2; H315: 10% ≤ C < 25% Skin Corr. 1B; H314: 25% ≤ C < 90% Skin Corr. 1A; H314: C ≥ 90%	1-5
CAS number: 55965-84-9 EC number: Not Applicable	-	2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	Acute Tox. 3 (Oral); H301 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 Acute Tox. 2 (Dermal); H310 Acute Tox. 2 (Inh); H330 Skin Corr. 1C; H314 Eye Dam. 1; H318 Skin Sens. 1A; H317 M-Factor: 100 EUH071	<0.1
CAS number: 62-56-6 EC number: 200-543-5	-	Thiourea	Acute Tox. 4 (Oral); H302 Carc. 2; H351 Repr. 2; H361 Aquatic Chronic 2; H411 Acute Toxicity Estimate: Oral ATE: 500 mg/kg	<0.1

Additional information: None

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Full Text of H and EUH statements: See section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes:

Show this Safety Data Sheet to the doctor in attendance.

Following inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

Following skin contact:

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

Treatment is urgent. Seek emergency medical treatment. Remove contaminated clothing and shoes.

Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse.

Following eye contact:

Immediately rinse eyes with plenty of gently flowing lukewarm water for 15 minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. Seek immediate medical attention, preferably from an ophthalmologist.

Following ingestion:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. Seek immediate medical attention.

Self-Protection of the first aider:

Not determined or not available.

4.2 Most important symptoms and effects, both acute and delayed

Acute symptoms and effects:

Eye contact may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision.

Exposure to skin may result in redness, pain, burning, inflammation and tissue damage. Exposure to eyes may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision. Exposure via inhalation may result in cough, sore throat, burning sensation and shortness of breath. Exposure via ingestion may result in burns of the mouth and throat, abdominal pain, burning sensation in the throat and chest, nausea, vomiting, shock or collapse.

Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).

4.3 Indication of any immediate medical attention and special treatment needed

Specific treatment:

In case of eye contact, seek prompt medical attention while rinsing is continued.

In case of skin contact, seek prompt medical attention while rinsing is continued.

In case of ingestion, seek prompt medical attention.

Notes for the doctor:

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Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable extinguishing media:

Do not use water jet.

5.2 Special hazards arising from the substance or mixture:

Thermal decomposition may produce irritating/toxic fumes/gases.

5.3 Advice for firefighters

Personal protection equipment:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up:

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

6.4 Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Prevent skin contact. Do not get in eyes. Use only with adequate ventilation. Do not add water to the corrosive product. If it is necessary to mix a corrosive product with water, do so slowly adding the corrosive to cold water, in small amounts, and stir frequently. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use. Keep only in original packaging.

Take off contaminated clothing and wash before reuse.

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight and away from exit paths. Store in a corrosion-resistant container with a resistant inner liner. Inspect containers and storage area regularly

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for signs of leak and damage. Store containers at a convenient height for handling, below eye level if possible. High shelving increases the risk of dropping containers, personal injury and exposure. Ensure that appropriate fire fighting and spill-clean up equipment is readily available. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Store separately. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

Store between +2°C and +8°C. Keep containers tightly closed.

7.3 Specific end use(s):

Refer to Section 1 (Recommended Use).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Only those substances with limit values have been included below.

Occupational Exposure limit values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
Austria	2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	55965-84-9	8-Hour TWA: 0.05 mg/m ³
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	Ceiling Limit: 50 mg/m ³ (20 ppm [8 x 5 min])
Germany (MAK)	2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	55965-84-9	8-Hour TWA: 0.2 mg/m ³ (Inhalable fraction)
	2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	55965-84-9	15-Minute STEL: 0.4 mg/m ³ (Inhalable fraction)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
Bulgaria	Thiourea	62-56-6	8-Hour TWA: 0.3 mg/m ³
	Ferric Chloride	7705-08-0	TWA: 1 mg/m ³ (Iron-soluble salts, as Fe)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
	Acetic Acid	64-19-7	TWA: 25 mg/m ³ (10 ppm)
Latvia	Thiourea	62-56-6	8-Hour TWA: 0.3 mg/m ³
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Croatia	Ferric Chloride	7705-08-0	TWA Exposure Limit Value: 1 mg/m ³ (Iron Salts (as Fe))
	Ferric Chloride	7705-08-0	15-Minute STEL: 2 mg/m ³ (Iron Salts (as Fe))
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Czech Republic	Ferric Chloride	7705-08-0	8-Hour TWA: 10 mg/m ³ (Iron and its compounds)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³
	Acetic Acid	64-19-7	Ceiling Limit: 50 mg/m ³

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Country (Legal Basis)	Substance	Identifier	Permissible concentration
Belgium	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³ (Iron soluble salts (as Fe))
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 38 mg/m ³ (15 ppm)
Denmark	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³ (Iron salts, soluble, calculated as Fe)
	Ferric Chloride	7705-08-0	STEL: 2 mg/m ³ (Iron salts, soluble, calculated as Fe)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	STEL: 50 mg/m ³ (20 ppm)
Finland	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³ (Iron, soluble salts (as Fe))
	Acetic Acid	64-19-7	15-Minute STEL: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	8-Hour TWA: 13 mg/m ³ (5 ppm)
Greece	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³ (Iron soluble salts, as Fe))
	Ferric Chloride	7705-08-0	15-Minute STEL: 2 mg/m ³ (Iron soluble salts, as Fe))
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 37 mg/m ³ (15 ppm)
Ireland	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³ (Iron salts)
	Ferric Chloride	7705-08-0	15-Minute STEL: 2 mg/m ³ (Iron salts)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Italy	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³ (Iron salts, soluble, as Fe)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Portugal	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Spain	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³ (Iron, soluble salts, as Fe)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)

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Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
United Kingdom	Ferric Chloride	7705-08-0	8-Hour TWA: 1 mg/m ³ (IRON SALTS (AS FE))
	Ferric Chloride	7705-08-0	15-Minute STEL: 2 mg/m ³ (IRON SALTS (AS FE))
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
Estonia	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 25 mg/m ³ (10 ppm)
Hungary	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Lithuania	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
Malta	Acetic Acid	64-19-7	TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Poland	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³
Romania	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Slovakia	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Slovenia	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Luxembourg	Acetic Acid	64-19-7	TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
The Netherlands	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
Sweden	Acetic Acid	64-19-7	Level Limit Value: 13 mg/m ³ (5 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 25 mg/m ³ (10 ppm)
France	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)

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Country (Legal Basis)	Substance	Identifier	Permissible concentration
European Union	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)
	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm;)
Germany (TRGS 900)	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
Cyprus	Acetic Acid	64-19-7	8-Hour TWA: 25 mg/m ³ (10 ppm)
	Acetic Acid	64-19-7	15-Minute STEL: 50 mg/m ³ (20 ppm)

Biological limit values:

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

Derived No Effect Level (DNEL):

Ingredient Name: 2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one

CAS #: 55965-84-9

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	0.04 mg/m ³
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	0.02 mg/m ³
	Chronic - Dermal	No hazard identified
General Population - Systemic Effects	Acute - Oral	0.11 mg/kg bw/day
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	0.09 mg/kg bw/day
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	0.04 mg/m ³
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	0.02 mg/m ³
	Chronic - Dermal	No hazard identified

Ingredient Name: Thiourea

CAS #: 62-56-6

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Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	1 mg/m ³
	Chronic - Dermal	4.81 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
General Population - Systemic Effects	Acute - Oral	No hazard identified
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	0.1 mg/kg bw/day
	Chronic - Inhalation	0.1 mg/m ³
	Chronic - Dermal	1.7 mg/kg bw/day
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified

Ingredient Name: Sorbitan monolaurate, ethoxylated

CAS #: 9005-64-5

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified

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General Population - Systemic Effects	Acute - Oral	No hazard identified
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	No hazard identified
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified

Ingredient Name: Ferric Chloride

CAS #: 7705-08-0

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Hazard identified but no DNEL available
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	2.8 mg/kg bw/day
	Chronic - Dermal	Not determined or not applicable.
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Hazard identified but no DNEL available
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	Not determined or not applicable.
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Systemic Effects	Acute - Oral	20 mg/kg bw/day
	Acute - Inhalation	Hazard identified but no DNEL available
	Acute - Dermal	No hazard identified
	Chronic - Oral	0.28 mg/kg bw/day
	Chronic - Inhalation	Not determined or not applicable.
	Chronic - Dermal	1.4 mg/kg bw/day
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Hazard identified but no DNEL available
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	Not determined or not applicable.
	Chronic - Dermal	Hazard identified but no DNEL available

Ingredient Name: Acetic Acid

CAS #: 64-19-7

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	25 mg/m ³
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	25 mg/m ³
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Systemic Effects	Acute - Oral	No hazard identified
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	No hazard identified
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	25 mg/m ³
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	25 mg/m ³
	Chronic - Dermal	Hazard identified but no DNEL available

Predicted No Effect Concentration (PNEC):

Ingredient Name: 2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one

CAS #: 55965-84-9

Environmental Protection Target	PNEC
Fresh water	3.39 µg/L
Freshwater sediments	0.027 mg/kg sediment dw
Marine water	3.39 µg/L
Marine sediments	0.027 mg/kg sediment dw
Microorganisms in sewage treatment	0.23 mg/L
Soil (agricultural)	0.01 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Ingredient Name: Thiourea

CAS #: 62-56-6

Environmental Protection Target	PNEC
Fresh water	0.01 mg/L
Freshwater sediments	0.072 mg/kg sediment dw
Marine water	0.001 mg/L
Marine sediments	0.007 mg/kg sediment dw
Microorganisms in sewage treatment	0.38 mg/L

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Soil (agricultural)	2.725 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Ingredient Name: Sorbitan monolaurate, ethoxylated

CAS #: 9005-64-5

Environmental Protection Target	PNEC
Fresh water	0.2 mg/L
Freshwater sediments	1.141 mg/kg sediment dw
Marine water	0.02 mg/L
Marine sediments	1000 mg/kg sediment dw
Microorganisms in sewage treatment	No hazard identified
Soil (agricultural)	No hazard identified
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Ingredient Name: Ferric Chloride

CAS #: 7705-08-0

Environmental Protection Target	PNEC
Fresh water	No hazard identified
Freshwater sediments	No hazard identified
Marine water	No hazard identified
Marine sediments	No hazard identified
Microorganisms in sewage treatment	No hazard identified
Soil (agricultural)	No hazard identified
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Ingredient Name: Acetic Acid

CAS #: 64-19-7

Environmental Protection Target	PNEC
Fresh water	3.058 mg/L
Freshwater sediments	11.36 mg/kg sediment dw
Marine water	0.306 mg/L
Marine sediments	1.136 mg/kg sediment dw
Microorganisms in sewage treatment	85 mg/L
Soil (agricultural)	0.47 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Information on monitoring procedures:

Not determined or not applicable.

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

Personal protection equipment

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According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Eye and face protection:

Use safety glasses with side shields or goggles. Consider the use of a face shield for splash protection. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Skin and body protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Full body protection should be worn. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General hygienic measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Product (substance / mixture) related measures to prevent exposure:	Not determined or not applicable.
Instruction measures to prevent exposure:	Not determined or not applicable.
Organisational measures to prevent exposure:	Not determined or not applicable.
Technical measures to prevent exposure:	Not determined or not applicable.

Risk management measures to control exposure:

Not determined or not applicable.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Reagents are provided in liquid form.
Color	R1 is a dark purple in color.
Odor/Odor threshold	No information available.
pH	No data available
Melting point/freezing point	No data available
Initial boiling point/range	No data available
Flash point (closed cup)	No data available
Flammability	No data available
Upper flammability/explosive limit	No data available
Lower flammability/explosive limit	No data available

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Vapor pressure	No data available
Relative vapor density	No data available
Density	No data available
Relative density	No data available
Solubilities	No data available
Partition coefficient (n-octanol/water)	No data available
Auto/Self-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Particle characteristics	No data available

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosives	No data available/Not applicable
Flammable gases	No data available/Not applicable
Aerosols	No data available/Not applicable
Oxidizing gases	No data available/Not applicable
Gases under pressure	No data available/Not applicable
Flammable liquids	No data available/Not applicable
Flammable solids	No data available/Not applicable
Self-reactive substances and mixtures	No data available/Not applicable
Pyrophoric liquids	No data available/Not applicable
Pyrophoric solids	No data available/Not applicable
Self-heating substances and mixtures	No data available/Not applicable
Substances and mixtures, which emit flammable gases in contact with water	No data available/Not applicable
Oxidizing liquids	No data available/Not applicable
Oxidizing solids	No data available/Not applicable
Organic peroxides	No data available/Not applicable
Corrosive to metals	No data available/Not applicable
Desensitized explosives	No data available/Not applicable

9.2.2 Other safety characteristics

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:

Not reactive under recommended handling and storage conditions.

10.2 Chemical stability:

Stable under recommended handling and storage conditions.

10.3 Possibility of hazardous reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

10.4 Conditions to avoid:

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.
Avoid generation of aerosols and mists, extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

10.5 Incompatible materials:

Strong acids, strong oxidizing agents and strong bases.

10.6 Hazardous decomposition products:

Carbon Oxides

SECTION 11: Toxicological information

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

Acute toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Route	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	oral	LD50 Rat: 66 mg/kg
	inhalation	LC50 Rat: 0.33 mg/L (4 hr [aerosol])
	dermal	LD50 Rabbit: 87.12 mg/kg
Thiourea	Oral ATE	LD50 Rat: 500 mg/kg
	dermal	LD50 rabbit: > 2800 mg/kg
	inhalation	LC50 Rat: > 195 mg/L (4 hr [mist])
Sorbitan monolaurate, ethoxylated	inhalation	LC50 Rat: > 5.1 mg/L (4 hr [aerosol])
	oral	LD50 Rat: 37,000 mg/kg
Ferric Chloride	oral	LD50 Mouse: 1300 mg/kg
	dermal	LD50 Rat: >2000 mg/kg
	inhalation	LC50 Rat: >1.1 mg/L (4 hr [Dust & Mist])
Acetic Acid	oral	LD50 Rat: 3310 mg/kg
	inhalation	LC50 Rat: 11.4 mg/L (4 hr [Vapour])

Skin corrosion/irritation

Assessment:

Causes severe skin burns and eye damage.

Product data:

No data available.

Substance data:

Name	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	Causes severe skin burns.
Ferric Chloride	Causes skin irritation.
Acetic Acid	Causes severe skin burns.

Serious eye damage/irritation

Assessment:

Causes serious eye damage.

Product data:

No data available.

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Substance data:

Name	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	Causes serious eye damage.
Ferric Chloride	Causes serious eye damage.
Acetic Acid	Causes serious eye damage.

Respiratory or skin sensitization

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data:

Name	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	May cause an allergic skin reaction.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

International Agency for Research on Cancer (IARC):

Name	Classification
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	Not Applicable
Thiourea	Group 3
Sorbitan monolaurate, ethoxylated	Not Applicable
	Not Applicable
Ferric Chloride	Not Applicable
Acetic Acid	Not Applicable

Germ cell mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Reproductive Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Specific target organ toxicity (single exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Specific target organ toxicity (repeated exposure)

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Information on likely routes of exposure:

No data available.

Symptoms related to the physical, chemical and toxicological characteristics:

No data available.

11.2 Information on other hazards

Endocrine disrupting properties:

Substance data: No data available.

Other information:

No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute (short-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	Fish LC50 <i>Oncorhynchus mykiss</i> : 0.19 mg/L (96 hr)
	Aquatic Invertebrates EC50 <i>Daphnia magna</i> : 0.16 mg/L (48 hr [mobility])
	Aquatic Plants EC50 <i>Skeletonema costatum</i> : 0.0199 mg/L (72 hr [growth rate])
Thiourea	Aquatic Plants EC50 <i>Raphidocelis subcapitata</i> : ≥ 100 mg/L (72 hr [growth rate])
Sorbitan monolaurate, ethoxylated	Fish LC50 <i>Danio rerio</i> : > 100 mg/L (96 hr)
	Aquatic Plants EC50 <i>Pseudokirchneriella subcapitata</i> : 58.84 mg/L (72 hr [growth rate])
Ferric Chloride	Fish LC50 <i>Pimephales promelas</i> : 20.3 mg/L (96 hr [Read-across substance data])
	Aquatic Invertebrates EC50 <i>Daphnia pulex</i> : 9.6 mg/L (48 hr [immobility, Read-across substance data])
	Aquatic Plants EC50 <i>Pseudokirchnerella subcapitata</i> : 10 mg/L (72 hr [growth rate, Read-across substance data])
Acetic Acid	Fish LC50 <i>Oncorhynchus mykiss</i> : >1000 mg/L (96 hr [Read-across substance data])
	Aquatic Invertebrates EC50 <i>Daphnia magna</i> : >1000 mg/L (48 hr [mobility, Read-across substance data])
	Aquatic Plants EC50 <i>Skeletonema costatum</i> : >1000 mg/L (72 hr [growth rate, Read-across substance data])

Chronic (long-term) toxicity

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	Fish NOEC Danio rerio: ≥ 0.0464 mg/L (35 d [hatching, mortality, length and weight])
	Aquatic Invertebrates NOEC Daphnia magna: >0.1 mg/L (21 d [mortality])
Thiourea	Aquatic Invertebrates NOEC Daphnia magna: 0.88 mg/L (21 d [reproduction])
Sorbitan monolaurate, ethoxylated	Aquatic Invertebrates NOEC Daphnia magna: 10 mg/L (21 d [NOELR - reproduction])
Ferric Chloride	Fish NOEC Pimephales promelas: 1 mg/L (33 d [length, Read-across substance data])
	Aquatic Invertebrates NOEC Daphnia pulex: 0.63 mg/L (21 d [Total offspring & Brood size, Read-across substance data])

12.2 Persistence and degradability

Product data: No data available.

Substance data:

Name	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	The substance is readily biodegradable, but failing 10-day window. 62% degradation measured by CO ₂ evolution after 29 days.
Thiourea	Under test conditions no biodegradation observed. 0% degradation measured by O ₂ consumption after 34 days.
Sorbitan monolaurate, ethoxylated	Readily biodegradable (62.5% degradation [O ₂ consumption] after 28 days).
Ferric Chloride	Persistence assessment based on biodegradability is not relevant for inorganic compounds such as this substance.
Acetic Acid	The substance is readily biodegradable.96% degradation in water, measured by bio-oxidation, after 20 days.

12.3 Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	The substance is not expected to bioaccumulate (BCF: 41 dimensionless).
Thiourea	The substance does not have a significant potential for bioaccumulation. [BCF (aquatic species): 54 dimensionless].
Sorbitan monolaurate, ethoxylated	Substance expected to have low potential for bioaccumulation (calculated BCF: 1.2 - 7.1 L/kg).
Ferric Chloride	Bioaccumulation assessment using a classic BCF assessment is not considered relevant for inorganic compounds such as this substance.
Acetic Acid	The substance is not expected to bioaccumulate (log Pow= -0.17 at 25 °C).

12.4 Mobility in soil

Product data: No data available.

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Substance data:

Name	Result
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	The substance is highly mobile, therefore, adsorption to soil is not expected (Koc= 6.4 dimensionless).
Thiourea	The substance is mobile in soil with a low potential for adsorption to soil and sediment. [koc: 26.13 dimensionless].
Sorbitan monolaurate, ethoxylated	Substance is expected to be mobile to moderately mobile (calculated log Koc: 1.7 - 2.6).
Ferric Chloride	The substance is immobile, therefore, adsorption to soil is expected (Kd=2.34 L/kg dw.)
Acetic Acid	The substance is highly mobile, therefore, adsorption to soil is not expected (Koc= 1.153 L/kg, QSAR).

12.5 Results of PBT and vPvB assessment

Product data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance data:

PBT assessment:

2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	The substance is not PBT.
Thiourea	The substance is not PBT.
Sorbitan monolaurate, ethoxylated	The substance is not PBT.
Ferric Chloride	PBT assessment does not apply to inorganic compounds such as this substance.
Acetic Acid	The substance is not PBT.

vPvB assessment:

2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	The substance is not vPvB.
Thiourea	The substance is not vPvB.
Sorbitan monolaurate, ethoxylated	The substance is not vPvB.
Ferric Chloride	vPvB assessment does not apply to inorganic compounds such as this substance.
Acetic Acid	The substance is not vPvB.

12.6 Endocrine disrupting properties

Substance data: No data available.

12.7 Other adverse effects: No data available.

12.8 Hazard to the ozone layer

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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13.1.1 Product / Packaging disposal:

Dispose of reagent to a waste disposal plant, if in accordance with local regulations.

Waste codes / waste designations according to LoW: Not determined or not available.

13.1.2 Waste treatment-relevant information: Not determined or not available.

13.1.3 Sewage disposal-relevant information: Not determined or not available.

13.1.4 Other disposal recommendations: It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities

SECTION 14: Transport information

International Carriage of Dangerous Goods by Road/Rail (ADR/RID)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Carriage of Dangerous Goods by Inland Waterways (ADN)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Maritime Dangerous Goods (IMDG)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

Maritime Transport in Bulk according to IMO Instruments

Bulk Name	None
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Ship type	None
Pollution category	None
IMO hazard class	None
Environmental hazards	None
Material hazardous only in bulk	None
Cargo Group	None

SECTION 15: Regulatory information

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

European regulations

Inventory listing (EINECS):

55965-84-9	2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	Not Listed
62-56-6	Thiourea	Listed
9005-64-5	Sorbitan monolaurate, ethoxylated	Not Listed
7705-08-0	Ferric Chloride	Listed
64-19-7	Acetic Acid	Listed

REACH SVHC candidate list: None of the ingredients are listed.

REACH SVHC Authorizations: None of the ingredients are listed.

REACH Restriction: None of the ingredients are listed.

Water hazard class (WGK) (Product): Not determined.

Water hazard class (WGK) (Substance):

Ingredient Name	CAS	Class
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	55965-84-9	Water hazard class 3: highly hazardous to water
Thiourea	62-56-6	Water hazard class 3: highly hazardous to water
Ferric Chloride	7705-08-0	Water hazard class 1: slightly hazardous to water
Acetic Acid	64-19-7	Water hazard class 1: slightly hazardous to water

Other regulations

Germany TA Luft:

Ingredient Name	CAS	Class	Base Emission Rate	Max Concentration
2-Methyl-1,2-thiazol-3(2H)-one - 5-chloro-2-methyl-1,2-thiazol-3(2H)-one	55965-84-9	Class I	0.10 kg/h	20 mg/m ³
Thiourea	62-56-6	Class I	0.1 kg/h	20 mg/m ³
Acetic Acid	64-19-7	Class II	0.5 kg/h	0.1 g/m ³

Additional information: Not determined.

15.2 Chemical Safety Assessment

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

SECTION 16: Other information

Abbreviations and Acronyms: None

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Classification procedure:

Classification according to Regulation (EC) No. 1272/2008 (CLP)	Method Used
Skin corrosion, category 1A	Calculation method
Serious eye damage, category 1	Calculation method

Summary of classification(s) in section 3:

Met. Corr. 1	Corrosive to metals, category 1
Acute Tox. 4 (Oral)	Acute toxicity (oral), category 4
Skin Irrit. 2	Skin irritation, category 2
Eye Dam. 1	Serious eye damage, category 1
Skin Corr. 1A	Skin corrosion, category 1A
Flam. Liq. 3	Flammable liquids, category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), category 3
Aquatic Acute 1	Acute aquatic hazard, category 1
Aquatic Chronic 1	Chronic aquatic hazard, category 1
Acute Tox. 2 (Dermal)	Acute toxicity (dermal), category 2
Acute Tox. 2 (Inh)	Acute toxicity (inhalation), category 2
Skin Corr. 1C	Skin corrosion, category 1C
Skin Sens. 1A	Skin sensitization, category 1A
Carc. 2	Carcinogenicity, category 2
Repr. 2	Reproductive toxicity, category 2
Aquatic Chronic 2	Chronic aquatic hazard, category 2

Summary of hazard statements in section 3:

H290	May be corrosive to metals
H302	Harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage
H314	Causes severe skin burns and eye damage
H226	Flammable liquid and vapour
H301	Toxic if swallowed
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H310	Fatal in contact with skin
H330	Fatal if inhaled
H317	May cause an allergic skin reaction
H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H361	Suspected of damaging fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H411	Toxic to aquatic life with long lasting effects

Summary of EUH Statement(s) in section 3:

EUH071	Corrosive to the respiratory tract
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Disclaimer:

This product has been classified in accordance with EC No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and EC No. 1907/2006

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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(REACH), as amended by Commission Regulation (EU) 2020/878. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation, and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

Initial preparation date: 2024-01-18

End of Safety Data Sheet

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Direct TIBC R2

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

1.1 Product identifier

Product Name: Direct TIBC R2

Product code: I7517-R2

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

Relevant identified uses: For use in the determination of total iron-binding capacity in serum on automated chemistry analyzers.

Uses advised against: Not determined or not applicable.

Reasons why uses advised against: Not determined or not applicable.

1.3 Details of the manufacturer/supplier of the safety data sheet

Manufacturer:

United States

HORIBA Instruments Incorporated

5449 Research Drive

Canton, MI 48188

734-487-8300

horiba.com

1.4 Emergency telephone number:

United States

HORIBA Instruments Incorporated

1-800-445-9853 (24 hours per day)

France

Organisme de conseil/centre antipoison national

+33 1 45 42 59 59 (24 hours per day)

Portugal

Órgão consultor nacional/Centro Antivenenos

+351 800 250 250 (24 hours per day)

Spain

Centro de información toxicológica/organismo asesor nacional

+34 91 562 04 20 (24 hours per day)

Czech Republic

Národní poradní orgán/toxikologické středisko

+420 224 919 293 (24 hours per day)

Greece

Εθνικό συμβουλευτικό όργανο/Κέντρο Δηλητηριάσεων

+30 210 779 3777 (24 hours per day)

Italy

Organismo ufficiale di consultazione nazionale/Centro antiveleni

+39 06 305 4343 (24 hours per day)

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Romania

Organism consultativ național/Centru pentru otrăviri
+40 21 3183606 (24 hours per day)

Poland

Krajowa instytucja doradcza/Ośrodek zatruc
+48 22 619 66 54 (24 hours per day)

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture:

Classification according to Regulation (EC) No. 1272/2008 (CLP): The substance is not classified as hazardous according to the Globally Harmonized System (GHS).

Hazard-determining components of labeling:

4-morpholinopropanesulphonic acid

Additional Information: None

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Hazard pictograms: None

Signal Word: None

Hazard statements: None

Precautionary statements: None

2.3 Other hazards: None known

SECTION 3: Composition/information on ingredients

3.1 Substance: Not applicable.

3.2 Mixture:

Identification	EU REACH Registration No.	Name	Classification according to Regulation (EC) No. 1272/2008 (CLP)	Weight %
CAS number: 71119-22-7 EC number: 428-420-3	-	Sodium 3-morpholin-4-ylpropane-1-sulfonate	Not classified;	5-10
CAS number: 1132-61-2 EC number: 214-478-5	-	4-morpholinopropanesulphonic acid	Skin Irrit. 2; H315 STOT SE 3 (RI); H335 Eye Irrit. 2; H319	5-10
CAS number: 144-55-8 EC number: 205-633-8	-	Sodium hydrogencarbonate	Not classified;	1-5

Additional information: None

Full Text of H and EUH statements: See section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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General notes:

Show this Safety Data Sheet to the doctor in attendance.

Following inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. If respiratory symptoms develop or persist, seek medical advice/attention.

Following skin contact:

Wash affected area with plenty of soap and water. Remove contaminated clothing and launder before reuse. If skin irritation develops or persists, seek medical advice/attention.

Following eye contact:

Immediately rinse eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. If eye irritation develops or persists, seek medical advice/attention.

Following ingestion:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

Self-Protection of the first aider:

Not determined or not available.

4.2 Most important symptoms and effects, both acute and delayed

Acute symptoms and effects: Not determined or not available.

Delayed symptoms and effects:

Not determined or not available.

4.3 Indication of any immediate medical attention and special treatment needed

Specific treatment:

Not determined or not available.

Notes for the doctor:

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable extinguishing media:

Do not use water jet.

5.2 Special hazards arising from the substance or mixture:

Thermal decomposition may produce irritating/toxic fumes/gases.

5.3 Advice for firefighters

Personal protection equipment:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA).

Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up:

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

6.4 Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

Take off contaminated clothing and wash before reuse

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10). Store between +2°C and +8°C. Keep containers tightly closed.

7.3 Specific end use(s):

Refer to Section 1 (Recommended Use).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Only those substances with limit values have been included below.

Occupational Exposure limit values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
Czech Republic	Sodium hydrogencarbonate	144-55-8	8-Hour TWA: 5 mg/m ³
	Sodium hydrogencarbonate	144-55-8	Ceiling Limit: 10 mg/m ³
Latvia	Sodium hydrogencarbonate	144-55-8	8-Hour TWA: 5 mg/m ³

Biological limit values:

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

Derived No Effect Level (DNEL):

Ingredient Name: Sodium hydrogencarbonate

CAS #: 144-55-8

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
General Population - Systemic Effects	Acute - Oral	No hazard identified
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	No hazard identified
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified

Ingredient Name: 4-morpholinopropanesulphonic acid

CAS #: 1132-61-2

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	No hazard identified
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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General Population - Systemic Effects	Acute - Oral	No exposure expected
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No exposure expected
	Chronic - Oral	No exposure expected
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	No exposure expected
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No exposure expected
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	No exposure expected

Predicted No Effect Concentration (PNEC):

Ingredient Name: Sodium hydrogencarbonate

CAS #: 144-55-8

Environmental Protection Target	PNEC
Fresh water	No hazard identified
Freshwater sediments	No hazard identified
Marine water	No hazard identified
Marine sediments	No hazard identified
Microorganisms in sewage treatment	No hazard identified
Soil (agricultural)	No hazard identified
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Ingredient Name: 4-morpholinopropanesulphonic acid

CAS #: 1132-61-2

Environmental Protection Target	PNEC
Fresh water	No hazard identified
Freshwater sediments	No hazard identified
Marine water	No hazard identified
Marine sediments	No hazard identified
Microorganisms in sewage treatment	No hazard identified
Soil (agricultural)	No hazard identified
Air	No hazard identified
Oral (Secondary Poisoning)	No exposure expected

Information on monitoring procedures:

Not determined or not applicable.

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

Personal protection equipment

Eye and face protection:

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Skin and body protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General hygienic measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Product (substance / mixture) related measures to prevent exposure:	Not determined or not applicable.
Instruction measures to prevent exposure:	Not determined or not applicable.
Organisational measures to prevent exposure:	Not determined or not applicable.
Technical measures to prevent exposure:	Not determined or not applicable.

Risk management measures to control exposure:

Not determined or not applicable.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Reagents are provided in liquid form.
Color	R2 is clear and colorless.
Odor/Odor threshold	No information available.
pH	No data available
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	Not determined or not available.
Flash point (closed cup)	No data available
Flammability	Not determined or not available.
Upper flammability/explosive limit	Not determined or not available.
Lower flammability/explosive limit	No data available
Vapor pressure	Not determined or not available.
Relative vapor density	Not determined or not available.
Density	No data available
Relative density	Not determined or not available.
Solubilities	No data available

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Partition coefficient (n-octanol/water)	No data available
Auto/Self-ignition temperature	No data available
Decomposition temperature	Not determined or not available.
Kinematic viscosity	No data available
Particle characteristics	Not determined or not available.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosives	No data available/Not applicable
Flammable gases	No data available/Not applicable
Aerosols	No data available/Not applicable
Oxidizing gases	No data available/Not applicable
Gases under pressure	No data available/Not applicable
Flammable liquids	No data available/Not applicable
Flammable solids	No data available/Not applicable
Self-reactive substances and mixtures	No data available/Not applicable
Pyrophoric liquids	No data available/Not applicable
Pyrophoric solids	No data available/Not applicable
Self-heating substances and mixtures	No data available/Not applicable
Substances and mixtures, which emit flammable gases in contact with water	No data available/Not applicable
Oxidizing liquids	No data available/Not applicable
Oxidizing solids	No data available/Not applicable
Organic peroxides	No data available/Not applicable
Corrosive to metals	No data available/Not applicable
Desensitized explosives	No data available/Not applicable

9.2.2 Other safety characteristics

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:

Not reactive under recommended handling and storage conditions.

10.2 Chemical stability:

Stable under recommended handling and storage conditions.

10.3 Possibility of hazardous reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

10.4 Conditions to avoid:

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.
Strong acids, strong oxidizing agents and strong bases.

10.5 Incompatible materials:

None known.

10.6 Hazardous decomposition products:

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Direct TIBC R2

Carbon Oxides

SECTION 11: Toxicological information

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

Acute toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Route	Result
Sodium hydrogencarbonate	oral	LD50 Rat: > 4000 mg/kg
Sodium 3-morpholin-4-ylpropane-1-sulfonate	oral	LD50 Rat: > 2000 mg/kg
4-morpholinopropanesulphonic acid	oral	LD50 Rat: > 2000 mg/kg

Skin corrosion/irritation

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data:

Name	Result
4-morpholinopropanesulphonic acid	Causes skin irritation.

Serious eye damage/irritation

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data:

Name	Result
4-morpholinopropanesulphonic acid	Causes serious eye irritation.

Respiratory or skin sensitization

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

International Agency for Research on Cancer (IARC):

Name	Classification
Sodium hydrogencarbonate	Not Applicable

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Name	Classification
Sodium 3-morpholin-4-ylpropane-1-sulfonate	Not Applicable
4-morpholinopropanesulphonic acid	Not Applicable

Germ cell mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Reproductive Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Specific target organ toxicity (single exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data:

Name	Result
4-morpholinopropanesulphonic acid	May cause respiratory irritation.

Specific target organ toxicity (repeated exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Information on likely routes of exposure:

No data available.

Symptoms related to the physical, chemical and toxicological characteristics:

No data available.

11.2 Information on other hazards

Endocrine disrupting properties:

Substance data: No data available.

Other information:

No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute (short-term) toxicity

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Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
Sodium hydrogencarbonate	Fish LC50 <i>Lepomis macrochirus</i> : 7100 mg/L (96 hr)
	Aquatic Invertebrates EC50 <i>Daphnia magna</i> : 4100 mg/L (48 hr [mobility])
Sodium 3-morpholin-4-ylpropane-1-sulfonate	Aquatic Invertebrates EC50 <i>Daphnia magna</i> : > 100 mg/L (48 hr [mobility])
	Aquatic Plants EC50 <i>Desmodesmus subspicatus</i> : > 100 mg/L (72 hr [growth rate])
4-morpholinopropanesulphonic acid	Fish LC50 <i>Danio rerio</i> : > 1000 mg/L (96 hr)
	Aquatic Plants EC50 <i>Desmodesmus subspicatus</i> : > 100 mg/L (72 hr [growth rate])
	Aquatic Invertebrates EC50 <i>Daphnia magna</i> : > 1000 mg/L (48 hr [mobility])
	Bacteria EC50 activated sludge, domestic: > 1080 mg/L (3 hr)

Chronic (long-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

12.2 Persistence and degradability

Product data: No data available.

Substance data:

Name	Result
Sodium 3-morpholin-4-ylpropane-1-sulfonate	The substance is not readily biodegradable.
4-morpholinopropanesulphonic acid	The substance is not readily biodegradable. [1% degradation measured by CO ₂ evolution in 29 days].

12.3 Bioaccumulative potential

Product data: No data available.

Substance data: No data available.

12.4 Mobility in soil

Product data: No data available.

Substance data: No data available.

12.5 Results of PBT and vPvB assessment

Product data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance data:

PBT assessment:

Sodium hydrogencarbonate	PBT assessment does not apply.
4-morpholinopropanesulphonic acid	The substance is not PBT.

vPvB assessment:

Safety Data Sheet

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Sodium hydrogencarbonate	vPvB assessment does not apply.
4-morpholinopropanesulphonic acid	The substance is not vPvB.

12.6 Endocrine disrupting properties

Substance data: No data available.

12.7 Other adverse effects: No data available.

12.8 Hazard to the ozone layer

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

13.1.1 Product / Packaging disposal:

Dispose of reagent to a waste disposal plant, if in accordance with local regulations.

Waste codes / waste designations according to LoW: Not determined or not available.

13.1.2 Waste treatment-relevant information: Not determined or not available.

13.1.3 Sewage disposal-relevant information: Not determined or not available.

13.1.4 Other disposal recommendations: It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities

SECTION 14: Transport information

International Carriage of Dangerous Goods by Road/Rail (ADR/RID)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Carriage of Dangerous Goods by Inland Waterways (ADN)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Maritime Dangerous Goods (IMDG)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None

Safety Data Sheet

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Environmental hazards	None
Special precautions for user	None

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number or ID number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

Maritime Transport in Bulk according to IMO Instruments

Bulk Name	None
Ship type	None
Pollution category	None
IMO hazard class	None
Environmental hazards	None
Material hazardous only in bulk	None
Cargo Group	None

SECTION 15: Regulatory information

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

European regulations

Inventory listing (EINECS):

144-55-8	Sodium hydrogencarbonate	Listed
71119-22-7	Sodium 3-morpholin-4-ylpropane-1-sulfonate	Not Listed
1132-61-2	4-morpholinopropanesulphonic acid	Listed

REACH SVHC candidate list: None of the ingredients are listed.

REACH SVHC Authorizations: None of the ingredients are listed.

REACH Restriction: None of the ingredients are listed.

Water hazard class (WGK) (Product): Not determined.

Water hazard class (WGK) (Substance):

Ingredient Name	CAS	Class
Sodium hydrogencarbonate	144-55-8	Water hazard class 1: slightly hazardous to water
Sodium 3-morpholin-4-ylpropane-1-sulfonate	71119-22-7	Water hazard class 1: slightly hazardous to water
4-morpholinopropanesulphonic acid	1132-61-2	Water hazard class 1: slightly hazardous to water

Other regulations

Germany TA Luft: None of the ingredients are listed.

Additional information: Not determined.

15.2 Chemical Safety Assessment

Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

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Direct TIBC R2

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

SECTION 16: Other information

Abbreviations and Acronyms: None

Summary of classification(s) in section 3:

Skin Irrit. 2	Skin irritation, category 2
STOT SE 3 (RI)	Specific target organ toxicity - single exposure, category 3, respiratory tract irritation
Eye Irrit. 2	Eye Irritation, category 2

Summary of hazard statements in section 3:

H315	Causes skin irritation
H335	May cause respiratory irritation
H319	Causes serious eye irritation

Disclaimer:

This product has been classified in accordance with EC No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and EC No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation, and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

Initial preparation date: 2024-01-26

End of Safety Data Sheet