SAFETY DATA SHEET

SIGMASHIELD 680 BASE REDBROWN

Date of issue 28 October 2026
Version 3

1. Product and company identification

Product name : SIGMASHIELD 680 BASE REDBROWN
Product code : 000001204044
Other means of identification : 00479979
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 Japan; Tel: +81-78-574-2777

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 - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
HAZARDOUS TO THE AQUATIC ENVIRONMENT - ACUTE HAZARD - Category 2
HAZARDOUS TO THE AQUATIC ENVIRONMENT - CHRONIC HAZARD - Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

2. Hazards identification

Hazard statements : Flammable liquid and vapor.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause drowsiness or dizziness.
Suspected of causing genetic defects.
May cause cancer.
May damage fertility or the unborn child.
Causes damage to organs. (central nervous system (CNS), kidneys, liver, respiratory organs)
Causes damage to organs through prolonged or repeated exposure. (hearing organs, immune system, kidneys, nervous system, respiratory organs)
Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Response : Collect spillage. IF exposed or concerned: Call a POISON CENTER or doctor. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. If skin irritation or rash occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage : Store locked up. Store in a well-ventilated place. Keep container tightly closed.

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. Contains a substance that may emit formaldehyde if stored beyond its shelf life and/or during cure at curing temperatures greater than 60C (140F).

3. Composition/information on ingredients

Substance/mixture : Mixture

CAS number/other identifiers

CAS number : Not applicable.
CSCL number : Not available.

Ingredient name	%	CAS number	CSCL
Talc (containing no asbestos or quartz)	20 - <25	14807-96-6	Not available.
Epoxy Resin (700<MW<=1100)	15 - <20	25036-25-3	Not available.
crystalline silica, non-respirable powder (>10 microns)	12.5 - <15	14808-60-7	1-548
Xylene	12.5 - <15	1330-20-7	3-3; 3-60
Diiron trioxide	5 - <7	1309-37-1	1-357; 5-5188
aluminium metal	3 - <5	7429-90-5	Not available.
Solvent naphtha (petroleum), heavy arom	3 - <5	64742-94-5	Not available.
Ethylbenzene	2 - <3	100-41-4	3-28; 3-60
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	2 - <3	64742-48-9	Not available.

3. Composition/information on ingredients

isobutyl alcohol	1 - <2	78-83-1	2-3049
Propylene glycol monomethyl ether	1 - <2	107-98-2	2-404; 7-97
Phenol, styrenated	1 - <2	61788-44-1	4-198
Crystalline silica	1 - <2	14808-60-7	1-548
Urea, polymer with formaldehyde, isobutylated	1 - <2	68002-18-6	Not available.
Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid and 1,3-phenylenedimethanamine	0.5 - <1	911674-82-3	Not available.
Naphthalene	0.2 - <0.5	91-20-3	4-311
Toluene	0.1 - <0.2	108-88-3	3-2; 3-60

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 : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

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. Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

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

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

4. First aid measures

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

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, CO_2, 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
nitrogen oxides
metal oxide/oxides
Formaldehyde.

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. Put on appropriate personal protective equipment. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and storage

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

7. Handling and storage

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

Talc , not containing asbestiform fibres	**Japan Society for Occupational Health (Japan, 9/2025) [class 1 dusts (Activated charcoal, Alumina, Aluminium, Bentonite, Diatomite, Graphite, Kaolinite, Pagodite, pyrophylite, Pyrites, Pyrite cinder)]** OEL-M 8 hours: 2 mg/m³. Form: Total dust (Class 1 Dust). OEL-M 8 hours: 0.5 mg/m³. Form: Respirable dust (Class 1 Dust). **Industrial Safety and Health Act (Japan, 12/2025) [mineral, metal or carbon dusts]** TWA 8 hours: 3 / (1.19 x %SiO_2 + 1) mg/m³. Form: dust.
crystalline silica, non-respirable powder (>10 microns)	**Japan Society for Occupational Health (Japan, 9/2025) [Respirable crystalline silica]** OEL-C: 0.03 mg/m³. Form: Respirable particulate matter.
xylene	**Japan Society for Occupational Health (Japan, 9/2025)** OEL-M 8 hours: 50 ppm. OEL-M 8 hours: 217 mg/m³. **Industrial Safety and Health Act (Japan, 12/2025) [xylene]** TWA 8 hours: 50 ppm.
diiron trioxide	**Japan Society for Occupational Health (Japan, 9/2025) [Class 2 dusts (Bakelite (asbestos-free, technical grade), Carbon black, Coal, Cork dust, Cotton dust, Iron oxide, Grain dust, Joss stick material dust, Marble, Portland cement, Zinc oxide)]** OEL-M 8 hours: 1 mg/m³. Form: Respirable dust (Class 2 Dust). OEL-M 8 hours: 4 mg/m³. Form: Total dust (Class 2 Dust).
Aluminium powder (stabilized)	**Japan Society for Occupational Health (Japan, 9/2025) [class 1 dusts (Activated charcoal, Alumina, Aluminium, Bentonite, Diatomite, Graphite, Kaolinite, Pagodite, pyrophylite, Pyrites, Pyrite cinder)]** OEL-M 8 hours: 2 mg/m³. Form: Total dust (Class 1 Dust).

8. Exposure controls/personal protection

	OEL-M 8 hours: 0.5 mg/m³. Form: Respirable dust (Class 1 Dust). **Industrial Safety and Health Act (Japan, 12/2025) [mineral, metal or carbon dusts]** TWA 8 hours: 3 / (1.19 x %SiO_2 + 1) mg/m³. Form: dust.
ethylbenzene	**Japan Society for Occupational Health (Japan, 9/2025)** Absorbed through skin. OEL-M 8 hours: 20 ppm. OEL-M 8 hours: 87 mg/m³. **Industrial Safety and Health Act (Japan, 12/2025)** TWA 8 hours: 20 ppm.
2-methylpropan-1-ol	**Japan Society for Occupational Health (Japan, 9/2025)** OEL-M 8 hours: 50 ppm. OEL-M 8 hours: 150 mg/m³. **Industrial Safety and Health Act (Japan, 12/2025)** TWA 8 hours: 50 ppm.
1-methoxy-2-propanol	**Substances Specified Concentration Standard (Ordinance on ISHL, Article 577-2, Paragraph 2) (Japan, 12/2025)** TWA 8 hours: 50 ppm.
crystalline silica, respirable powder (<10 microns)	**Japan Society for Occupational Health (Japan, 9/2025) [Respirable crystalline silica]** OEL-C: 0.03 mg/m³. Form: Respirable particulate matter.
naphthalene	**Industrial Safety and Health Act (Japan, 12/2025)** TWA 8 hours: 10 ppm.
toluene	**Japan Society for Occupational Health (Japan, 9/2025)** Absorbed through skin. OEL-M 8 hours: 50 ppm. OEL-M 8 hours: 188 mg/m³. **Industrial Safety and Health Act (Japan, 12/2025)** TWA 8 hours: 20 ppm.

Recommended monitoring procedures : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

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

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

8. Exposure controls/personal protection

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 : Brownish-red.

Odor : Aromatic. [Slight]

Boiling point : >37.78°C (>100°F)

Flash point : Closed cup: 30°C (86°F)

Relative density : 1.48

Solubility(ies) :

Media	Result
cold water	Not soluble

Viscosity : > 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 : Depending on conditions, decomposition products may include the following materials: carbon oxides nitrogen oxides Formaldehyde. metal oxide/oxides

11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Epoxy Resin (700<MW <=1100)	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
Xylene	LD50 Dermal	Rabbit	1.7 g/kg	-
	LD50 Oral	Rat	4.3 g/kg	-
Diiron trioxide	LC50 Inhalation Dusts and mists	Rat	>5 mg/l	4 hours
	LD50 Oral	Rat	10 g/kg	-
aluminium metal	LC50 Inhalation Dusts and mists	Rat	>5 mg/l	4 hours
	LD50 Oral	Rat	>15900 mg/kg	-
Solvent naphtha (petroleum), heavy arom	LC50 Inhalation Dusts and mists	Rat	>5.2 mg/l	4 hours
	LD50 Oral	Rat	>5 g/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	-
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	>6 g/kg	-
isobutyl alcohol	LC50 Inhalation Vapor	Rat	24.6 mg/l	4 hours
	LD50 Dermal	Rabbit	2460 mg/kg	-
	LD50 Oral	Rat	2830 mg/kg	-
Propylene glycol monomethyl ether	LC50 Inhalation Vapor	Rat	>7000 ppm	6 hours
	LD50 Dermal	Rabbit	13 g/kg	-
	LD50 Oral	Rat	5.2 g/kg	-
Phenol, styrenated	LD50 Dermal	Rabbit	>5010 mg/kg	-
	LD50 Oral	Rat	3550 mg/kg	-
Urea, polymer with formaldehyde, isobutylated	LD50 Dermal	Rabbit	>5 g/kg	-
	LD50 Oral	Rat	>5 g/kg	-
Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid	LC50 Inhalation Dusts and mists	Rat	>5.08 mg/l	4 hours

11. Toxicological information

and 1,3-phenylenedimethanamine				
Naphthalene	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	490 mg/kg	-
Toluene	LC50 Inhalation Vapor	Rat	49 g/m³	4 hours
	LD50 Oral	Rat	5580 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
Phenol, styrenated	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
Talc (containing no asbestos or quartz)	Category 1	-	respiratory organs
Xylene	Category 1	-	central nervous system (CNS), kidneys, liver, respiratory organs
-	Category 3	-	Narcotic effects
Diiron trioxide	Category 1	-	respiratory organs
aluminium metal	Category 1	-	respiratory organs
Solvent naphtha (petroleum), heavy arom	Category 3	-	Respiratory tract irritation
-	Category 3	-	Narcotic effects
Ethylbenzene	Category 3	-	Respiratory tract irritation
-	Category 3	-	Narcotic effects
isobutyl alcohol	Category 3	-	Respiratory tract irritation
-	Category 3	-	Narcotic effects
Propylene glycol monomethyl ether	Category 3	-	Narcotic effects
Naphthalene	Category 1	-	blood, eyes, respiratory tract
Toluene	Category 1	-	central nervous system (CNS)
-	Category 3	-	Respiratory tract irritation
-	Category 3	-	Narcotic effects

11. Toxicological information

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Talc (containing no asbestos or quartz)	Category 1	-	respiratory organs
Xylene	Category 1	-	nervous system, respiratory organs
Diiron trioxide	Category 1	-	respiratory organs
aluminium metal	Category 1	-	respiratory organs
Ethylbenzene	Category 1	-	hearing organs, nervous system
Crystalline silica	Category 1	-	immune system, kidneys, respiratory organs
Naphthalene	Category 1	-	blood, eyes, respiratory organs
Toluene	Category 1	-	central nervous system (CNS), kidneys

Aspiration hazard

Name	Result
Xylene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

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. 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 or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

11. Toxicological information

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.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : Suspected of causing genetic defects.

Reproductive toxicity : May damage fertility or the unborn child.

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 680 BASE REDBROWN	12286.4	4238.8	N/A	46.0	N/A
Epoxy Resin (700<MW<=1100)	2500	2500	N/A	N/A	N/A
Xylene	4300	1700	N/A	11	N/A
Diiron trioxide	10000	N/A	N/A	N/A	N/A
Ethylbenzene	3500	17800	N/A	17.8	N/A
isobutyl alcohol	2830	2460	N/A	11	N/A
Propylene glycol monomethyl ether	5200	13000	N/A	11	N/A
Phenol, styrenated	3550	N/A	N/A	N/A	N/A
Naphthalene	490	N/A	N/A	N/A	N/A
Toluene	5580	N/A	N/A	11	N/A

Other information :

11. Toxicological 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. Contains a substance that may emit formaldehyde if stored beyond its shelf life and/or during cure at curing temperatures greater than 60C (140F). Avoid contact with skin and clothing.

12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Diiron trioxide	Acute EC50 >100 mg/l	Daphnia	48 hours
Solvent naphtha (petroleum), heavy arom	NOEL 0.48 mg/l Fresh water	Daphnia	21 days
Ethylbenzene	Acute EC50 1.8 mg/l Fresh water	Daphnia	48 hours
	Chronic NOEC 1 mg/l Fresh water	Daphnia - *Ceriodaphnia dubia*	-
isobutyl alcohol	Acute EC50 1100 mg/l	Daphnia	48 hours
Propylene glycol monomethyl ether	Acute LC50 23300 mg/l	Daphnia	48 hours
	Acute LC50 >4500 mg/l Fresh water	Fish	96 hours
Phenol, styrenated	Acute EC50 3.8 mg/l	Daphnia	48 hours
Reaction products of 12-hydroxyoctadecanoic acid and octadecanoic acid and 1,3-phenylenedimethanamine	Acute LC50 >100 mg/l	Fish	96 hours
Toluene	EC50 3.78 mg/l	Daphnia	48 hours
	LC50 5.5 mg/l	Fish	96 hours

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Ethylbenzene	-	79 % - Readily - 10 days	-	-
Phenol, styrenated	OECD 301F	7 % - Not readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Xylene	-	-	Readily
Ethylbenzene	-	-	Readily
Phenol, styrenated	-	-	Not readily
Toluene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Xylene	3.12	7.4 to 18.5	Low
Solvent naphtha (petroleum), heavy arom	2.8 to 6.5	-	High
Ethylbenzene	3.6	79.43	Low
isobutyl alcohol	1	-	Low
Propylene glycol monomethyl ether	<1	-	Low
Naphthalene	3.4	85.11 [OECD 305]	Low
Toluene	2.73	90	Low

Mobility in soil

12. Ecological information

Soil/Water partition coefficient : 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
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.

14. Transport information

Transport in bulk according to IMO instruments : Not applicable.

15. Regulatory information

Fire Service Law

Category	Substance name/Type	Danger category	Signal word	Designated quantity
Category IV	Class II petroleums (Water insoluble)	III	Flammable - Keep Fire Away	1000 L

Pollutant Release and Transfer Registers (PRTR)

Ingredient name			
Xylene	13	Class 1	80
Ethylbenzene	2.3	Class 1	53

Industrial Safety and Health Act

Ordinance on the Prevention of the Hazard due to Specified Chemical Substances

Ingredient name	%	Status	Reference number
ethyl benzene	≤10	Special Organic Solvents	3-3
Naphthalene	≤10	Group-2 Substances under Supervision	-

Substance(s) requiring labelling

Ingredient name	%	Status	Reference number
Silica, crystalline	≥10 - ≤20	Listed	2-578
Xylene	≥10 - ≤20	Listed	2-426
Iron oxide	≤10	Listed	2-624
Petroleum naphtha	≤10	Listed	2-1142
Ethylbenzene	≤10	Listed	2-247
Butanol (Includes isomers of alkyl groups.)	≤10	Listed	2-1705
Propylene glycol monomethyl ether	≤10	Listed	2-1787

Chemicals requiring notification

Ingredient name	%	Status	Reference number
Silica, crystalline	≥10 - ≤20	Listed	2-578
Xylene	≥10 - ≤20	Listed	2-426
Iron oxide	≤10	Listed	2-624
Aluminum and its water-soluble salts	≤10	Listed	4
Petroleum naphtha	≤10	Listed	2-1142
Ethylbenzene	≤10	Listed	2-247
Butanol (Includes isomers of alkyl groups.)	≤10	Listed	2-1705
Propylene glycol monomethyl ether	≤10	Listed	2-1787
Naphthalene	≤10	Listed	2-1449
Toluene	≤10	Listed	2-1437

Carcinogens based on Article 577-2 of the Ordinance on ISH

Ingredient name	%	Status	Reference number
Crystalline silica	≥10 - ≤20	Listed	-
Crystalline silica	≤10	Listed	-

15. Regulatory information

Mutagen

None of the components are listed.

Corrosive liquid : Not listed

Occupational Safety and Health Law : Inflammable, Combustible gas, Combustible

Regulations on the Prevention of Tetraalkyl Lead Poisoning : Not listed

Harmful Substances Subject to Obtaining Permission for Manufacturing : Not listed

Harmful Substances, Prohibited for Manufacturing : Not listed

ISHL Enforcement Order Appendix 1 - Dangerous Substances : Inflammable, Combustible gas, Combustible

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
Xylene	≥10 - ≤20	Priority assessment	125
Ethylbenzene	≤10	Priority assessment	50
Naphthalene	≤10	Priority assessment	76
1,2,4-Trimethylbenzene	≤10	Priority assessment	49
Toluene	≤10	Priority assessment	46
1,3,5-Trimethylbenzene	≤10	Priority assessment	201
Cumene	≤10	Priority assessment	126
Benzene	≤10	Priority assessment	45
4,4'-(Propane-2,2-diyl)diphenol	≤10	Priority assessment	75
Phenol	≤10	Priority assessment	62

High Pressure Gas Control Law : Not available.

Explosives Control Law

None of the components are listed.

Law concerning prevention of pollution of the ocean : Not available.

Maritime Safety Law

Notification Regulating Transportation of Dangerous Materials by Sea

None of the components are listed.

15. Regulatory information

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 : 28 October 2026

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Version : 3

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.

Notice to reader

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