

# SAFETY DATA SHEET



Date of issue 25 September  
2025

Version 16

## Section 1. Identification

Chemical name : SIGMA ECOFLEET 290 REDBROWN  
GHS product identifier : SIGMA ECOFLEET 290 REDBROWN  
Code : 00331470

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

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

Supplier's details : PPG Industries International Inc. Taiwan Branch.  
No.209, Hong Tzuenn Rd Ping Chen City, Taoyuan County, Taiwan  
Tel: 886 3 3663922  
886 3 3751639 (Automotive OEM Coatings Products).  
Fax: 886 3 2182667

Emergency telephone number : +886-3-3663922  
+886-911998320

## Section 2. Hazards identification

Classification of the substance or mixture :  FLAMMABLE LIQUIDS - Category 3  
ACUTE TOXICITY (oral) - Category 4  
ACUTE TOXICITY (dermal) - Category 5  
SKIN CORROSION/IRRITATION - Category 2  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
RESPIRATORY SENSITIZATION - Category 1  
SKIN SENSITIZATION - Category 1  
CARCINOGENICITY - Category 1  
TOXIC TO REPRODUCTION - Category 2  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
AQUATIC TOXICITY (ACUTE) - Category 1  
AQUATIC TOXICITY (CHRONIC) - 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: 23.7%  
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.  
May be harmful in contact with skin.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye damage.  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause cancer.  
Suspected of damaging fertility or the unborn child.  
May cause damage to organs through prolonged or repeated exposure.  
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. Wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid release to the environment. Do not breathe 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. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Get emergency medical help immediately. 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. Get medical help if you feel unwell.

**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

## Section 3. Composition/information on ingredients

| Hazardous ingredients                                                                                 | % (w/w)   | CAS no.     | Type        |
|-------------------------------------------------------------------------------------------------------|-----------|-------------|-------------|
| dicopper oxide                                                                                        | ≥25 - ≤31 | 1317-39-1   | [1] [2]     |
| rosin                                                                                                 | ≥10 - ≤18 | 8050-09-7   | [1]         |
| zinc oxide                                                                                            | ≥10 - ≤17 | 1314-13-2   | [1] [2]     |
| 4-methylpentan-2-one                                                                                  | ≥5 - ≤9.8 | 108-10-1    | [1] [2] [3] |
| Solvent naphtha (petroleum), light aromatic                                                           | ≥5 - ≤10  | 64742-95-6  | [1]         |
| 1,2,4-trimethylbenzene                                                                                | ≥3 - ≤5   | 95-63-6     | [1] [2]     |
| Propane, 1-(ethenyloxy)-2-methyl-, polymer with chloroethene                                          | ≥3 - ≤5   | 25154-85-2  | [1]         |
| zineb (ISO)                                                                                           | ≥3 - ≤4.9 | 12122-67-7  | [1]         |
| xylene                                                                                                | ≥1 - ≤2.5 | 1330-20-7   | [1] [2]     |
| 12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine | ≥1 - ≤1.1 | 220926-97-6 | [1]         |
| copper oxide                                                                                          | ≥0.3 - <1 | 1317-38-0   | [1] [2]     |
| copper                                                                                                | ≥0.3 - <1 | 7440-50-8   | [1] [2]     |
| cumene                                                                                                | ≤0.3      | 98-82-8     | [1] [2] [3] |

  

| Hazardous ingredients                                                                                 | % (w/w)   | CAS number  | Type        |
|-------------------------------------------------------------------------------------------------------|-----------|-------------|-------------|
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| Rosin                                                                                                 | ≥10 - ≤18 | 8050-09-7   | [1]         |
| zinc oxide                                                                                            | ≥10 - ≤17 | 1314-13-2   | [1] [2]     |
| 4-Methyl-2-pentanone                                                                                  | ≥5 - ≤9.8 | 108-10-1    | [1] [2] [3] |
| Solvent naphtha (petroleum), light aromatic                                                           | ≥5 - ≤10  | 64742-95-6  | [1]         |
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| copper oxide                                                                                          | ≥0.3 - <1 | 1317-38-0   | [1] [2]     |
| copper                                                                                                | ≥0.3 - <1 | 7440-50-8   | [1] [2]     |
| Cumene                                                                                                | ≤0.3      | 98-82-8     | [1] [2] [3] |

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.

**Type**

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Toxic chemical substance

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

- 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.
- Ingestion** : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.
- 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.
- 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.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : ☒ May cause allergy or asthma symptoms or breathing difficulties 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** : ☒ Adverse symptoms may include the following:  
wheezing and breathing difficulties  
asthma  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : ☒ Adverse symptoms may include the following:  
pain or irritation  
redness  
dryness  
cracking  
blistering may occur  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : ☒ Adverse symptoms may include the following:  
stomach pains  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

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

## Section 4. First aid measures

- 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** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Not suitable** : 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** : 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.
- 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

- 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.
- 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.

## Section 7. Handling and storage

- Precautions for safe handling** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. 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.
- 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

| Ingredient name        | Exposure limits                                                                                                                                                                                                                                                                                                                                                                |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| copper oxide           | <b>TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 3/2018) [copper fume]</b><br>STEL 15 minutes: 0.6 mg/m <sup>3</sup> . Form: Fume.<br>TWA 8 hours: 0.2 mg/m <sup>3</sup> . Form: Fume.                                                                                                                                 |
| zinc oxide             | <b>TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 3/2018)</b><br>STEL 15 minutes: 10 mg/m <sup>3</sup> . Form: Fume.<br>TWA 8 hours: 5 mg/m <sup>3</sup> . Form: Fume.                                                                                                                                                  |
| 4-methylpentan-2-one   | <b>TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 3/2018)</b><br>STEL 15 minutes: 75 ppm.<br>STEL 15 minutes: 307.5 mg/m <sup>3</sup> .<br>TWA 8 hours: 50 ppm.<br>TWA 8 hours: 205 mg/m <sup>3</sup> .                                                                                                                 |
| 1,2,4-trimethylbenzene | <b>TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 3/2018) [Trimethylbenzene]</b><br>STEL 15 minutes: 37.5 ppm.<br>STEL 15 minutes: 184.5 mg/m <sup>3</sup> .<br>TWA 8 hours: 25 ppm.<br>TWA 8 hours: 123 mg/m <sup>3</sup> .                                                                                            |
| xylene                 | <b>TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 3/2018) [xylenes]</b><br>STEL 15 minutes: 125 ppm.<br>STEL 15 minutes: 542.5 mg/m <sup>3</sup> .<br>TWA 8 hours: 100 ppm.<br>TWA 8 hours: 434 mg/m <sup>3</sup> .                                                                                                     |
| copper oxide           | <b>TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 3/2018) [copper fume]</b><br>STEL 15 minutes: 0.6 mg/m <sup>3</sup> . Form: Fume.<br>TWA 8 hours: 0.2 mg/m <sup>3</sup> . Form: Fume.                                                                                                                                 |
| copper                 | <b>TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 3/2018) [copper fume]</b><br>STEL 15 minutes: 0.6 mg/m <sup>3</sup> . Form: Fume.<br>TWA 8 hours: 0.2 mg/m <sup>3</sup> . Form: Fume.<br><b>TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 3/2018) [copper</b> |

**Section 8. Exposure controls/personal protection**

cumene

**dust and mist]**STEL 15 minutes: 2 mg/m<sup>3</sup> (as Cu). Form:  
Dusts and Mists.TWA 8 hours: 1 mg/m<sup>3</sup> (as Cu). Form:  
Dusts and Mists.**TW Ministry of Labor, labor permissible  
workplace exposure standards, allowable  
concentration (Taiwan, 3/2018)** Absorbed  
through skin.

STEL 15 minutes: 75 ppm.

STEL 15 minutes: 369 mg/m<sup>3</sup>.

TWA 8 hours: 50 ppm.

TWA 8 hours: 246 mg/m<sup>3</sup>.**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.

**Individual protection measures****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.

**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****Skin protection**

: butyl rubber

: 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.

**Eye protection**

: Chemical splash goggles and face shield.

**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 9. Physical and chemical properties

### Appearance

|                                              |                             |
|----------------------------------------------|-----------------------------|
| Physical state                               | : Liquid.                   |
| Color                                        | : Brownish-red.             |
| Odor                                         | : Aromatic.                 |
| Odor threshold                               | : Not available.            |
| pH                                           | : Not applicable.           |
| Melting point                                | : Not available.            |
| Boiling point                                | : >37.78°C (>100°F)         |
| Flash point                                  | : Closed cup: 31°C (87.8°F) |
| Flammability (solid, gas)                    | : Not available.            |
| Burning time                                 | : Not applicable.           |
| Burning rate                                 | : Not applicable.           |
| Decomposition temperature                    | : Not available.            |
| Evaporation rate                             | : Not available.            |
| Lower and upper explosive (flammable) limits | : Not available.            |
| Vapor pressure                               | : Not available.            |
| Vapor density                                | : Not available.            |
| Relative density                             | : 1.66                      |

|                 |   |              |               |
|-----------------|---|--------------|---------------|
| Solubility(ies) | : | <b>Media</b> | <b>Result</b> |
|                 |   | cold water   | Not soluble   |

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

Auto-ignition 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

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 10. Stability and reactivity**

**Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

**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-Methyl-2-pentanone                                                                                  | 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              | -        |
| 1,2,4-trimethylbenzene                                                                                | LC50 Inhalation Vapor           | Rat     | 18000 mg/m <sup>3</sup> | 4 hours  |
|                                                                                                       | LD50 Oral                       | Rat     | 5 g/kg                  | -        |
| zineb (ISO)                                                                                           | LD50 Oral                       | Rat     | >2000 mg/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             | -        |
|                                                                                                       | LD50 Oral                       | Rat     | >2000 mg/kg             | -        |
| copper oxide                                                                                          | LC50 Inhalation Dusts and mists | Rat     | >5.11 mg/l              | 4 hours  |
| copper                                                                                                | LC50 Inhalation Vapor           | Rat     | 39000 mg/m <sup>3</sup> | 4 hours  |
| Cumene                                                                                                | LD50 Dermal                     | Rabbit  | 12.3 g/kg               | -        |
|                                                                                                       | LD50 Oral                       | Rat     | 2260 mg/kg              | -        |

**Irritation/Corrosion**

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

**Sensitization**

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

**Section 11. Toxicological information****Mutagenicity**

Not available.

**Carcinogenicity**

Not available.

**Reproductive toxicity**

Not available.

**Teratogenicity**

Not available.

**Specific target organ toxicity (single exposure)**

| Name                                                   | Category   | Route of exposure | Target organs                |
|--------------------------------------------------------|------------|-------------------|------------------------------|
| <input checked="" type="checkbox"/> Methyl-2-pentanone | Category 3 | -                 | Respiratory tract irritation |
| Solvent naphtha (petroleum), light aromatic            | Category 3 | -                 | Narcotic effects             |
| 1,2,4-trimethylbenzene                                 | Category 3 | -                 | Respiratory tract irritation |
| zineb (ISO)                                            | Category 3 | -                 | Respiratory tract irritation |

**Specific target organ toxicity (repeated exposure)**

| Name                                                   | Category   | Route of exposure | Target organs |
|--------------------------------------------------------|------------|-------------------|---------------|
| <input checked="" type="checkbox"/> Methyl-2-pentanone | Category 1 | -                 | -             |
| Xylene                                                 | Category 1 | -                 | -             |
| 12-hydroxyoctadecanoic acid, reaction products with    | Category 2 | inhalation        | lungs         |
| 1,3-benzenedimethanamine and hexamethylenediamine      | Category 2 | -                 | -             |
| Cumene                                                 | Category 2 | -                 | -             |

**Aspiration hazard**

| Name                                                                            | Result                         |
|---------------------------------------------------------------------------------|--------------------------------|
| <input checked="" type="checkbox"/> Solvent naphtha (petroleum), light aromatic | ASPIRATION HAZARD - Category 1 |
| Xylene                                                                          | ASPIRATION HAZARD - Category 1 |
| Cumene                                                                          | ASPIRATION HAZARD - Category 1 |

**Information on the likely routes of exposure** : Not available.

**Potential acute health effects**

**Inhalation** : ☒ May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Ingestion** : Harmful if swallowed.

## Section 11. Toxicological information

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

### Symptoms related to the physical, chemical and toxicological characteristics

- Eyes** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : ☒ Adverse symptoms may include the following:  
wheezing and breathing difficulties  
asthma  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin** : ☒ Adverse symptoms may include the following:  
pain or irritation  
redness  
dryness  
cracking  
blistering may occur  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : ☒ Adverse symptoms may include the following:  
stomach pains  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### 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.

## Section 11. Toxicological information

- General** : May cause damage to organs through prolonged or repeated exposure. 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** : Suspected of damaging fertility or the unborn child.
- Skin contact** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

### Numerical measures of toxicity

#### Acute toxicity estimates

| Product/ingredient name                                                                               | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapors) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|-------------------------------------------------------------------------------------------------------|--------------|----------------|--------------------------|----------------------------|-------------------------------------|
| SIGMA ECOFLEET 290 REDBROWN                                                                           | 1469.2       | 3214.9         | N/A                      | 63.9                       | 5.7                                 |
| dicopper oxide                                                                                        | 500          | 2500           | N/A                      | N/A                        | 3.34                                |
| Rosin                                                                                                 | 2500         | 2500           | N/A                      | N/A                        | N/A                                 |
| zinc oxide                                                                                            | N/A          | 2500           | N/A                      | N/A                        | N/A                                 |
| 4-Methyl-2-pentanone                                                                                  | 2080         | N/A            | N/A                      | 11                         | N/A                                 |
| Solvent naphtha (petroleum), light aromatic                                                           | 8400         | 3480           | N/A                      | N/A                        | N/A                                 |
| 1,2,4-trimethylbenzene                                                                                | 5000         | N/A            | N/A                      | 18                         | 1.5                                 |
| zineb (ISO)                                                                                           | 2500         | N/A            | N/A                      | N/A                        | N/A                                 |
| Xylene                                                                                                | 4300         | 1700           | N/A                      | N/A                        | N/A                                 |
| 12-hydroxyoctadecanoic acid, reaction products with 1,3-benzenedimethanamine and hexamethylenediamine | 2500         | 2500           | N/A                      | N/A                        | 3.56                                |
| copper oxide                                                                                          | 2500         | N/A            | N/A                      | N/A                        | N/A                                 |
| Cumene                                                                                                | 500          | 12300          | N/A                      | 39                         | N/A                                 |

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

## Persistence and degradability

| Product/ingredient name                                                                                                                | Test                                                      | Result                      | Dose             | Inoculum |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------|------------------|----------|
| 4-Methyl-2-pentanone<br>12-hydroxyoctadecanoic<br>acid, reaction products with<br>1,3-benzenedimethanamine<br>and hexamethylenediamine | OECD 301F                                                 | 83 % - Readily - 28 days    | -                | -        |
|                                                                                                                                        | OECD Ready<br>Biodegradability -<br>Closed Bottle<br>Test | 9 % - Not readily - 29 days | -                | -        |
| Product/ingredient name                                                                                                                | Aquatic half-life                                         | Photolysis                  | Biodegradability |          |
| 4-Methyl-2-pentanone<br>Xylene                                                                                                         | -                                                         | -                           | Readily          |          |
|                                                                                                                                        | -                                                         | -                           | Readily          |          |

## Bioaccumulative potential

| Product/ingredient name                                                            | LogP <sub>ow</sub> | BCF         | Potential |
|------------------------------------------------------------------------------------|--------------------|-------------|-----------|
| Rosin                                                                              | 1.9 to 7.7         | -           | High      |
| 4-Methyl-2-pentanone                                                               | 1.9                | -           | Low       |
| 1,2,4-trimethylbenzene                                                             | 3.63               | 120.23      | Low       |
| zineb (ISO)                                                                        | 1.3                | -           | Low       |
| Xylene                                                                             | 3.12               | 7.4 to 18.5 | Low       |
| 12-hydroxyoctadecanoic<br>acid, reaction products with<br>1,3-benzenedimethanamine | >6                 | -           | High      |

|                                                 |                                        |                   |
|-------------------------------------------------|----------------------------------------|-------------------|
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## Section 12. Ecological information

|                                    |      |       |     |
|------------------------------------|------|-------|-----|
| and hexamethylenediamine<br>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                                                               |
|------------------------------------|--------------------------------------------------------------------|------------------|--------------------------------------------------------------------|
| <b>UN number</b>                   | UN1263                                                             | UN1263           | UN1263                                                             |
| <b>UN proper shipping name</b>     | PAINT                                                              | PAINT            | PAINT                                                              |
| <b>Transport hazard class(es)</b>  | 3                                                                  | 3                | 3                                                                  |
| <b>Packing group</b>               | III                                                                | III              | III                                                                |
| <b>Environmental hazards</b>       | Yes. The environmentally hazardous substance mark is not required. | Yes.             | Yes. The environmentally hazardous substance mark is not required. |
| <b>Marine pollutant substances</b> | 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.

|                                                 |                                        |                   |
|-------------------------------------------------|----------------------------------------|-------------------|
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## Section 14. Transport information

**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.

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

## Section 15. Regulatory information

### TCCSCA List of toxic chemicals

| Listed no. | Series no. | Ingredient name      | RQ | Class 1 | Class 2 | Class 3 | Class 4 |
|------------|------------|----------------------|----|---------|---------|---------|---------|
| 117        | 1          | 4-methylpentan-2-one | -  | -       | -       | -       | Listed  |

### TCCSCA List of concerned chemicals

Not applicable.

**List of chemicals for which manufacturing or handling is defined as "work specially hazardous to health"** : This product contains substances "Specially hazardous to health": 4-methylpentan-2-one, xylene, toluene.

Regulations Applicable:

1. Rules for Occupational Safety and Health Facilities
2. Regulations for the Labeling and Hazard Communication of Hazardous Chemicals
3. Prevention Rules for Organic Solvent Intoxication/Poisoning
4. Standards of Permissible Exposure Limits of Airborne Hazardous Substances in Workplace
5. Traffic Safety Regulation of Road
6. Regulation for Governing, Designating and Handling of Priority Management Chemicals

## Section 16. Other information

|                                           |                                                                                                                                     |                                         |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <b>References</b>                         | Not available.                                                                                                                      |                                         |
| <b>Organization that prepared the SDS</b> | <b>Name:</b> PPG Industries International Inc., Taiwan Branch                                                                       |                                         |
|                                           | <b>Address / Telephone :</b><br>No. 209, Hong Tzuenn Rd. Ping Chen City, Taoyuan County, Taiwan<br>+886-3-3663922<br>+886-911998320 |                                         |
| <b>Person who prepared the SDS</b>        | <b>Title:</b><br>Technical manager                                                                                                  | <b>Name: (Signature):</b><br>Tony Cheng |
| <b>Date of issue</b>                      | 25 September 2025                                                                                                                   |                                         |

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2025

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## Section 16. Other information

Date of previous issue : 7/7/2025

Version : 16

Indicates information that has changed from previously issued version.

Remarks : New SDS layout incorporating TW Table 2017

Key to abbreviations : ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway  
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
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)  
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
UN = United Nations

### Disclaimer

*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.*