

# SAFETY DATA SHEET



Date of issue/Date of revision 31 August 2021

Version 1.02

## Section 1. Identification

**Product code** : 000001189071  
**Product name** : SIGMASHIELD 1090 BASE RAL 7038  
**Other means of identification**  
00446312  
**Product type** : Liquid.

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

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

**Supplier's details** : PPG Industries (Singapore) Pte. Ltd., No. 1 Tuas Basin Close, Singapore 638803.  
Tel +65 68653737

**Emergency telephone number (with hours of operation)** : CHEMTREC +(65)-31581349 (CCN 17704)

## Section 2. Hazards identification

**Classification of the substance or mixture** : ACUTE TOXICITY (inhalation) - Category 4  
SKIN CORROSION/IRRITATION - Category 2  
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A  
SKIN SENSITISATION - Category 1  
GERM CELL MUTAGENICITY - Category 2

### GHS label elements, including precautionary statements

**Hazard pictograms** :



**Signal word** : Warning

**Hazard statements** : Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye irritation.  
Harmful if inhaled.  
Suspected of causing genetic defects.

### Precautionary statements

## Section 2. Hazards identification

- Prevention** : Obtain special instructions before use. Wear protective gloves, protective clothing and eye or face protection. Avoid breathing vapour. Wash thoroughly after handling.
- Response** : IF exposed or concerned: Get medical advice or attention. IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of 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** : Not applicable.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Other hazards which do not result in classification** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

### CAS number/other identifiers

**CAS number** : Not applicable.  
**EC number** : Mixture.

<b>Ingredient name</b>	<b>%</b>	<b>CAS number</b>
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	10 - <20	25068-38-6
2,3-epoxypropyl neodecanoate	1 - <3	26761-45-5
benzyl alcohol	1 - <3	100-51-6
N,N'-ethane-1,2-diylbis(12-hydroxyoctadecan-1-amide)	0.1 - <0.3	123-26-2

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.

## Section 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 recognised skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.

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

## Section 4. First aid measures

### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

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

- 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)

## Section 5. Firefighting measures

### Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.

- 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.

## Section 5. Firefighting measures

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

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**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 spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised 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 spilt 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).

### Methods and material for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. 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. Approach the 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 spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

## Section 7. Handling and storage

### Advice on general occupational hygiene

: 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. See also Section 8 for additional information on hygiene measures.

### Conditions for safe storage, including any incompatibilities

: Store between the following temperatures: 0 to 35°C (32 to 95°F). Store in accordance with local regulations. Store in 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. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
N,N'-ethane-1,2-diylbis(12-hydroxyoctadecan-1-amide)	<b>ACGIH TLV (United States).</b> TWA: 3 mg/m <sup>3</sup> Form: Respirable TWA: 10 mg/m <sup>3</sup> Form: Total dust

### 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.

### 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/face protection Skin protection



: Chemical splash goggles.

## Section 8. Exposure controls/personal 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.
- 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.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid.
- Odour** : Characteristic.
- pH** : insoluble in water.
- Boiling point** : >37.78°C (>100°F)
- Flash point** : Closed cup: Not applicable.
- Evaporation rate** : 0.007 (benzyl alcohol) compared with butyl acetate
- Flammability (solid, gas)** : liquid
- Vapour pressure** : Highest known value: 0.01 kPa (0.1 mm Hg) (at 20°C) (2,3-epoxypropyl neodecanoate). Weighted average: 0.009 kPa (0.07 mm Hg) (at 20°C)
- Vapour density** : Highest known value: 3.7 (Air = 1) (benzyl alcohol).
- Relative density** : 1.72
- Solubility** : Insoluble in the following materials: cold water.
- Auto-ignition temperature** : Lowest known value: 276°C (528.8°F) (2,3-epoxypropyl neodecanoate).
- Viscosity** :  Kinematic (room temperature): >400 mm<sup>2</sup>/s (>400 cSt)  
Kinematic (40°C (104°F)): >21 mm<sup>2</sup>/s (>21 cSt)
- Viscosity** :  100 s (ISO 6mm)

## Section 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: oxidising agents, strong alkalis, strong acids.

**Hazardous decomposition products** : Depending on conditions, decomposition products may include the following materials: carbon oxides halogenated compounds metal oxide/oxides

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	LD50 Dermal	Rabbit	>2 g/kg	-
2,3-epoxypropyl neodecanoate	LD50 Oral	Rat	>2 g/kg	-
	LD50 Dermal	Rat	3800 mg/kg	-
benzyl alcohol	LD50 Oral	Rat	9.6 g/kg	-
	LC50 Inhalation Dusts and mists	Rat	>4178 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	2000 mg/kg	-
N,N'-ethane-1,2-diylbis (12-hydroxyoctadecan-1-amide)	LD50 Oral	Rat	1.23 g/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5.11 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-

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

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	Skin - Moderate irritant	Rabbit	-	-	-
	Eyes - Moderate irritant	Rabbit	-	-	-
	Eyes - Mild irritant	Rabbit	-	100 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 UI	-
	Skin - Severe irritant	Rabbit	-	24 hours 2	-

## Section 11. Toxicological information

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### Conclusion/Summary

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

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

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

### Sensitisation

Product/ingredient name	Route of exposure	Species	Result
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	skin	Mouse	Sensitising

### Conclusion/Summary

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

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

### Mutagenicity

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

### Carcinogenicity

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

### Reproductive toxicity

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

### Teratogenicity

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

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

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

### Potential acute health effects

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

**Inhalation** : Harmful if inhaled.

**Skin contact** : Causes skin irritation. May cause an allergic skin reaction.

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

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



## Section 11. Toxicological information

Eye contact	: Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: No specific data.
Skin contact	: Adverse symptoms may include the following: irritation redness
Ingestion	: No specific data.

### Delayed and immediate effects as well as 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	: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: Suspected of causing genetic defects.
Reproductive toxicity	: No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
Oral	15491.58 mg/kg
Dermal	25189.56 mg/kg
Inhalation (dusts and mists)	3.45 mg/l

#### 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 vapour/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	Chronic NOEC 0.3 mg/l	Daphnia	21 days
2,3-epoxypropyl neodecanoate	Acute EC50 3.5 mg/l	Algae	96 hours
N,N'-ethane-1,2-diylbis (12-hydroxyoctadecan-1-amide)	Acute EC50 4.8 mg/l Acute LC50 9.6 mg/l Acute EC50 29 to 43 mg/l	Daphnia - Daphnia magna Fish - Oncorhynchus mykiss Algae - Pseudokirchneriella subcapitata	48 hours 96 hours 72 hours
	Acute EC50 94 mg/l	Daphnia - Daphnia magna	48 hours

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

### Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	OECD 301F	5 % - 28 days	-	-
N,N'-ethane-1,2-diylbis (12-hydroxyoctadecan-1-amide)	-	63 % - 28 days	-	-

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

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	-	-	Not readily
2,3-epoxypropyl neodecanoate	-	-	Not readily
benzyl alcohol	-	-	Readily
N,N'-ethane-1,2-diylbis (12-hydroxyoctadecan-1-amide)	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin	2.64 to 3.78	31	low
2,3-epoxypropyl neodecanoate	4.4	-	high
benzyl alcohol	0.87	-	low
N,N'-ethane-1,2-diylbis (12-hydroxyoctadecan-1-amide)	>6	-	high

## Section 12. Ecological information

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### Mobility in soil

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

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

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimised 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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

### Additional information

UN : None identified.

IMDG : None identified.

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.

## Section 14. Transport information

Transport in bulk according to IMO instruments : Not applicable.

## Section 15. Regulatory information

### Singapore - hazardous chemicals under government control

None.

### International regulations

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

## Section 16. Other information

### History

Date of issue/Date of revision	: 31 August 2021
Date of previous issue	: 8/11/2021
Version	: 1.02
Prepared by	: EHS
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container 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) UN = United Nations

Indicates information that has changed from previously issued version.

### Notice to reader

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.