

SAFETY DATA SHEET



SIGMASHIELD 880 BASE RAL 1014

Date of issue 16 January 2020

Version 15

1. Product and company identification

Product name : SIGMASHIELD 880 BASE RAL 1014
Product code : 00327016
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** : Coating.

Uses advised against : Not applicable.

Supplier's details : PPG PMC Japan Co., Ltd.
8F, Shintetsu Bldg., 1-1, Daikaidori 1-chome, Kobe 652-0803
Tel : +81 78 574 2777
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**Emergency telephone
number** : 078 574 2777

2. Hazards identification

GHS Classification : FLAMMABLE LIQUIDS - Category 3
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
GERM CELL MUTAGENICITY - Category 2
CARCINOGENICITY - Category 1A
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) - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (immune system, kidneys, lungs, nervous system, respiratory system) - Category 1
AQUATIC HAZARD (ACUTE) - Category 2
AQUATIC HAZARD (LONG-TERM) - Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

2. Hazards identification

- Hazard statements** : Flammable liquid and vapor.
Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.
May cause cancer.
May damage fertility or the unborn child.
Suspected of causing genetic defects.
Causes damage to organs. (central nervous system (CNS), kidneys, liver, respiratory system)
Causes damage to organs through prolonged or repeated exposure. (immune system, kidneys, lungs, nervous system, respiratory system)
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. 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. 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 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. If eye irritation persists: Get medical attention.
- 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.

Ingredient name	%	CAS number	ENCS
Epoxy resin (MW ≤ 700)	20 - <25	25068-38-6	(7)-1279
crystalline silica, respirable powder (>10 microns)	15 - <20	14808-60-7	1-548
Talc (containing no asbestos or quartz)	15 - <20	14807-96-6	Not available.
titanium dioxide (nanoparticle)	10 - <12.5	13463-67-7	1-558
Xylene	5 - <7	1330-20-7	3-3; 3-60
Crystalline-quartz	5 - <7	14808-60-7	1-548
Epoxy Resin (700<MW<=1100)	3 - <5	25036-25-3	Not available.
Phenol, methylstyrenated	3 - <5	68512-30-1	Not available.
Aluminium oxide	3 - <5	1344-28-1	1-23
Isobutyl alcohol	2 - <3	78-83-1	2-3049
2,3-epoxypropyl neodecanoate	1 - <2	26761-45-5	2-637

3. Composition/information on ingredients

Ethylbenzene	1 - <2	100-41-4	3-28; 3-60
Silica (silicon dioxide containing crystalline and amorphous)	0.1 - <0.2	7631-86-9	1-548

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** : Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.
- 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 irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes damage to organs following a single exposure in contact with skin. Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : Causes damage to organs following a single exposure if swallowed.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

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

4. First aid measures

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- 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 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
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.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor 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.

6. Accidental release measures

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. 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

8. Exposure controls/personal protection

Ingredient name	Exposure limits
crystalline silica, respirable powder (>10 microns)	Japan Society for Occupational Health (Japan, 5/2018). OEL-C: 0.03 mg/m ³ Form: Respirable dust
Talc (containing no asbestos or quartz)	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 0.5 mg/m ³ 8 hours. Form: Respirable dust
titanium dioxide (nanoparticle)	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 2 mg/m ³ 8 hours. Form: Total dust
Xylene	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 1 mg/m ³ 8 hours. Form: Respirable dust
Crystalline-quartz	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 4 mg/m ³ 8 hours. Form: Total dust
Aluminium oxide	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 0.3 mg/m ³ , (as Ti) 8 hours. Form: nanoparticle
Isobutyl alcohol	ISHL (Japan, 2/2019). TWA: 50 ppm 8 hours.
Ethylbenzene	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 50 ppm 8 hours.
Ethylbenzene	Japan Society for Occupational Health (Japan, 5/2018). 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
Ethylbenzene	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 2 mg/m ³ 8 hours. Form: Total dust
Ethylbenzene	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 150 mg/m ³ 8 hours.
Ethylbenzene	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 50 ppm 8 hours.
Ethylbenzene	ISHL (Japan, 2/2019). TWA: 50 ppm 8 hours.
Ethylbenzene	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 217 mg/m ³ 8 hours.
Ethylbenzene	Japan Society for Occupational Health (Japan, 5/2018). OEL-M: 50 ppm 8 hours.
Ethylbenzene	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.

8. Exposure controls/personal protection

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

Individual protection measures

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

Eye protection : Chemical splash goggles.

Skin protection

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

Gloves : butyl rubber

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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

9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Yellow.

Odor : Aromatic.

Boiling point : >37.78°C (>100°F)

Flash point : Closed cup: 37°C (98.6°F)

Relative density : 1.61

Solubility : Insoluble in the following materials: cold water.

Viscosity : 60 - 100 s (ISO 6mm)

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
Epoxy resin (MW ≤ 700)	LD50 Dermal	Rabbit	>2 g/kg	-
	LD50 Oral	Rat	>2 g/kg	-
titanium dioxide (nanoparticle)	LC50 Inhalation Dusts and mists	Rat	>6.82 mg/l	4 hours
Xylene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Epoxy Resin (700<MW ≤1100)	LD50 Dermal	Rabbit	>1.7 g/kg	-
	LD50 Oral	Rat	4.3 g/kg	-
Phenol, methylstyrenated	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
Isobutyl alcohol	LC50 Inhalation Vapor	Rat	24.6 mg/l	4 hours
	LD50 Dermal	Rabbit	2460 mg/kg	-
2,3-epoxypropyl neodecanoate	LD50 Oral	Rat	2830 mg/kg	-
	LD50 Dermal	Rat	3800 mg/kg	-
Ethylbenzene	LD50 Oral	Rat	9.6 g/kg	-
	LC50 Inhalation Vapor	Rat	17.8 mg/l	4 hours
Silica (silicon dioxide containing crystalline and amorphous)	LD50 Dermal	Rabbit	17.8 g/kg	-
	LD50 Oral	Rat	3.5 g/kg	-
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-

Irritation/Corrosion

11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
✓ Epoxy resin (MW ≤ 700)	Skin - Mild irritant	Rabbit	-	-	-
	Eyes - Mild irritant	Rabbit	-	-	-
Xylene	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Epoxy resin (MW ≤ 700)	skin	Mouse	Sensitizing

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
✓ falc (containing no asbestos or quartz)	Category 1	Not determined	respiratory system
Xylene	Category 1	Not determined	central nervous system (CNS), kidneys, liver and respiratory system
Aluminium oxide	Category 3	Not applicable.	Narcotic effects
Isobutyl alcohol	Category 3	Not applicable.	Respiratory tract irritation
Ethylbenzene	Category 3	Not applicable.	Narcotic effects
	Category 3	Not applicable.	Respiratory tract irritation
Silica (silicon dioxide containing crystalline and amorphous)	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
✓ falc (containing no asbestos or quartz)	Category 1	Not determined	respiratory system
titanium dioxide (nanoparticle)	Category 1	Not determined	respiratory system
Xylene	Category 1	Not determined	nervous system and respiratory system
Crystalline-quartz	Category 1	Not determined	immune system, kidneys and respiratory system
Aluminium oxide	Category 1	Inhalation	lungs
Ethylbenzene	Category 2	Not determined	hearing organs
Silica (silicon dioxide containing crystalline and	Category 1	Not determined	immune system,

11. Toxicological information

amorphous)			kidneys and respiratory system
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Aspiration hazard

Name	Result
Xylene Ethylbenzene	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes damage to organs following a single exposure in contact with skin. Causes skin irritation. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : Causes damage to organs following a single exposure if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
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

- 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.

11. Toxicological information

Carcinogenicity	: May cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	: Suspected of causing genetic defects.
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)
SIGMASHIELD 880 BASE RAL 1014	8434	5669.6	N/A	78	N/A
Epoxy resin (MW ≤ 700)	2500	2500	N/A	N/A	N/A
Xylene	4300	1100	N/A	11	N/A
Epoxy Resin (700<MW<=1100)	2500	2500	N/A	N/A	N/A
Phenol, methylstyrenated	2500	2500	N/A	N/A	N/A
Isobutyl alcohol	2830	2460	N/A	11	N/A
2,3-epoxypropyl neodecanoate	9600	3800	N/A	N/A	N/A
Ethylbenzene	3500	17800	N/A	17.8	N/A

Other information

Sanding and grinding dusts may be harmful if inhaled. This product contains crystalline silica which can cause lung cancer or silicosis. The risk of cancer depends on the duration and level of exposure to dust from sanding surfaces or mist from spray applications. 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
Epoxy resin (MW ≤ 700)	Acute LC50 1.8 mg/l Chronic NOEC 0.3 mg/l	Daphnia Daphnia	48 hours 21 days
titanium dioxide (nanoparticle)	Acute LC50 >100 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
Isobutyl alcohol	Acute EC50 1100 mg/l	Daphnia	48 hours
2,3-epoxypropyl neodecanoate	Acute EC50 3.5 mg/l	Algae	96 hours
Ethylbenzene	Acute EC50 4.8 mg/l Acute LC50 9.6 mg/l Acute LC50 150 to 200 mg/l Fresh water	Daphnia - Daphnia magna Fish - Oncorhynchus mykiss Fish	48 hours 96 hours 96 hours
Silica (silicon dioxide containing crystalline and amorphous)	Acute LC50 >10000 mg/l	Fish	96 hours

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Epoxy resin (MW ≤ 700)	OECD 301F	5 % - 28 days	-	-

12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Epoxy resin (MW ≤ 700)	-	-	Not readily
Xylene	-	-	Readily
2,3-epoxypropyl neodecanoate	-	-	Not readily
Ethylbenzene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Epoxy resin (MW ≤ 700)	3	31	low
Xylene	3.16	7.4 to 18.5	low
Isobutyl alcohol	0.76	-	low
2,3-epoxypropyl neodecanoate	4.4	-	high
Ethylbenzene	3.15	79.43	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 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

14. Transport information

Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

Additional information

- UN** : This class 3 viscous liquid is not subject to regulation in packagings up to 450 L according to 2.3.2.5.1.
- IMDG** : This class 3 viscous liquid is not subject to regulation in packagings up to 450 L according to 2.3.2.5.
- IATA** : None identified.

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
<input checked="" type="checkbox"/> Xylene	5.7803	Class 1	80
<input type="checkbox"/> ethylbenzene	1.0452	Class 1	53

ISHL

Use of specified chemical substances

Ingredient name	%	Status	Reference number
<input checked="" type="checkbox"/> Ethyl benzene	≤2.1	Group-2 Substances under Supervision	3-3

Label requirements

Ingredient name	%	Status	Reference number
<input checked="" type="checkbox"/> Crystalline silica	≥10 - ≤25	Listed	165-2
Crystalline silica	<10	Listed	165-2
Aluminium oxide	≤5.0	Listed	189
Titanium(IV) oxide	≥10 - ≤25	Listed	191
Xylene	≤6.5	Listed	136
Ethylbenzene	≤2.1	Listed	70
Butanol	<3.0	Listed	477
Crystalline silica	≤0.30	Listed	165-2

Chemicals requiring notification

15. Regulatory information

Ingredient name	%	Status	Reference number
<input checked="" type="checkbox"/> Crystalline silica	≥10 - ≤25	Listed	165-2
Crystalline silica	<10	Listed	165-2
Aluminium oxide	≤5.0	Listed	189
Titanium(IV) oxide	≥10 - ≤25	Listed	191
Xylene	≤6.5	Listed	136
Ethylbenzene	≤2.1	Listed	70
Butanol	<3.0	Listed	477
Crystalline silica	≤0.30	Listed	165-2

Carcinogen

None of the components are 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
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
<input checked="" type="checkbox"/> Xylene	5.7803	Priority assessment	125
Ethylbenzene	1.0452	Priority assessment	50

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

15. Regulatory information

None of the components are listed.

Container class

None of the components are listed.

JSOH Carcinogen : Group 1

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 : 16 January 2020

Date of previous issue : 10/11/2019

Version : 15

Prepared by : EHS

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.

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