# SAFETY DATA SHEET

PPG SSC Co., Ltd.

**Date of issue** 7/26/2021 (month/day/year)
**Version** 9

## Section 1. Chemical product and company identification

**A. Product name** : SIGMA ECOFLEET 200 REDBROWN
**Product code** : 00358330

**B. Relevant identified uses of the substance or mixture and uses advised against**

**Product use** : Professional applications, Used by spraying.

**Use of the substance/ mixture** : Antifouling products

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

**C. Supplier's or Importer's information** : PPG SSC
(680-090)
19, Yeocheon-ro 217beon-gil, Nam-gu,
Ulsan, Korea
Tel: +82-52-210-8222

**Email Address** Korea.MSDS@PPG.COM

**Emergency telephone number:** : +82-52-210-8222

## Section 2. Hazards identification

**A. Hazard classification** : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (inhalation) - Category 4
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

This product is classified in accordance with the Industrial Safety and Health Act and the Chemical Control Act.

**B. GHS label elements, including precautionary statements**

**Symbol** :

**Signal word** : Danger

# Section 2. Hazards identification

**Hazard statements** :
H226 - Flammable liquid and vapor.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H332 - Harmful if inhaled.
H351 - Suspected of causing cancer.
H372 - Causes damage to organs through prolonged or repeated exposure. (central nervous system (CNS))
H410 - Very toxic to aquatic life with long lasting effects.

**Precautionary statements**

**Prevention** :
P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing and eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 - Use explosion-proof electrical, ventilating or lighting equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P273 - Avoid release to the environment.
P260 - Do not breathe vapor.
P270 - Do not eat, drink or smoke when using this product.

**Response** :
P391 - Collect spillage.
P308 + P313 - IF exposed or concerned: Get medical advice or attention.
P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

**Storage** :
P403 + P235 - Store in a well-ventilated place. Keep cool.

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

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

# Section 3. Composition/information on ingredients

**CAS number/other identifiers**

**CAS number** : Not applicable.

| Chemical name | Common name | Identifiers | % |
|---|---|---|---|
| dicopper oxide | DICOPPER OXIDE / COPPER (I) OXIDE | CAS: 1317-39-1 | 20 - <30 |
| Naphtha (petroleum), hydrodesulfurized heavy | NAPHTHA(PETROLEUM), HYDRODESULFURIZED HEAVY | CAS: 64742-82-1 | 10 -<20 |
| rosin | Rosin | CAS: 8050-09-7 | 10 -<20 |
| zinc oxide | ZINC OXIDE | CAS: 1314-13-2 | 5 - <10 |
| 4-methylpentan-2-one | 4-METHYLPENTAN-2-ONE / METHYL ISOBUTYL KETONE | CAS: 108-10-1 | 5 - <10 |
| zineb (ISO) | ZINEB | CAS: 12122-67-7 | 5 - <10 |
| diiron trioxide | Diiron trioxide | CAS: 1309-37-1 | 1 - <5 |
| Solvent naphtha (petroleum), light aromatic | SOLVENT NAPHTHA (PETROLEUM), LIGHT AROMATIC | CAS: 64742-95-6 | 1 - <5 |

# Section 3. Composition/information on ingredients

| | | | |
|---|---|---|---|
| 1,2,4-trimethylbenzene | 1,2,4-TRIMETHYL BENZENE | CAS: 95-63-6 | 1 - <5 |
| Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid and 1,3-phenylenedimethanamine | Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid and 1,3-phenylenedimethanamine | CAS: 911674-82-3 | 1 - <5 |
| copper oxide | COPPER OXIDE | CAS: 1317-38-0 | 0.1 - <1 |
| copper | COPPER | CAS: 7440-50-8 | 0.1 - <1 |

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

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

# Section 4. First aid measures

**A. 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.

**B. 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.

**C. 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.

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

**E. 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

**A. Extinguishing media**

**Suitable extinguishing media** : Use dry chemical, $CO_2$, water spray (fog) or foam.

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

# Section 5. Fire-fighting measures

**B. 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
metal oxide/oxides

**C. Special equipment for fire-fighting** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Fire-fighting procedures** : 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 6. Accidental release measures

**A. 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.

**B. 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.

**C. 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

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

**B. 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

**A. Occupational exposure limits**

| Ingredient name | Exposure limits |
|---|---|
| dicopper oxide | **Ministry of Employment and Labor (Republic of Korea, 1/2020).** TWA: 0.1 mg/m³ 8 hours. Form: Fume |
| rosin | **ACGIH TLV (United States, 3/2020). Skin sensitizer. Inhalation sensitizer.** |
| zinc oxide | **Ministry of Employment and Labor (Republic of Korea, 1/2020).** TWA: 2 mg/m³ 8 hours. Form: Respirable dust<br>STEL: 10 mg/m³ 15 minutes.<br>TWA: 5 mg/m³ 8 hours. |
| 4-methylpentan-2-one | **Ministry of Employment and Labor (Republic of Korea, 1/2020).** STEL: 75 ppm 15 minutes.<br>TWA: 50 ppm 8 hours. |
| diiron trioxide | **Ministry of Employment and Labor (Republic of Korea, 1/2020).** TWA: 5 mg/m³, (as Fe) 8 hours. Form: Fume<br>TWA: 5 mg/m³, (as Fe) 8 hours. |
| 1,2,4-trimethylbenzene | **Ministry of Employment and Labor (Republic of Korea, 1/2020).** TWA: 25 ppm 8 hours. |
| Reaction products of 12-hydroxyoctadecanoic acid and | **ACGIH TLV (United States).** |

# Section 8. Exposure controls/personal protection

| | |
|---|---|
| octadecanoic acid and 1,3-phenylenedimethanamine | TWA: 3 mg/m³, (Respirable fraction) |
| copper oxide | **Ministry of Employment and Labor (Republic of Korea, 1/2020).** TWA: 0.1 mg/m³ 8 hours. Form: Fume |
| copper | **Ministry of Employment and Labor (Republic of Korea, 1/2020).** TWA: 0.1 mg/m³ 8 hours. Form: Fume |

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**B. Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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

**C. Personal protective equipment**

**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.

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

**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.

**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

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

**A. Appearance**

**Physical state** : Liquid.

**Color** : Brownish-red.

**B. Odor** : Aromatic.

**C. Odor threshold** : Not available.

**D. pH** : Not applicable.

**E. Melting/freezing point** : Not available.

**F. Boiling point/boiling range** : >37.78°C (>100°F)

**G. Flash point** : Closed cup: 27°C (80.6°F)

**H. Evaporation rate** : Not available.

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

**J. Lower and upper explosive (flammable) limits** : Greatest known range: Lower: 1.4% Upper: 7.6% (Naphtha (petroleum), hydrodesulfurized heavy)

**K. Vapor pressure** :

| Ingredient name | Vapor Pressure at 20˚C | | | Vapor pressure at 50˚C | | |
|---|---|---|---|---|---|---|
| | mm Hg | kPa | Method | mm Hg | kPa | Method |
| 4-methylpentan-2-one | 15.75 | 2.1 | | | | |

**L. Solubility** : Insoluble in the following materials: cold water.

**Solubility in water** : Not available.

**M. Vapor density** : Not available.

**N. Relative density** : 1.53

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

**P. Auto-ignition temperature** :

| Ingredient name | °C | °F | Method |
|---|---|---|---|
| zineb (ISO) | 149 | 300.2 | |

**Q. Decomposition temperature** : Not available.

**R. Viscosity** : Kinematic (40°C (104°F)): >21 $mm^2/s$ (>21 cSt)

**Flow time (ISO 2431)** : Not available.

**S. Molecular weight** : Not applicable.

# Section 10. Stability and reactivity

**A. Chemical stability** : The product is stable.

**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**B. Conditions to avoid** : When exposed to high temperatures may produce hazardous decomposition products.

**C. Incompatible materials** : Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.

**D. Hazardous decomposition products** : Depending on conditions, decomposition products may include the following materials: carbon oxides nitrogen oxides sulfur oxides metal oxide/oxides

# Section 11. Toxicological information

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

**Potential acute health effects**

**Inhalation** : Harmful if inhaled.

**Ingestion** : No known significant effects or critical hazards.

**Skin contact** : Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.

**Eye contact** : Causes serious eye damage.

**Over-exposure signs/symptoms**

**Inhalation** : No specific data.

**Ingestion** : Adverse symptoms may include the following:
stomach pains

**Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
dryness
cracking
blistering may occur

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

**B. Health hazards**

**Acute toxicity**

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| dicopper oxide | LC50 Inhalation Dusts and mists | Rat | 3.34 mg/l | 4 hours |
| | LD50 Dermal | Rat | >2000 mg/kg | - |
| | LD50 Oral | Rat | 1340 mg/kg | - |
| Naphtha (petroleum), hydrodesulfurized heavy | LD50 Oral | Rat | >5000 mg/kg | - |
| rosin | LD50 Dermal | Rat | >2000 mg/kg | - |
| | LD50 Oral | Rat | 7600 mg/kg | - |

# Section 11. Toxicological information

| | | | | |
|---|---|---|---|---|
| zinc oxide | LC50 Inhalation Dusts and mists | Rat | >5700 mg/m³ | 4 hours |
| | LD50 Dermal | Rat | >2000 mg/kg | - |
| | LD50 Oral | Rat | >5000 mg/kg | - |
| 4-methylpentan-2-one | LC50 Inhalation Vapor | Rat | 12.3 mg/l | 4 hours |
| | LD50 Dermal | Rabbit | >5000 mg/kg | - |
| | LD50 Oral | Rat | 2.08 g/kg | - |
| zineb (ISO) | LD50 Oral | Rat | >2000 mg/kg | - |
| diiron trioxide | LC50 Inhalation Dusts and mists | Rat | >5 mg/l | 4 hours |
| | LD50 Oral | Rat | 10 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/m³ | 4 hours |
| | LD50 Oral | Rat | 5 g/kg | - |
| Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid and 1,3-phenylenedimethanamine | LC50 Inhalation Dusts and mists | Rat | >5.08 mg/l | 4 hours |
| copper oxide | LD50 Oral | Rat | >2000 mg/kg | - |
| copper | LC50 Inhalation Dusts and mists | Rat | >5.11 mg/l | 4 hours |

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

## Irritation/Corrosion

### Conclusion/Summary

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

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

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

## Sensitization

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

### Conclusion/Summary

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

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

## Mutagenicity

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

## Carcinogenicity

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

## Reproductive toxicity

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

## Teratogenicity

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

# Section 11. Toxicological information

## Specific target organ toxicity (single exposure)

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

## Specific target organ toxicity (repeated exposure)

| Name | Classification | Route of exposure | Target organs |
|---|---|---|---|
| Naphtha (petroleum), hydrodesulfurized heavy | Category 1 | - | central nervous system (CNS) |

## Aspiration hazard

| Name | Result |
|---|---|
| Naphtha (petroleum), hydrodesulfurized heavy | ASPIRATION HAZARD - Category 1 |
| Solvent naphtha (petroleum), light aromatic | ASPIRATION HAZARD - Category 1 |

## Potential chronic health effects

**General** : Causes 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** : Suspected of causing 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.

## Additional 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 11. Toxicological information

| Chemical name | Identifiers | GHS Classification |
|---|---|---|
| dicopper oxide | CAS: 1317-39-1 | ACUTE TOXICITY (oral) - Category 4<br>ACUTE TOXICITY (inhalation) - Category 4<br>SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1<br>AQUATIC HAZARD (ACUTE) - Category 1<br>AQUATIC HAZARD (LONG-TERM) - Category 1 |
| Naphtha (petroleum), hydrodesulfurized heavy | CAS: 64742-82-1 | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1<br>ASPIRATION HAZARD - Category 1<br>AQUATIC HAZARD (LONG-TERM) - Category 2 |
| rosin | CAS: 8050-09-7 | SKIN SENSITIZATION - Category 1<br>AQUATIC HAZARD (LONG-TERM) - Category 4 |
| zinc oxide | CAS: 1314-13-2 | AQUATIC HAZARD (ACUTE) - Category 1<br>AQUATIC HAZARD (LONG-TERM) - Category 1 |
| 4-methylpentan-2-one | CAS: 108-10-1 | FLAMMABLE LIQUIDS - Category 2<br>ACUTE TOXICITY (inhalation) - Category 4<br>SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1<br>CARCINOGENICITY - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |
| zineb (ISO) | CAS: 12122-67-7 | SKIN SENSITIZATION - Category 1<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |
| diiron trioxide | CAS: 1309-37-1 | Not classified. |
| Solvent naphtha (petroleum), light aromatic | CAS: 64742-95-6 | FLAMMABLE LIQUIDS - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3<br>ASPIRATION HAZARD - Category 1<br>AQUATIC HAZARD (LONG-TERM) - Category 2 |
| 1,2,4-trimethylbenzene | CAS: 95-63-6 | FLAMMABLE LIQUIDS - Category 3<br>ACUTE TOXICITY (inhalation) - Category 4<br>SKIN CORROSION/IRRITATION - Category 2<br>SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>AQUATIC HAZARD (LONG-TERM) - Category 2 |
| Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid and 1,3-phenylenedimethanamine | CAS: 911674-82-3 | SKIN SENSITIZATION - Category 1 |
| copper oxide | CAS: 1317-38-0 | AQUATIC HAZARD (ACUTE) - Category 1<br>AQUATIC HAZARD (LONG-TERM) - Category 1 |

# Section 11. Toxicological information

| | | |
|---|---|---|
| copper | CAS: 7440-50-8 | AQUATIC HAZARD (ACUTE) - Category 1<br>AQUATIC HAZARD (LONG-TERM) - Category 3 |

# Section 12. Ecological information

## A. Ecotoxicity

| Product/ingredient name | Result | Species | Exposure |
|---|---|---|---|
| dicopper oxide | LC50 0.003 mg/l | Fish | 96 hours |
| zinc oxide | Acute EC50 0.17 mg/l | Algae | 72 hours |
| | Acute EC50 0.481 mg/l Fresh water | Daphnia - Daphnia magna - Neonate | 48 hours |
| | Chronic NOEC 0.017 mg/l Fresh water | Algae | 72 hours |
| 4-methylpentan-2-one | Acute LC50 >179 mg/l | Fish | 96 hours |
| diiron trioxide | Acute EC50 >100 mg/l | Daphnia | 48 hours |
| Solvent naphtha (petroleum), light aromatic | Acute LC50 8.2 mg/l | Fish | 96 hours |
| Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid and 1,3-phenylenedimethanamine | Acute LC50 >100 mg/l | Fish | 96 hours |
| copper | Acute LC50 810 ppb | Fish | 96 hours |

## B. Persistence and degradability

| Product/ingredient name | Test | Result | Dose | Inoculum |
|---|---|---|---|---|
| 4-methylpentan-2-one | OECD 301F | 83 % - Readily - 28 days | - | - |

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

## C. Bioaccumulative potential

| Product/ingredient name | $LogP_{ow}$ | 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 |

## D. Mobility in soil

**Soil/water partition coefficient ($K_{OC}$)** : Not available.

## E. Other adverse effects

: No known significant effects or critical hazards.

# Section 13. Disposal considerations

**A. 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.

**B. Disposal precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. 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 |
|---|---|---|---|
| **A. UN number** | UN1263 | UN1263 | UN1263 |
| **B. UN proper shipping name** | PAINT | PAINT | PAINT |
| **C. Transport hazard class(es)** | 3 | 3 | 3 |
| **D. 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. |
| **E. Marine pollutant substances** | Not applicable. | (dicopper oxide, Naphtha (petroleum), hydrodesulfurized heavy) | Not applicable. |

**Additional information**

**UN** : None identified.

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

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

**F. Special precaution which a user to be aware of or needs to comply with in connection with transport or tranportation**

**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

## A. Regulation according to ISHA

**ISHA article 117 (Harmful substances prohibited from manufacture)** : None of the components are listed.

**ISHA article 118 (Harmful substances requiring permission)** : None of the components are listed.

**Article 2 of Youth Protection Act on Substances Hazardous to Youth** : It is not allowed to sell to persons under the age of 19.

### Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:
dicopper oxide
rosin
zinc oxide
4-methylpentan-2-one
diiron trioxide
1,2,4-trimethylbenzene
Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid and 1,3-phenylenedimethanamine
copper oxide
copper

**ISHA Enforcement Regs Annex 19 (Exposure standards established for harmful factors)** : None of the components are listed.

**ISHA Enforcement Regs Annex 21 (Harmful factors subject to Work Environment Measurement)** : The following components are listed: zinc oxide, methyl isobutyl ketone, iron oxide

**ISHA Enforcement Regs Annex 22 (Harmful Factors Subject to Special Health Check-up)** : The following components are listed: Copper (dust, mist, fume), Zinc oxide, Methyl isobutyl ketone, Iron oxide (dust, fume)

**Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control)** : The following components are listed: copper and its compounds, zinc and its compounds, methyl isobutyl ketone, zinc and its compounds, iron and its compounds

## B. Regulation according to Chemicals Control Act

**CCA Article 11 (TRI)** : The following components are listed: Copper and its compounds, Zinc and its compounds, Zinc and its compounds

**CCA Article 18 Prohibited (K-Reach Article 27)** : None of the components are listed.

# Section 15. Regulatory information

**CCA Article 19 Subject to authorization (K-Reach Article 25)** : None of the components are listed.

**CCA Article 20 Restricted (K-Reach Article 27)** : None of the components are listed.

**CCA Article 20 Toxic Chemicals (K-Reach Article 20)** : Not applicable

**Korea inventory** : All components are listed or exempted.

**CCA Article 39 (Accident Precaution Chemicals)** : None of the components are listed.

**C. Dangerous Materials Safety Management Act** : **Class:** Class 4 - Flammable Liquid
**Item:** 4. Class 2 petroleums - Water-insoluble liquid
**Threshold:** 1000 L
**Danger category:** III
**Signal word:** Contact with sources of ignition prohibited

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

**E. Regulation according to other foreign laws**

**Safety, health and environmental regulations specific for the product** : No known specific national and/or regional regulations applicable to this product (including its ingredients).

# Section 16. Other information

**A. References** : Korean Ministry of Environment; Chemical Control Act
Korean Ministry of Labor; Industrial Safety and Health Act
NIER Notice
Registry of Toxic Effects of Chemical Substances (RTECS)
U.S. Environmental Protection Agency, AQUIRE (Aquatic toxicity Information Retrieval) ECOTOX Database System.

**B. Date of issue/Date of revision** : **7/26/2021**

**C. Version** : **9**

**Prepared by** : EHS

**D. Other**

**Indicates information that has changed from previously issued version.**

**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.***