

# SAFETY DATA SHEET



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Version 1.09

## Section 1. Chemical identification and supplier information

**Product code** : 000010023303  
**Product name** : SIGMA SAILADVANCE RX REDBROWN  
**CAS number** : Mixture  
**EC number** : Mixture.  
**Other means of identification**  
00371223; 00461150 ; 371223  
**Product type** : Liquid.

### 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.  
**Supplier's details** : PPG Yungchi Coatings Co. Ltd  
No. 176, Road 6, Ho Nai IZ, Phuoc Tan Ward,  
Dong Nai City, Vietnam  
Tel : +84 61 3936121/22  
**Emergency telephone number (with hours of operation)** : CHEMTREC +(84)-444581938 (CCN 17704)

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
**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 IRRITATION - Category 2  
SERIOUS EYE DAMAGE - Category 1  
SKIN SENSITIZATION - Category 1  
CARCINOGENICITY - Category 1  
AQUATIC TOXICITY (ACUTE) - Category 1  
AQUATIC TOXICITY (CHRONIC) - Category 1  
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 4.6%  
Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 19.8%  
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 special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face 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 thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

**Response**

: Collect spillage. IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. If skin irritation or rash occurs: Get medical advice or attention. 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**

: Store locked up.

**Disposal**

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

**Routes of entry**

: Not available.

**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**

: Mixture

**EC number**

: Mixture.

### Section 3. Composition/information on ingredients

Ingredient name	CAS number	Chemical formula	%
Copper oxide	1317-39-1	Cu <sub>2</sub> O	≥25 - ≤49
rosin	8050-09-7	C <sub>9</sub> H <sub>12</sub> O <sub>2</sub>	≥10 - ≤19
zinc oxide	1314-13-2	O-Zn	≥10 - ≤19
4-methylpentan-2-one	108-10-1	C <sub>6</sub> H <sub>12</sub> O	≤10
Solvent naphtha (petroleum), light aromatic	64742-95-6	-	≤9.3
diiron trioxide	1309-37-1	Fe <sub>2</sub> O <sub>3</sub>	≤10
Propane, 1-(ethenyloxy)-2-methyl-, polymer with chloroethene	25154-85-2	(C <sub>6</sub> H <sub>12</sub> O.C <sub>2</sub> H <sub>3</sub> Cl) x	≤5
zineb (ISO)	12122-67-7	C <sub>4</sub> H <sub>6</sub> N <sub>2</sub> S <sub>4</sub> Zn	≤5
1,2,4-trimethylbenzene	95-63-6	C <sub>9</sub> H <sub>12</sub>	≤5
calcium carbonate	471-34-1	CCaO <sub>3</sub>	≤5
ethylbenzene	100-41-4	C <sub>8</sub> H <sub>10</sub>	≤3
12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	220926-97-6	CHON	≤1.8
xylene	1330-20-7	C <sub>8</sub> -H <sub>10</sub>	<1
mesitylene	108-67-8	C <sub>9</sub> H <sub>12</sub>	<1
Oils, pine	8002-09-3	-	<1
copper oxide	1317-38-0	CuO	<1
1,2,3-trimethylbenzene	526-73-8	C <sub>9</sub> H <sub>12</sub>	<1
copper	7440-50-8	Cu	≤0.3
cumene	98-82-8	C <sub>9</sub> H <sub>12</sub>	≤0.3
zinc sulphide	1314-98-3	SZn	≤0.3
propylbenzene	103-65-1	C <sub>9</sub> H <sub>12</sub>	<1
p-mentha-1,4(8)-diene	586-62-9	C <sub>10</sub> H <sub>16</sub>	≤0.3

There are no 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.

SUB codes represent substances without registered CAS Numbers.

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

### 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.

## Section 4. First aid measures

### 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.
- 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, CO<sub>2</sub>, 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.

## Section 5. Fire-fighting measures

**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. Avoid breathing vapor. Put on appropriate personal protective equipment. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

**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

**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

## Section 7. Handling and storage

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

Ingredient name	Exposure limits
copper oxide	<p><b>Ministry of Health (Viet Nam, 4/2025) [copper compounds]</b> TWA 8 hours: 0.5 mg/m<sup>3</sup>. STEL 15 minutes: 1 mg/m<sup>3</sup>.</p> <p><b>Ministry of Health (Viet Nam, 4/2025) [copper and compounds]</b> TWA 8 hours: 0.5 mg/m<sup>3</sup>. Form: Dust. TWA 8 hours: 0.1 mg/m<sup>3</sup>. Form: vapour, fume.</p>
rosin	<p><b>ACGIH TLV (United States, 1/2025) [resin acids]</b> Skin sensitizer , Inhalation sensitizer. TWA 8 hours: 0.001 mg/m<sup>3</sup> (as total Resin acids). Form: Inhalable fraction.</p>
zinc oxide	<p><b>Ministry of Health (Viet Nam, 4/2025)</b> TWA 8 hours: 5 mg/m<sup>3</sup>. Form: Dust and fumes. TWA 8 hours: 2 mg/m<sup>3</sup>. Form: respirable dust. TWA 8 hours: 4 mg/m<sup>3</sup>. Form: total dust concentration.</p>
4-methylpentan-2-one	<p><b>ACGIH TLV (United States, 1/2025)</b> TWA 8 hours: 20 ppm. STEL 15 minutes: 75 ppm.</p>
diiron trioxide	<p><b>Ministry of Health (Viet Nam, 4/2025)</b> TWA 8 hours: 5 mg/m<sup>3</sup>. Form: Dust and fumes. STEL 15 minutes: 10 mg/m<sup>3</sup>. Form: Dust and fumes.</p>
1,2,4-trimethylbenzene	<p><b>ACGIH TLV (United States, 1/2025)</b> TWA 8 hours: 10 ppm.</p>
calcium carbonate	<p><b>Ministry of Health (Viet Nam, 4/2025)</b> TWA 8 hours: 10 mg/m<sup>3</sup>. Form: total dust</p>

## Section 8. Exposure controls/personal protection

ethylbenzene	concentration. <b>ACGIH TLV (United States, 1/2025)</b> Ototoxicant. TWA 8 hours: 20 ppm.
12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	<b>ACGIH TLV (United States)</b> TWA: 10 mg/m <sup>3</sup> . Form: Inhalable particle. TWA: 3 mg/m <sup>3</sup> (inhalable dust). Form: Respirable particle.
xylene	<b>Ministry of Health (Viet Nam, 4/2025)</b> <b>[xylene]</b> TWA 8 hours: 100 mg/m <sup>3</sup> . STEL 15 minutes: 300 mg/m <sup>3</sup> .
mesitylene	<b>ACGIH TLV (United States, 1/2025)</b> <b>[trimethyl benzene, isomers]</b> TWA 8 hours: 10 ppm.
Oils, pine	<b>Ministry of Health (Viet Nam, 4/2025)</b> <b>[vegetable oil]</b> TWA 8 hours: 10 mg/m <sup>3</sup> . Form: mist - total dust.
copper oxide	<b>Ministry of Health (Viet Nam, 4/2025)</b> <b>[copper compounds]</b> TWA 8 hours: 0.5 mg/m <sup>3</sup> . STEL 15 minutes: 1 mg/m <sup>3</sup> .
1,2,3-trimethylbenzene	<b>Ministry of Health (Viet Nam, 4/2025)</b> <b>[copper and compounds]</b> TWA 8 hours: 0.5 mg/m <sup>3</sup> . Form: Dust. TWA 8 hours: 0.1 mg/m <sup>3</sup> . Form: vapour, fume.
copper	<b>ACGIH TLV (United States, 1/2025)</b> <b>[trimethyl benzene, isomers]</b> TWA 8 hours: 10 ppm.
cumene	<b>Ministry of Health (Viet Nam, 4/2025)</b> <b>[copper and compounds]</b> TWA 8 hours: 0.5 mg/m <sup>3</sup> . Form: Dust. TWA 8 hours: 0.1 mg/m <sup>3</sup> . Form: vapour, fume.
zinc sulphide	<b>Ministry of Health (Viet Nam, 4/2025)</b> <b>[copper compounds]</b> TWA 8 hours: 0.5 mg/m <sup>3</sup> . STEL 15 minutes: 1 mg/m <sup>3</sup> .
	<b>Ministry of Health (Viet Nam, 4/2025)</b> TWA 8 hours: 245 mg/m <sup>3</sup> . <b>Ministry of Health (Viet Nam, 4/2025)</b> STEL 15 minutes: 5 mg/m <sup>3</sup> .

**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.

## 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.

### 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.

**Eye/face protection** : Chemical splash goggles and face shield.

### 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** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

## Section 9. Physical and chemical properties

### Appearance

**Physical state** : Liquid.

**Color** : Brownish-red.

**Odor** : Characteristic.

**Odor threshold** : Not available.

**pH** : Not applicable.

**Melting point** : Not available.

**Boiling point** : >37.78°C (>100°F)

**Flash point** : Closed cup: 34°C (93.2°F)

**Evaporation rate** : Not available.

**Flammability (solid, gas)** : Not available.

## Section 9. Physical and chemical properties

**Lower and upper explosive (flammable) limits** : Not available.

**Vapor pressure** : Not available.

**Vapor density** : Not available.

**Relative density** : 1.68

Media	Result
cold water	Not soluble

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

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C): >21 mm<sup>2</sup>/s

## 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

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

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 <sup>3</sup>	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	-

## Section 11. Toxicological information

Solvent naphtha (petroleum), light aromatic	LD50 Dermal	Rabbit	3.48 g/kg	-
diiron trioxide	LD50 Oral	Rat	8400 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5 mg/l	4 hours
	LD50 Oral	Rat	10 g/kg	-
zineb (ISO)	LD50 Oral	Rat	>2000 mg/kg	-
1,2,4-trimethylbenzene	LC50 Inhalation Vapor	Rat	18000 mg/m <sup>3</sup>	4 hours
	LD50 Oral	Rat	5 g/kg	-
calcium carbonate	LD50 Dermal	Rat	>5000 mg/kg	-
	LD50 Oral	Rat	6450 mg/kg	-
ethylbenzene	LC50 Inhalation Vapor	Rat	17.8 mg/l	4 hours
	LD50 Dermal	Rabbit	17.8 g/kg	-
	LD50 Oral	Rat	3.5 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	-
xylene	LD50 Dermal	Rabbit	1.7 g/kg	-
	LD50 Oral	Rat	4.3 g/kg	-
mesitylene	LC50 Inhalation Vapor	Rat	24000 mg/m <sup>3</sup>	4 hours
	LD50 Oral	Rat	5000 mg/kg	-
Oils, pine	LD50 Dermal	Rabbit	5 g/kg	-
	LD50 Oral	Rat	2.1 g/kg	-
copper oxide	LD50 Oral	Rat	>2000 mg/kg	-
1,2,3-trimethylbenzene	LD50 Oral	Rat	11.4 g/kg	-
copper	LC50 Inhalation Dusts and mists	Rat	>5.11 mg/l	4 hours
cumene	LC50 Inhalation Vapor	Rat	39000 mg/m <sup>3</sup>	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

**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.

### Carcinogenicity

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

### Reproductive toxicity

## Section 11. Toxicological information

**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
mesitylene	Category 3	-	Respiratory tract irritation
cumene	Category 3	-	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	-	hearing 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
ethylbenzene	ASPIRATION HAZARD - Category 1
xylene	ASPIRATION HAZARD - Category 1
Oils, pine	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

**Inhalation** : No specific data.

## Section 11. Toxicological information

- 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** : There are no data available on the mixture itself.
- Potential delayed effects** : There are no data available on the mixture itself.

#### Long term exposure

- Potential immediate effects** : There are no data available on the mixture itself.
- Potential delayed effects** : There are no data available on the mixture itself.

#### Potential chronic health effects

- 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
<input checked="" type="checkbox"/> Oral	1547.69 mg/kg
<input type="checkbox"/> Dermal	3499.08 mg/kg
<input type="checkbox"/> Inhalation (vapors)	63.19 mg/l
<input type="checkbox"/> Inhalation (dusts and mists)	3.77 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

## Section 12. Ecological information

Product/ingredient name	Result	Species	Exposure
Copper oxide zinc oxide	LC50 0.003 mg/l	Fish	96 hours
	Acute EC50 0.17 mg/l Acute EC50 0.481 mg/l Fresh water	Algae Daphnia - <i>Daphnia magna</i> - Neonate	72 hours 48 hours
4-methylpentan-2-one Solvent naphtha (petroleum), light aromatic	Chronic NOEC 0.017 mg/l Fresh water	Algae	72 hours
	Acute LC50 >179 mg/l Acute LC50 8.2 mg/l	Fish Fish	96 hours 96 hours
diiron trioxide calcium carbonate ethylbenzene	Acute EC50 >100 mg/l Acute EC10 >14 mg/l	Daphnia Algae	48 hours 72 hours
	Acute EC50 1.8 mg/l Fresh water Chronic NOEC 1 mg/l Fresh water	Daphnia Daphnia - <i>Ceriodaphnia dubia</i>	48 hours -
12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	Acute EC50 >100 mg/l	Algae - <i>Pseudokirchneriella subcapitata (microalgae)</i>	72 hours
	Acute LC50 >100 mg/l	Daphnia - <i>Daphnia magna</i> (Water flea)	48 hours
copper	Acute LC50 >100 mg/l	Fish - <i>Oncorhynchus mykiss</i> (rainbow trout)	96 hours
	Chronic NOEC 100 mg/l Chronic NOEC ≥50 mg/l	Algae - <i>Pseudokirchneriella subcapitata</i> Daphnia - <i>Daphnia magna</i> (Water flea)	72 hours 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 ethylbenzene	OECD 301F	83 % - Readily - 28 days	-	-
	-	79 % - Readily - 10 days	-	-
12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine	OECD Ready Biodegradability - Closed Bottle Test	9 % - Not readily - 29 days	-	-

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

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
rosin	1.9 to 7.7	-	High
4-methylpentan-2-one	1.9	-	Low
zineb (ISO)	1.3	-	Low
1,2,4-trimethylbenzene	3.63	120.23	Low
ethylbenzene	3.6	79.43	Low
12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine	>6	-	High

## Section 12. Ecological information

and hexamethylenediamine			
xylene	3.12	7.4 to 18.5	Low
mesitylene	3.42	186.21	Low
1,2,3-trimethylbenzene	3.66	194.98	Low
cumene	3.55	35.48	Low

### 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	Not determined.	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.

## Section 14. Transport information

**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.

**Transport in bulk according to IMO instruments** : Not applicable.

## Section 15. Regulatory information

**Safety, health and environmental regulations specific for the product** :

- Law on Chemicals No. 69/2025/QH15
- Decree No. 24/2026/NĐ-CP regulating the lists of chemicals under the scope of the Law on Chemicals.
- Decree No. 25/2026/NĐ-CP detailing and providing measures for organizing and guiding the implementation of certain provisions of the Law on Chemicals related to the development of a safe chemical industry and chemical security.
- Decree No. 26/2026/NĐ-CP detailing and guiding the implementation of certain provisions of the Law on Chemicals related to the management of chemical activities and hazardous chemicals in products and goods.
- Circular No. 01/2026/TT-BCT detailing and guiding the implementation of certain provisions of the Law on Chemicals and Decree No. 26/2026/NĐ-CP of the Government on the management of chemical activities and hazardous chemicals in products and goods.
- Circular No. 02/2026/TT-BCT regulating several measures for implementing the Law on Chemicals and Decree No. 25/2026/NĐ-CP of the Government, which provides detailed regulations and measures for organizing and guiding the implementation of certain provisions of the Law on Chemicals related to the development of a safe chemical industry and chemical security.

### 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** : 18 June 2026

**Date of previous issue** : 6/12/2026

**Version** : 1.09

**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

**References** : Not available.

## Section 16. Other information

✔ 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 PPG, 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.