

# SAFETY DATA SHEET

Date of issue/Date of revision 12 August 2019

Version 3



## Section 1. Identification

**Product code** : 41090-BHARD/1.51L  
**Product identifier** : SIGMASHIELD 1090 HARDENER

### Recommended use and restrictions

**Use of the substance/  
mixture** : Coating.  
**Uses advised against** : Not applicable.

**Supplier's details** : PPG Industries Australia Pty Limited  
(ABN 82 055 500 939)  
14-20 McNaughton Rd  
CLAYTON Victoria 3168  
Tel: (03) 9263 6000 Fax: (03) 9263 6970

**Emergency telephone  
number** : Australia 1800 883 254 / New Zealand 0800 000 096  
For international shipping emergencies: 1-412-391-1618

## Section 2. Hazard(s) identification

**Classification of the  
substance or mixture** : ACUTE TOXICITY (oral) - Category 4  
SKIN CORROSION/IRRITATION - Category 1B  
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1  
SKIN SENSITISATION - Category 1

### GHS label elements

**Hazard pictograms** :



**Signal word** : **DANGER**

**Hazard statements** : **Harmful if swallowed.**  
**Causes severe skin burns and eye damage.**  
**May cause an allergic skin reaction.**

### Precautionary statements

**Prevention** : Wear protective gloves. Wear eye or face protection. Wear protective clothing.  
Avoid breathing vapour. 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** : **IF INHALED:** Remove victim to fresh air and keep at rest in a position comfortable  
for breathing. Immediately call a POISON CENTER or physician. **IF SWALLOWED:**  
Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce  
vomiting. **IF ON SKIN (or hair):** Take off immediately all contaminated clothing.  
Rinse skin with water or shower. Wash contaminated clothing before reuse.  
Immediately call a POISON CENTER or physician. **IF ON SKIN:** Wash with plenty  
of soap and water. If skin irritation or rash occurs: Get medical attention. **IF IN  
EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if  
present and easy to do. Continue rinsing. Immediately call a POISON CENTER or  
physician.

## Section 2. Hazard(s) identification

- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : Not applicable.

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

## Section 3. Composition and ingredient information

**Substance/mixture** : Mixture

### CAS number/other identifiers

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

Ingredient name	CAS number	% (w/w)
β-aminomethyl-3,5,5-trimethylcyclohexylamine	2855-13-2	30 - 60
Poly[oxy(methyl-1,2-ethanediyl)], α-(2-aminomethylethyl)-ω-(2-aminomethylethoxy)-2-piperazin-1-ylethylamine	9046-10-0 (n = 2-6)	30 - 60
	140-31-8	1 - <10

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 or have an OEL 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** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use 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

#### Potential acute health effects

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

#### Over-exposure signs/symptoms

## Section 4. First aid measures

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

### 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)

## 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  
nitrogen 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.
- 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.
- Hazchem code** : Not applicable.

## 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. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

## Section 6. Accidental release measures

**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). 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 breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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.

**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 and personal protection

### Control parameters

#### Occupational exposure limits

3-aminomethyl-3,5,5-trimethylcyclohexylamine

**DFG MAC-values list (Germany, 7/2018).  
Skin sensitiser.**

**Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

For products that are sprayed, where practicable use a spray booth designed and maintained in accordance with AS/NZS 4114.

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

#### Skin protection

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

**Gloves** : butyl rubber

**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.

**Restrictions on use** : Not applicable.

References: Eye protectors should conform to AS/NZS 1336 and AS/NZS 1337. Chemical-resistant gloves should conform to AS/NZS 2161.1. Respiratory protection should conform to AS/NZS 1715 and AS/NZS 1716. Occupational footwear should conform to AS/NZS 2210.

## Section 9. Physical and chemical properties

### Appearance

Physical state	: Liquid.
Colour	: Not available.
Odour	: Characteristic.
Odour threshold	: Not available.
pH	: Not available.
Melting point	: Not available.
Boiling point	: >37.78°C (>100°F)
Flash point	: Closed cup: 234°C (453.2°F)
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapour pressure	: Not available.
Vapour density	: Not available.
Relative density	: 0.95
Bulk Density (g/cm <sup>3</sup> )	: 0.93
Solubility	: Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Not Applicable

## 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	: Stable under recommended storage and handling conditions (see Section 7). 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 nitrogen oxides

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Poly[oxy(methyl-1,2-ethanediyl)], α-(2-aminomethylethyl)-ω-(2-aminomethylethoxy)-  2-piperazin-1-ylethylamine	LD50 Dermal	Rat	2980 mg/kg	-
	LD50 Oral	Rat	2885 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5 mg/l	4 hours
	LD50 Dermal	Rabbit	866 mg/kg	-
	LD50 Oral	Rat	2140 mg/kg	-

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

#### Irritation/Corrosion

Not available.

#### 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
2-piperazin-1-ylethylamine	skin	Guinea pig	Sensitising

#### Conclusion/Summary

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

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

#### Mutagenicity

Not available.

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

#### Carcinogenicity

Not available.

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

#### Reproductive toxicity

Not available.

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

#### Teratogenicity

Not available.

**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

## Section 11. Toxicological information

Not available.

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

### Potential acute health effects

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

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

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

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

- Conclusion/Summary** : There are no data available on the mixture itself. If splashed in the eyes, the liquid may cause irritation and reversible damage. Ingestion may cause nausea, diarrhea and vomiting. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

### Short term exposure

- Potential immediate effects** : There are no data available on the mixture itself.
- Potential delayed effects** : There are no data available on the mixture itself.

### Long term exposure

- Potential immediate effects** : There are no data available on the mixture itself.
- Potential delayed effects** : There are no data available on the mixture itself.

### Potential chronic health effects

Not available.

- 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** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

### Numerical measures of toxicity



## Section 11. Toxicological information

### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
SIGMASHIELD 1090 HARDENER	1088.6	2394.9	N/A	N/A	N/A
3-aminomethyl-3,5,5-trimethylcyclohexylamine	500	1100	N/A	N/A	N/A
Poly[oxy(methyl-1,2-ethanediyl)], $\alpha$ -(2-aminomethylethyl)- $\omega$ -(2-aminomethylethoxy)-2-piperazin-1-ylethylamine	2885	2980	N/A	N/A	N/A
2-piperazin-1-ylethylamine	500	1100	N/A	N/A	N/A

### Other information

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness.

Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Ingestion may cause nausea, diarrhea and vomiting.

This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Contains 3-aminomethyl-3,5,5-trimethylcyclohexylamine, 2-piperazin-1-ylethylamine, 2,2'-iminodiethylamine. May produce an allergic reaction.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
Poly[oxy(methyl-1,2-ethanediyl)], $\alpha$ -(2-aminomethylethyl)- $\omega$ -(2-aminomethylethoxy)-	EC50 15 mg/l	Algae	72 hours
2-piperazin-1-ylethylamine	Acute EC50 58 mg/l	Daphnia	48 hours

### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2-piperazin-1-ylethylamine	OECD 301F	0 % - Not readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Poly[oxy(methyl-1,2-ethanediyl)], $\alpha$ -(2-aminomethylethyl)- $\omega$ -(2-aminomethylethoxy)-	-	-	Not readily
2-piperazin-1-ylethylamine	-	-	Not readily

## Section 12. Ecological information

### Bioaccumulative potential

Not available.

### Mobility in soil




Soil/water partition coefficient (K<sub>oc</sub>) : 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

	ADG	IMDG	IATA
UN number	UN3066	UN3066	UN3066
UN proper shipping name	PAINT	PAINT	PAINT
Transport hazard class (es)	8 	8 	8 
Packing group	II	II	II
Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

### Additional information

ADG : None identified.

Hazchem code : Not applicable.

IMDG : None identified.

IATA : None identified.

## Section 14. Transport information

**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.

**Transport in bulk according to Annex II of Marpol and the IBC Code** : Not available.

## Section 15. Regulatory information

### Standard Uniform Schedule of Medicine and Poisons

**SUSMP** : Not regulated.

### Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

**Australia inventory (AICS)** : All components are listed or exempted.

**New Zealand (NZIoC)** : All components are listed or exempted.

## Section 16. Any other relevant information

### History

**Date of issue/Date of revision** : 12 August 2019

**Date of previous issue** : 1/3/2019

**Prepared by** : EHS

**Key to abbreviations** : ADG = Australian Dangerous Goods  
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)  
NOHSC = National Occupational Health and Safety Commission  
SUSMP = Standard Uniform Schedule of Medicine and Poisons  
UN = United Nations

**References** : Not available.

✔ 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.