

SAFETY DATA SHEET

The information in this Safety Data Sheet is required pursuant to GHS UN rev. 7



Date of issue/Date of revision 5 December 2025

Version 1.04

Section 1. Identification

Product code : 000010023547
Product name : SIGMA SAILADVANCE RX REDBROWN
Product type : Liquid.

Other means of identification
00393293

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

Product use : Antifouling products
Professional applications, Used by spraying.

Uses advised against : Product is not intended, labelled or packaged for consumer use.

Company/undertaking identification : PPG Industries Sales, Inc. and PPG Coatings (Philippines), Inc.
3rd Floor First Life Center
174 Salcedo St., Legaspi Village
Makati City 1229, Philippines
Tel # 00632- 752-6773/ Fax # 00632-752-6771

Emergency telephone number : CHEMTREC +(63) 2-395-3308 (CCN 17704)

Section 2. Hazards identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (dermal) - Category 5
ACUTE TOXICITY (inhalation) - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 1B
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 8.2%
Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 23.4%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 31.4%
Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 12.6%

GHS label elements

Section 2. Hazards identification

Hazard pictograms



Signal word

: Danger

Hazard statements

: Flammable liquid and vapor.
 Harmful if swallowed or if inhaled.
 May be harmful in contact with skin.
 Causes skin irritation.
 May cause an allergic skin reaction.
 Causes serious eye damage.
 May cause cancer.
 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

: Obtain, read and follow all safety instructions before use. Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Do not touch eyes. Contaminated work clothing should not be allowed out of the workplace.

Response

: Collect spillage. IF exposed or concerned, get medical advice. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help. IF SWALLOWED: Get medical help. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water. IF ON SKIN: Get medical help. Wash with plenty of water. If skin irritation or rash occurs: Get medical help. If skin irritation occurs: Get medical help. Take off contaminated clothing and wash it before reuse. IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical help.

Storage

: Store locked up.

Disposal

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

Other hazards which do not result in classification : Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture

: Mixture

CAS number/other identifiers

CAS number

: Not applicable.

Ingredient name	%	CAS number
nickelcopper oxide	25 - <50	1317-39-1
rosin	10 - <20	8050-09-7
zinc oxide	10 - <20	1314-13-2
4-methylpentan-2-one	5 - <10	108-10-1
Solvent naphtha (petroleum), light aromatic	5 - <10	64742-95-6
Propane, 1-(ethenoxy)-2-methyl-, polymer with chloroethene	3 - <5	25154-85-2
zineb (ISO)	3 - <5	12122-67-7
1,2,4-trimethylbenzene	3 - <5	95-63-6
xylene	1 - <3	1330-20-7
12-hydroxyoctadecanoic acid, reaction products with	1 - <3	220926-97-6

Section 3. Composition/information on ingredients

1,3-benzenedimethanamine and hexamethylenediamine	0.3 - <1	1317-38-0
copper oxide	0.3 - <1	7440-50-8
copper	0.1 - <0.3	586-62-9
p-mentha-1,4(8)-diene	0.1 - <0.3	98-82-8
cumene		

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 and hence require reporting in this section.

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

SUB codes represent substances without registered CAS Numbers.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Harmful if inhaled.
- Skin contact** : May be harmful in contact with skin. Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

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
dryness
cracking
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

- 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 4. First aid measures

- 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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.

- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very 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 thermal decomposition products** : Decomposition products may include the following materials:
carbon oxides
nitrogen oxides
sulfur oxides
halogenated compounds
metal oxide/oxides

- 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- 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.

Section 6. Accidental release measures

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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

- For emergency responders** : If specialized 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".

- Environmental precautions** : Avoid dispersal of spilled 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.

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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. Use spark-proof tools and explosion-proof equipment. Approach 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 (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

- 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.

- Conditions for safe storage, including any incompatibilities** : Store between the following temperatures: 0 to 35°C (32 to 95°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

copper oxide

rosin

zinc oxide

4-methylpentan-2-one

diiron trioxide

1,2,4-trimethylbenzene

xylene

12-hydroxyoctadecanoic acid, reaction products with
1,3-benzenedimethanamine and hexamethylenediamine

copper oxide

copper

cumene

ACGIH TLV (United States, 1/2025)
[copper fume]
TWA 8 hours: 0.2 mg/m³. Form: Fume.

ACGIH TLV (United States, 1/2025) [resin acids] Skin sensitizer , Inhalation sensitizer.
TWA 8 hours: 0.001 mg/m³ (as total Resin acids). Form: Inhalable fraction.

TLV (Philippines, 4/2016)
TLV 8 hours: 1 mg/m³. Form: Fume.

TLV (Philippines, 4/2016)
TLV 8 hours: 410 mg/m³.
TLV 8 hours: 100 ppm.

TLV (Philippines, 4/2016) [Iron oxide]
TLV 8 hours: 10 mg/m³. Form: Fume.

ACGIH TLV (United States, 1/2025)
TWA 8 hours: 10 ppm.

TLV (Philippines, 4/2016) [Xylene]
TLV 8 hours: 0.1 mg/m³.

ACGIH TLV (United States)
TWA: 10 mg/m³. Form: Inhalable particle.
TWA: 3 mg/m³ (inhalable dust). Form: Respirable particle.

ACGIH TLV (United States, 1/2025)
[copper fume]
TWA 8 hours: 0.2 mg/m³. Form: Fume.

TLV (Philippines, 4/2016)
TLV 8 hours: 0.1 mg/m³. Form: Fume.
TLV 8 hours: 1 mg/m³. Form: Dusts and Mists.

TLV (Philippines, 4/2016) Absorbed through skin.
TLV 8 hours: 245 mg/m³.
TLV 8 hours: 50 ppm.

- Recommended monitoring procedures**
: Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Appropriate engineering controls**
: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- 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.

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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

- Eye/face protection** : 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** : 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.
- Gloves** : butyl rubber
- 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : 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.

Section 9. Physical and chemical properties

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

Appearance

- Physical state** : Liquid.
- Color** : Brownish-red.
- Odor** : Characteristic.
- Odor threshold** : Not available.
- Melting point/freezing point** : Not available.
- Boiling point or initial boiling point and boiling range** : >37.78°C (>100°F)
- Flammability** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Flash point** : Closed cup: 32°C (89.6°F)
- Auto-ignition temperature** :

Ingredient name	°C	°F	Method
2-methyl-2-butanol (ISO)	149	300.2	

- Decomposition temperature** : Not available.
- pH** : Not applicable.

Section 9. Physical and chemical properties

Viscosity

Dynamic (room temperature): Not available.

Kinematic (room temperature): Not available.

Kinematic (40°C): >21 mm²/s

Solubility(ies)

Media

Result

cold water

Not soluble

Partition coefficient: n-octanol/water

Not applicable.

Vapor pressure

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
 4-methylpentan-2-one	15.75128	2.1				

Relative density

1.68

Relative vapor density

Not available.

Particle characteristics

Median particle size

Not applicable.

Evaporation rate

Not available.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: When exposed to high temperatures may produce hazardous decomposition products.
Incompatible materials	: Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.
Hazardous decomposition products	: Depending on conditions, decomposition products may include the following materials: carbon oxides nitrogen oxides sulfur oxides halogenated compounds metal oxide/oxides
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Section 11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
copper oxide	LC50 Inhalation Dusts and mists	Rat	3.34 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	500 mg/kg	-
rosin	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	7600 mg/kg	-
zinc oxide	LC50 Inhalation Dusts and mists	Rat	>5700 mg/m ³	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
4-methylpentan-2-one	LC50 Inhalation Vapor	Rat	11 mg/l	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	2.08 g/kg	-
Solvent naphtha (petroleum), light aromatic	LD50 Dermal	Rabbit	3.48 g/kg	-
	LD50 Oral	Rat	8400 mg/kg	-
zineb (ISO)	LD50 Oral	Rat	>2000 mg/kg	-
1,2,4-trimethylbenzene	LC50 Inhalation Vapor	Rat	18000 mg/m ³	4 hours
	LD50 Oral	Rat	5 g/kg	-
xylene	LD50 Dermal	Rabbit	1.7 g/kg	-
	LD50 Oral	Rat	4.3 g/kg	-
12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	LC50 Inhalation Dusts and mists	Rat	3.56 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
copper oxide	LD50 Oral	Rat	>2000 mg/kg	-
copper	LC50 Inhalation Dusts and mists	Rat	>5.11 mg/l	4 hours
p-mentha-1,4(8)-diene	LD50 Oral	Rat	4390 mg/kg	-
cumene	LC50 Inhalation Vapor	Rat	39000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	12.3 g/kg	-
	LD50 Oral	Rat	2260 mg/kg	-

Conclusion/Summary : There are no data available on the mixture itself.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
xylene	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-

Conclusion/Summary

Skin : There are no data available on the mixture itself.

Eyes : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
zineb (ISO)	skin	Guinea pig	Sensitizing

Conclusion/Summary

Skin : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Mutagenicity

Conclusion/Summary : There are no data available on the mixture itself.

Section 11. Toxicological information

Carcinogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Reproductive toxicity

Conclusion/Summary : There are no data available on the mixture itself.

Teratogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
4-methylpentan-2-one	Category 3	-	Narcotic effects
Solvent naphtha (petroleum), light aromatic	Category 3	-	Narcotic effects
zineb (ISO)	Category 3	-	Respiratory tract irritation
1,2,4-trimethylbenzene	Category 3	-	Respiratory tract irritation
xylene	Category 3	-	Respiratory tract irritation
cumene	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	Category 2	inhalation	lungs
cumene	Category 2	-	-

Aspiration hazard

Name	Result
4-methylpentan-2-one	ASPIRATION HAZARD - Category 2
Solvent naphtha (petroleum), light aromatic	ASPIRATION HAZARD - Category 1
xylene	ASPIRATION HAZARD - Category 1
p-mentha-1,4(8)-diene	ASPIRATION HAZARD - Category 1
cumene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Harmful if inhaled.

Skin contact : May be harmful in contact with skin. Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Section 11. Toxicological information

- Inhalation

: No specific data.
- Skin contact

: Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur
- Ingestion

: Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects and also 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.

- General

: Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/ or dermatitis. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity

: May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity

: No known significant effects or critical hazards.
- Reproductive toxicity

: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	1575.25 mg/kg
Dermal	3249.74 mg/kg
Inhalation (vapors)	58.9 mg/l
Inhalation (dusts and mists)	3.74 mg/l

Other information

:

Prolonged or repeated contact may dry skin and cause irritation. Sanding and grinding dusts may be harmful if inhaled. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Avoid contact with skin and clothing.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
copper oxide zinc oxide	LC50 0.003 mg/l Acute EC50 0.17 mg/l Acute EC50 0.481 mg/l Fresh water	Fish Algae Daphnia - <i>Daphnia magna</i> - Neonate	96 hours 72 hours 48 hours
4-methylpentan-2-one Solvent naphtha (petroleum), light aromatic 12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	Chronic NOEC 0.017 mg/l Fresh water Acute LC50 >179 mg/l Acute LC50 8.2 mg/l	Algae Fish Fish	72 hours 96 hours 96 hours
12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	Acute EC50 >100 mg/l	Algae - <i>Pseudokirchneriella subcapitata</i> (microalgae)	72 hours
copper	Acute EC50 >100 mg/l	Daphnia - <i>Daphnia magna</i> (Water flea)	48 hours
	Acute LC50 >100 mg/l	Fish - <i>Oncorhynchus mykiss</i> (rainbow trout)	96 hours
	Chronic NOEC 100 mg/l	Algae - <i>Pseudokirchneriella subcapitata</i>	72 hours
	Chronic NOEC ≥50 mg/l	Daphnia - <i>Daphnia magna</i> (Water flea)	21 days
	Acute LC50 810 ppb Chronic EC10 8.1 µg/l	Fish Daphnia - <i>Daphnia magna</i> - Neonate	96 hours 21 days

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
4-methylpentan-2-one 12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	OECD 301F OECD Ready Biodegradability - Closed Bottle Test	83 % - Readily - 28 days 9 % - Not readily - 29 days	- -	- -

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
4-methylpentan-2-one xylene	- -	- -	Readily Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
osin 4-methylpentan-2-one zineb (ISO) 1,2,4-trimethylbenzene xylene 12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine p-mentha-1,4(8)-diene cumene	1.9 to 7.7 1.9 1.3 3.63 3.12 >6 4.47 3.55	- - - 120.23 7.4 to 18.5 - - 35.48	High Low Low Low Low High High Low

Section 12. Ecological information

Mobility in soil

Soil/Water partition coefficient : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	UN1263	UN1263	UN1263
UN proper shipping name	PAINT	PAINT	PAINT
Transport hazard class(es)	3	3	3
Packing group	III	III	III
Environmental hazards	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.
Marine pollutant substances	Not applicable.	(dicopper oxide)	Not applicable.

Additional information

UN : None identified.

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.

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.

Section 14. Transport information

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

International regulations

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Section 16. Other information

History

- Date of issue/Date of revision : 5 December 2025
- Date of previous issue : 7/16/2025
- Version : 1.04
- Prepared by : EHS
- Key to abbreviations :
 - ATE = Acute Toxicity Estimate
 - BCF = Bioconcentration Factor
 - GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 - IATA = International Air Transport Association
 - IBC = Intermediate Bulk Container
 - IMDG = International Maritime Dangerous Goods
 - LogPow = logarithm of the octanol/water partition coefficient
 - MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 - UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 3	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (dermal) - Category 5	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
CARCINOGENICITY - Category 1B	Calculation method
AQUATIC HAZARD (ACUTE) - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 1	Calculation method

Indicates information that has changed from previously issued version.

Notice to reader

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by us, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.