

SAFETY DATA SHEET



SIGMA ECOFLEET 290S BLACK

Date of issue 14 February 2020

Version 1

1. Product and company identification

Product name : SIGMA ECOFLEET 290S BLACK

Product code : 00426908

Product type : Liquid.

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 : Not applicable.

Supplier's details : PPG PMC Japan Co., Ltd.
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number : 078 574 2777

2. Hazards identification

GHS Classification : FLAMMABLE LIQUIDS - Category 3
SERIOUS EYE DAMAGE - Category 1
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Fertility) - Category 1B
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS), kidneys, liver, respiratory system, systemic toxicity) - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (central nervous system (CNS), nervous system, respiratory system) - Category 2
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

2. Hazards identification

- Hazard statements** : Flammable liquid and vapor.
Causes serious eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Suspected of causing cancer.
Causes damage to organs. (central nervous system (CNS), kidneys, liver, respiratory system, systemic toxicity)
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure. (central nervous system (CNS), nervous system, respiratory system)
Very toxic to aquatic life with long lasting effects.
- Precautionary statements**
- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.
- Response** : Collect spillage. Get medical attention if you feel unwell. IF exposed or concerned: Call a POISON CENTER or physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
- Storage** : Store locked up. Store in a well-ventilated place. Keep cool.
- 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.

3. Composition/information on ingredients

Substance/mixture : Mixture

CAS number/other identifiers

CAS number : Not applicable.
ENCS number : Not available.

3. Composition/information on ingredients

Ingredient name	%	CAS number	ENCS
dicopper oxide	25 - <50	1317-39-1	1-297
Rosin	10 - <12.5	8050-09-7	7-935
Zinc oxide	10 - <12.5	1314-13-2	1-561
Methylisobutylketone	7 - <10	108-10-1	2-542
Solvent naphtha (petroleum), light aromatic	7 - <10	64742-95-6	Not available.
Diiron trioxide	5 - <7	1309-37-1	1-357
Zinc N,N'-ethylenebis(dithiocarbamate)	5 - <7	12122-67-7	2-1841
1,2,4-Trimethylbenzene	3 - <5	95-63-6	3-3427; 3-7
Carbon black	2 - <3	1333-86-4	5-3328; 5-5222
Xylene	1 - <2	1330-20-7	3-3; 3-60
Talc (containing no asbestos or quartz)	1 - <2	14807-96-6	Not available.
copper(II) oxide	0.5 - <1	1317-38-0	1-297
Copper	0.5 - <1	7440-50-8	Not available.
Ethylbenzene	0.2 - <0.5	100-41-4	3-28; 3-60
Cumene	0.1 - <0.2	98-82-8	3-22

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

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

SUB codes represent substances without registered CAS Numbers.

4. First aid measures

Description of necessary first aid measures

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

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Causes damage to organs following a single exposure in contact with skin. Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.
- Ingestion** : Causes damage to organs following a single exposure if swallowed. Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

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

4. First aid measures

- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties
asthma
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
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

- 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)

5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

5. Fire-fighting measures

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon oxides
nitrogen oxides
sulfur oxides
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.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

- 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.

7. Handling and storage

Precautions for safe handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Refer to special instructions/safety data sheet. 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 non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Conditions for safe storage : 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.

8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Rosin	Japan Society for Occupational Health (Japan, 5/2018). Skin sensitizer. Inhalation sensitizer.
Zinc oxide	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 1 mg/m ³ 8 hours. Form: Respirable dust
Methylisobutylketone	OEL-M: 4 mg/m ³ 8 hours. Form: Total dust Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 200 mg/m ³ 8 hours. OEL-M: 50 ppm 8 hours. ISHL (Japan, 2/2019). TWA: 20 ppm 8 hours.
Diiron trioxide	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 1 mg/m ³ 8 hours. Form: Respirable dust
1,2,4-Trimethylbenzene	OEL-M: 4 mg/m ³ 8 hours. Form: Total dust Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 120 mg/m ³ 8 hours. OEL-M: 25 ppm 8 hours.

8. Exposure controls/personal protection

Carbon black	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 1 mg/m ³ 8 hours. Form: Respirable dust
Xylene	OEL-M: 4 mg/m ³ 8 hours. Form: Total dust ISHL (Japan, 2/2019). TWA: 50 ppm 8 hours.
Talc (containing no asbestos or quartz)	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 50 ppm 8 hours. OEL-M: 217 mg/m ³ 8 hours.
Ethylbenzene	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 0.5 mg/m ³ 8 hours. Form: Respirable dust OEL-M: 2 mg/m ³ 8 hours. Form: Total dust Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 217 mg/m ³ 8 hours. OEL-M: 50 ppm 8 hours. ISHL (Japan, 2/2019). TWA: 20 ppm 8 hours.

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.

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

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

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye protection : Chemical splash goggles and face shield.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Gloves : butyl rubber

8. Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Black.
- Odor** : Aromatic. [Strong]
- Boiling point** : >37.78°C (>100°F)
- Flash point** : Closed cup: 32°C (89.6°F)
- Relative density** : 1.64
- Solubility** : Insoluble in the following materials: cold water.
- Viscosity** : Not Applicable

10. Stability and reactivity

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

11. Toxicological information

Information on toxicological effects

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	-
Rosin	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	7600 mg/kg	-
Zinc oxide	LC50 Inhalation Dusts and mists	Rat	>5700 mg/m ³	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Methylisobutylketone	LC50 Inhalation Vapor	Rat	12.3 mg/l	4 hours
	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	-
Diiron trioxide	LC50 Inhalation Dusts and mists	Rat	>5 mg/l	4 hours
	LD50 Oral	Rat	10 g/kg	-
Zinc N,N'-ethylenebis (dithiocarbamate)	LD50 Oral	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
1,2,4-Trimethylbenzene	LC50 Inhalation Vapor	Rat	18000 mg/m ³	4 hours
	LD50 Oral	Rat	5 g/kg	-
Carbon black	LD50 Dermal	Rabbit	>3 g/kg	-
	LD50 Oral	Rat	>15400 mg/kg	-
Xylene	LD50 Dermal	Rabbit	>1.7 g/kg	-
	LD50 Oral	Rat	4.3 g/kg	-
copper(II) oxide	LD50 Oral	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
Ethylbenzene	LC50 Inhalation Vapor	Rat	17.8 mg/l	4 hours
	LD50 Dermal	Rabbit	17.8 g/kg	-
	LD50 Oral	Rat	3.5 g/kg	-
Cumene	LC50 Inhalation Vapor	Rat	39000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	12.3 g/kg	-
	LD50 Oral	Rat	1400 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
Zinc N,N'-ethylenebis (dithiocarbamate)	skin	Guinea pig	Sensitizing

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

11. Toxicological information

Name	Category	Route of exposure	Target organs
dicopper oxide	Category 1 Category 3	Not determined Not applicable.	systemic toxicity Respiratory tract irritation
Zinc oxide	Category 1	Not determined	respiratory system and systemic toxicity
Methylisobutylketone	Category 3 Category 3	Not applicable. Not applicable.	Narcotic effects Respiratory tract irritation
Solvent naphtha (petroleum), light aromatic	Category 3 Category 3	Not applicable. Not applicable.	Narcotic effects Respiratory tract irritation
Diiron trioxide	Category 3	Not applicable.	Respiratory tract irritation
Zinc N,N'-ethylenebis(dithiocarbamate)	Category 3	Not applicable.	Narcotic effects
1,2,4-Trimethylbenzene	Category 3 Category 3	Not applicable. Not applicable.	Narcotic effects Respiratory tract irritation
Xylene	Category 1	Not determined	central nervous system (CNS), kidneys, liver and respiratory system
Talc (containing no asbestos or quartz)	Category 3	Not applicable.	Narcotic effects
copper(II) oxide	Category 1 Category 1 Category 3	Not determined Not determined Not applicable.	respiratory system systemic toxicity Respiratory tract irritation
Copper	Category 1 Category 3	Not determined Not applicable.	digestive system Respiratory tract irritation
Ethylbenzene	Category 3 Category 3	Not applicable. Not applicable.	Narcotic effects Respiratory tract irritation
Cumene	Category 1	Not determined	central nervous system (CNS), kidneys and liver
	Category 3 Category 3	Not applicable. Not applicable.	Narcotic effects Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Methylisobutylketone	Category 1	Not determined	central nervous system (CNS)
Diiron trioxide	Category 1	Not determined	respiratory system
Zinc N,N'-ethylenebis(dithiocarbamate)	Category 1	Not determined	respiratory system
1,2,4-Trimethylbenzene	Category 2	Not determined	central nervous system (CNS) and lungs
Carbon black	Category 1	Not determined	respiratory system
Xylene	Category 1	Not determined	nervous system and respiratory system
Talc (containing no asbestos or quartz)	Category 1	Not determined	respiratory system
Ethylbenzene	Category 2	Not determined	hearing organs

11. Toxicological information

Aspiration hazard

Name	Result
Solvent naphtha (petroleum), light aromatic	ASPIRATION HAZARD - Category 1
1,2,4-Trimethylbenzene	ASPIRATION HAZARD - Category 1
Xylene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1
Cumene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Causes damage to organs following a single exposure in contact with skin. Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.
- Ingestion** : Causes damage to organs following a single exposure if swallowed. Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties
asthma
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
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

11. Toxicological information

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

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 : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : May damage fertility.

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 290S BLACK	4655.2	25933.2	N/A	34.9	6.3
dicopper oxide	1340	2500	N/A	N/A	3.34
Rosin	7600	2500	N/A	N/A	1.5
Zinc oxide	N/A	2500	N/A	N/A	N/A
Methylisobutylketone	2080	N/A	N/A	3	N/A
Solvent naphtha (petroleum), light aromatic	8400	3480	N/A	N/A	N/A
Diiron trioxide	10000	N/A	N/A	N/A	N/A
Zinc N,N'-ethylenebis(dithiocarbamate)	2500	N/A	N/A	N/A	N/A
1,2,4-Trimethylbenzene	5000	N/A	N/A	N/A	N/A
Carbon black	N/A	2500	N/A	N/A	N/A
Xylene	4300	1100	N/A	11	N/A
copper(II) oxide	2500	N/A	N/A	N/A	N/A
Ethylbenzene	3500	17800	N/A	17.8	N/A
Cumene	N/A	12300	N/A	3	N/A

Other information :

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. Wash thoroughly after handling. Emits toxic fumes when heated.

12. Ecological information

Toxicity

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
Solvent naphtha (petroleum), light aromatic	Chronic NOEC 0.017 mg/l Fresh water	Algae	72 hours
Diiron trioxide	Acute LC50 8.2 mg/l	Fish	96 hours
Copper	Acute EC50 >100 mg/l	Daphnia	48 hours
Ethylbenzene	Acute LC50 810 ppb	Fish	96 hours
	Acute LC50 150 to 200 mg/l Fresh water	Fish	96 hours

Persistence/degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Xylene	-	-	Readily
Ethylbenzene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Methylisobutylketone	1.31	-	low
Zinc N,N'-ethylenebis (dithiocarbamate)	1.3	-	-
1,2,4-Trimethylbenzene	3.63	120.23	low
Xylene	3.16	7.4 to 18.5	low
Ethylbenzene	3.15	79.43	low
Cumene	3.66	35.48	low

Mobility in soil

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

Mobility : Not available.

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

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

13. Disposal considerations

sewers.

14. Transport information

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

Additional information

- UN** : This class 3 viscous liquid that is also environmentally hazardous is not subject to regulation in packagings up to 5 L, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 according to 2.3.2.5.2.
- IMDG** : This class 3 viscous liquid that is also environmentally hazardous is not subject to regulation in packagings up to 5 L, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 according to 2.3.2.5.
- 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.

15. Regulatory information

Fire Service Law

Category	Substance name/Type	Danger category	Signal word	Designated quantity
Category IV	Class II petroleum	III	Flammable - Keep Fire Away	1000 L

Pollutant Release and Transfer Registers (PRTR)

Ingredient name	%	Status	Reference number
1,2,4-Trimethylbenzene	4.641	Class 1	296
xylene	1.6881	Class 1	80

ISHL

Use of specified chemical substances

15. Regulatory information

Ingredient name	%	Status	Reference number
Methyl isobutyl ketone	<10	Special Organic Solvents	33-2

Label requirements

Ingredient name	%	Status	Reference number
Copper and its compounds	≥25 - ≤36	Listed	379
Petroleum naphtha	≤10	Listed	330
Trimethylbenzene	≤5.0	Listed	404
Xylene	≤2.0	Listed	136
Ethylbenzene	<1.0	Listed	70
Zinc oxide	≥10 - ≤25	Listed	188
Rosin	≤13	Listed	632
Methyl isobutyl ketone	<10	Listed	569
Iron oxide; Diiron(III) trioxide	≤7.9	Listed	192
Carbon black	≤3.0	Listed	130

Chemicals requiring notification

Ingredient name	%	Status	Reference number
Copper and its compounds	≥25 - ≤36	Listed	379
Copper and its compounds	<1.0	Listed	379
Copper and its compounds	<1.0	Listed	379
Petroleum naphtha	≤10	Listed	330
Trimethylbenzene	≤5.0	Listed	404
Xylene	≤2.0	Listed	136
Cumene	≤0.30	Listed	138
Ethylbenzene	<1.0	Listed	70
Zinc oxide	≥10 - ≤25	Listed	188
Rosin	≤13	Listed	632
Methyl isobutyl ketone	<10	Listed	569
Iron oxide; Diiron(III) trioxide	≤7.9	Listed	192
Carbon black	≤3.0	Listed	130

Carcinogen

Ingredient name	%	Status	Reference number
methyl isobutyl ketone	<10	Listed	-

Mutagen

None of the components are listed.

Corrosive liquid : Not listed

Occupational Safety and Health Law : Flammable liquid Class 4

Prevention of Tetraalkyl Lead Poisoning : Not listed

Harmful Substances Subject to Obtaining Permission for Manufacturing : Not listed

Harmful Substances, Prohibited for Manufacturing : Not listed

15. Regulatory information

Dangerous Substances : Inflammable

Lead regulation : Not listed

Organic solvents poisoning prevention : Class 2

Poisonous and Deleterious Substances

None of the components are listed.

Chemical Substances Control Law (CSCL)

Ingredient name	%	Status	Reference number
1,3,5-Trimethylbenzene	0.6188	Priority assessment	201
1,2,4-Trimethylbenzene	4.641	Priority assessment	49
1,3,5-Trimethylbenzene	0.7735	Priority assessment	201
Xylene	1.6881	Priority assessment	125
Cumene	0.1547	Priority assessment	126
Ethylbenzene	0.32185	Priority assessment	50
Methyl isobutyl ketone	8.1357	Priority assessment	116

High Pressure Gas Control Law : Not available.

Explosives Control Law

None of the components are listed.

Law Concerning Prevention of Pollution of the Ocean and Maritime Disaster : Not available.

Maritime Safety Law

Notification Regulating Transportation of Dangerous Materials by Sea

None of the components are listed.

Container class

None of the components are listed.

JSOH Carcinogen : Group 2B

List of Specially Controlled Industrial Waste : Not listed

Japan inventory : All components are listed or exempted.

Road law : Not available.

16. Other information

History

Date of issue/Date of revision : 14 February 2020

Date of previous issue : No previous validation

Version : 1

Prepared by : EHS

16. Other information

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

▣ Indicates information that has changed from previously issued version.

Notice to reader

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