

MacDermid Enthone

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2020/878 - Sweden

SAFETY DATA SHEET

EBONOL C-115

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

1.1 Product identifier

Product name : EBONOL C-115
Product code : 201686

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

Identified uses

Surface Treatment.
Industrial applications.

1.3 Details of the supplier of the safety data sheet

e-mail address of person responsible for this SDS : sdsuk@macdermid.com; regulatory.de@macdermid.com

Supplier : MacDermid Performance Solutions Scandinavia AB
P.O. Box 83
Mässingsgatan 1
SE-601 02 Norrköping
Sweden

Information contact : Tel +46 11367470
Macdermid.Scandinavia@macdermid.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : 112 – begär Giftinformation

Supplier

Telephone number : Carechem24: (+46) 8 566 42573; (+44) 1235 239 670 (across Europe)
Hours of operation : 24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Eye Dam. 1, H318
Aquatic Chronic 2, H411

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

SECTION 2: Hazards identification

2.2 Label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: H318 - Causes serious eye damage.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

: P280 - Wear eye or face protection.
P273 - Avoid release to the environment.

Response

: P391 - Collect spillage.
P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.

Storage

:

Disposal

: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients

: Zinc sulphate
copper sulphate

Supplemental label elements

: Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

: Not applicable.

Special packaging requirements

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification

: None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

: Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
phosphoric acid	REACH #: 01-2119485924-24 EC: 231-633-2 CAS: 7664-38-2 Index: 015-011-00-6	≤5	Met. Corr. 1, H290 Skin Corr. 1B, H314 Eye Dam. 1, H318	Met. Corr. 1, H290: C ≥ 20% Skin Corr. 1B, H314: C ≥ 25% Skin Irrit. 2, H315: 10% ≤ C < 25% Eye Dam. 1, H318: C ≥ 25% Eye Irrit. 2, H319: 10% ≤ C < 25%	[1] [2]
zinc sulphate	REACH #:	≤3	Acute Tox. 4, H302	ATE [Oral] = 500	[1]

SECTION 3: Composition/information on ingredients

selenious acid	01-2119474684-27 EC: 231-793-3 CAS: 7733-02-0 Index: 030-006-00-9		Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	mg/kg M [Acute] = 1 M [Chronic] = 1	
	EC: 231-974-7 CAS: 7783-00-8 Index: 034-002-00-8	≤3	Acute Tox. 3, H301 Acute Tox. 3, H331 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	ATE [Oral] = 100 mg/kg ATE [Inhalation (dusts and mists)] = 0.5 mg/l M [Acute] = 1 M [Chronic] = 1	[1] [2]
hexaammonium heptamolybdate	REACH #: 01-2119498057-28 EC: 234-722-4 CAS: 12027-67-7	≤3	Not classified.	-	[2]
copper sulphate	REACH #: 01-2119520566-40 EC: 231-847-6 CAS: 7758-98-7 Index: 029-004-00-0	≤1.8	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 See Section 16 for the full text of the H statements declared above.	ATE [Oral] = 307.5 mg/kg M [Acute] = 10 M [Chronic] = 1	[1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush 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 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

SECTION 4: First aid measures

- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:
nitrogen oxides
sulfur oxides
phosphorus oxides
metal oxide/oxides

5.3 Advice for firefighters

SECTION 5: Firefighting measures

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
- Additional information** : Not considered to be a product presenting a risk of explosion.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections

- : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

SECTION 7: Handling and storage

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store between the following temperatures: 5 to 40°C (41 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Note: The temperature range listed here will maintain the quality of the material during its specified shelf-life. This temperature range restriction is not required to maintain safe storage conditions.

7.3 Specific end use(s)

Recommendations : No specific measures identified.

Industrial sector specific solutions : No specific measures identified.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
phosphoric acid	Work environment authority Regulation 2018:1 (Sweden, 9/2021). TWA: 1 mg/m ³ 8 hours. STEL: 2 mg/m ³ 15 minutes.
selenious acid	Work environment authority Regulation 2018:1 (Sweden, 9/2021). [selenium and inorganic compounds other than hydrogen selenide (as Se)] TWA: 0.1 mg/m ³ , (as Se) 8 hours. Form: Total dust
hexaammonium heptamolybdate	Work environment authority Regulation 2018:1 (Sweden, 9/2021). [molybdenum, highly soluble compounds total dust, (as Mo)] TWA: 5 mg/m ³ , (as Mo) 8 hours. Form: Total dust
copper sulphate	Work environment authority Regulation 2018:1 (Sweden, 9/2021). [copper and inorganic compounds respirable fraction, (as Cu)] TWA: 0.01 mg/m ³ , (as Cu) 8 hours. Form: respirable fraction

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

SECTION 8: Exposure controls/personal protection

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects	
phosphoric acid	DNEL	Long term Inhalation	10.7 mg/m ³	Workers	Systemic	
	DNEL	Long term Inhalation	1 mg/m ³	Workers	Local	
	DNEL	Short term Inhalation	1 mg/m ³	Workers	Local	
	DNEL	Long term Inhalation	4.57 mg/m ³	General population [Consumers]	Systemic	
	DNEL	Long term Inhalation	0.36 mg/m ³	General population [Consumers]	Local	
	DNEL	Long term Oral	0.1 mg/m ³	General population [Consumers]	Systemic	
	DNEL	Long term Oral	0.1 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Inhalation	0.36 mg/m ³	General population	Local	
	DNEL	Long term Inhalation	1 mg/m ³	Workers	Local	
	DNEL	Short term Inhalation	2 mg/m ³	Workers	Local	
	DNEL	Long term Inhalation	4.57 mg/m ³	General population	Systemic	
	DNEL	Long term Inhalation	10.7 mg/m ³	Workers	Systemic	
	zinc sulphate	DNEL	Long term Oral	0.83 mg/kg bw/day	General population	Systemic
		DNEL	Long term Inhalation	1 mg/m ³	Workers	Systemic
DNEL		Long term Inhalation	1.25 mg/m ³	General population	Systemic	
DNEL		Long term Dermal	8.3 mg/kg bw/day	General population	Systemic	
DNEL		Long term Dermal	8.3 mg/kg bw/day	Workers	Systemic	
copper sulphate	DNEL	Long term Inhalation	1 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Dermal	137 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Oral	0.041 mg/kg bw/day	General population	Systemic	
	DNEL	Short term Oral	0.082 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Inhalation	1 mg/m ³	Workers	Local	
	DNEL	Long term Inhalation	1 mg/m ³	Workers	Systemic	
	DNEL	Long term Dermal	137 mg/kg bw/day	Workers	Systemic	

PNECs

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Compartment Detail	Value	Method Detail
Zinc sulphate	Fresh water	20.6 µg/l	Sensitivity Distribution
	Marine water	6.1 µg/l	Sensitivity Distribution
	Sewage Treatment Plant	100 µg/l	Assessment Factors
copper sulphate	Fresh water sediment	117.8 mg/kg dwt	Sensitivity Distribution
	Marine water sediment	56.5 mg/kg dwt	Equilibrium Partitioning
	Soil	35.6 mg/kg dwt	Sensitivity Distribution
	Fresh water	7.8 µg/l	Sensitivity Distribution
	Marine water	5.2 µg/l	Assessment Factors
	Sewage Treatment Plant	230 µg/l	Sensitivity Distribution
	Fresh water sediment	87 mg/kg dwt	-
Marine water sediment	676 mg/kg dwt	Equilibrium Partitioning	
	Soil	65 mg/kg dwt	-

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Use eye protection according to EN 166. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Wear suitable gloves tested to EN374. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 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. 4 - 8 hours (breakthrough time): fluorinated rubber, butyl rubber, thickness: 0.5 mm.

Body protection : 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. Recommended: chemical-resistant protective suit (EN 13034).

Other skin protection : Wear protective shoes. (EN 13832-3) Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Half-face mask (EN 140) FFP2.

SECTION 8: Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid.
Colour : Blue.
Odour : Characteristic.
Odour threshold : There are no data available on the mixture itself.
Melting point/freezing point : 0°C
Initial boiling point and boiling range : 100 to 110°C (212 to 230°F)
Flammability : Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
Lower and upper explosion limit : There are no data available on the mixture itself.
Flash point : Closed cup: Not applicable. [No flammable ingredients present.]
Auto-ignition temperature : Not applicable.
Decomposition temperature : There are no data available on the mixture itself.
pH : 3
Viscosity : There are no data available on the mixture itself.
Solubility(ies) :

Media	Result
cold water	Easily soluble

Solubility in water : There are no data available on the mixture itself.

Miscible with water : Yes.

Partition coefficient: n-octanol/ water : Not applicable.

Vapour pressure :

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
<input checked="" type="checkbox"/> Water	23.8	3.2				

Evaporation rate : There are no data available on the mixture itself.

Relative density : There are no data available on the mixture itself.

Density : 1.098 g/cm³ [20°C (68°F)]

Vapour density : There are no data available on the mixture itself.

Explosive properties : Not considered to be a product presenting a risk of explosion.

Oxidising properties : Not applicable No oxidising ingredients present.

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

SAPT : Not relevant/applicable due to nature of the product.

SECTION 10: Stability and reactivity

- 10.1 Reactivity** : Reactive or incompatible with the following materials: alkalis.
- 10.2 Chemical stability** : The product is stable.
No specific stability hazards associated with this product.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : No specific data.
- 10.5 Incompatible materials** : No specific data.
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
phosphoric acid	LD50 Oral	Rat	1.25 g/kg	-
selenious acid	LD50 Dermal	Rabbit	4 mg/kg	-
copper sulphate	LD50 Oral	Rat	960 mg/kg	-

Conclusion/Summary : Not tested

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
EBONOL C-115	3054.9	N/A	N/A	N/A	21.1
zinc sulphate	500	N/A	N/A	N/A	N/A
selenious acid	100	N/A	N/A	N/A	0.5
copper sulphate	307.5	N/A	N/A	N/A	N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
zinc sulphate	Eyes - Moderate irritant	Rabbit	-	420 ug	-

Conclusion/Summary

- Skin** : Not tested
- Eyes** : Not tested
- Respiratory** : Not tested

Sensitisation

Conclusion/Summary

- Skin** : Not tested
- Respiratory** : Not tested

Mutagenicity

Conclusion/Summary : Not tested

Carcinogenicity

Conclusion/Summary : Not tested

Reproductive toxicity

Conclusion/Summary : Not tested

SECTION 11: Toxicological information

Teratogenicity

Conclusion/Summary : Not tested

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Selenious acid	Category 2	-	-

Aspiration hazard

Not available.

Information on likely routes of exposure : Not tested

Potential acute health effects

- Eye contact** : Causes serious eye damage.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

- Potential immediate effects** : Not available.
Potential delayed effects : Not available.

Long term exposure

- Potential immediate effects** : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Not available.

- Conclusion/Summary** : Not available.
General : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Reproductive toxicity : No known significant effects or critical hazards.

SECTION 11: Toxicological information

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
phosphoric acid	Acute EC50 105 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 60 ppm Fresh water	Fish - Lepomis macrochirus	96 hours
zinc sulphate	Acute EC50 724.4 µg/l Fresh water	Algae - Stichococcus bacillaris	72 hours
	Acute EC50 202 µg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
selenious acid	Acute LC50 4 µg/l Fresh water	Crustaceans - Mesocyclops hyalinus - Adult	48 hours
	Acute LC50 21.8 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 2.36 µg/l Fresh water	Fish - Cirrhinus mrigala	96 hours
	Chronic NOEC 142.5 µg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
	Chronic NOEC 0.2 mg/l Marine water	Crustaceans - Litopenaeus vannamei - Post-larvae	21 days
	Chronic NOEC 1.7 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 26 µg/l Fresh water	Fish - Jordanella floridae	100 days
	Acute EC50 6.89 ppm Marine water	Algae - Skeletonema costatum	72 hours
	Acute EC50 7.93 ppm Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 1200 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
copper sulphate	Acute LC50 599 ppb Marine water	Fish - Melanogrammus aeglefinus - Larvae	96 hours
	Chronic NOEC 83 µg/l Fresh water	Fish - Pimephales promelas - Egg	28 days
	Acute EC50 1.5 µg/l Fresh water	Algae - Chlorella sp. - Exponential growth phase	72 hours
	Acute EC50 0.144 mg/l Fresh water	Aquatic plants - Lemna minor	96 hours
copper sulphate	Acute EC50 1.6 µg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute EC50 2.67 µg/l Fresh water	Fish - Acipenser transmontanus - Larvae	4 days
	Chronic NOEC 0.6 µg/l Fresh water	Algae - Chlorella sp. - Exponential growth phase	72 hours
	Chronic NOEC 0.0018 mg/l Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 18.8 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 0.46 µg/l Fresh water	Fish - Acipenser transmontanus - Larvae	53 days

Conclusion/Summary : Ecological testing has not been conducted on this product.

12.2 Persistence and degradability

Conclusion/Summary : According to EC criteria: Not expected to be readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
copper sulphate	-	-	Not readily

12.3 Bioaccumulative potential

SECTION 12: Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Zinc sulphate	-0.07	60960	high
selenious acid	-	1.11	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.







Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	
14.1 UN number or ID number	UN3082	UN3082	
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (zinc sulphate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (zinc sulphate)	
14.3 Transport hazard class(es)	  	  	

SECTION 14: Transport information

14.4 Packing group	III	III	
14.5 Environmental hazards	Yes.	Yes.	

Additional information

ADR/RID : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

Tunnel code (-)

IMDG : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

Emergency schedules F-A, S-F

IMDG Code Segregation group SGG7 - Heavy metals and their salts (including their organometallic compounds)

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not applicable - not transported in bulk

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Not listed

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Seveso Directive - Reporting thresholds

Danger criteria

SECTION 15: Regulatory information

Category	Notification and MAPP threshold	Safety report threshold
E2	200 tonne	500 tonne

National regulations

15.2 Chemical safety assessment : Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms :

- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- N/A = Not available
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- SGG = Segregation Group
- vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
✔ Eye Dam. 1, H318 Aquatic Chronic 2, H411	Calculation method Calculation method

Full text of abbreviated H statements

✔ H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

✔ Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Met. Corr. 1	CORROSIVE TO METALS - Category 1
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

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SECTION 16: Other information

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MacDermid Enthone SDS CLP Europe