

# SAFETY DATA SHEET

Date of issue/Date of revision 21 March 2025  
Version 3.03



## Section 1. Identification

**Product code** : 41090-BHARD/1.51L  
**Product identifier** : SIGMASHIELD 1090 HARDENER  
**Other means of identification** : 00197525

### 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

**24/7 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, protective clothing and eye or face protection. Avoid breathing vapour. Wash thoroughly after handling.

**Response** : **H** INHALED: Immediately call a POISON CENTER or doctor. IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor. If skin irritation or rash occurs: Get medical advice or attention. Wash contaminated clothing before reuse. 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 doctor.

**Storage** : Not applicable.

## Section 2. Hazard(s) identification

**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) |
|--|---------------------|---------|
| 2-aminomethyl-3,5,5-trimethylcyclohexylamine   | 2855-13-2           | 30 - 60 |
| Poly[oxy(methyl-1,2-ethanediyl)], $\alpha$ -(2-aminomethylethyl)- $\omega$ -(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

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

## Section 4. First aid measures

- 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** : 2X

## 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.
- 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".

## Section 6. Accidental release measures

**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. 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

| Ingredient name                              | Exposure limits   |
|--|---|
| 3-aminomethyl-3,5,5-trimethylcyclohexylamine | DFG MAC-values list (Germany, 7/2023)<br>Skin sensitizer. |

## Section 8. Exposure controls and personal protection

**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 applicable.  |       |        |            |             |
| 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   |       |        |            |             |
| Solubility(ies)                              | : <table border="1"><thead><tr><th>Media</th><th>Result</th></tr></thead><tbody><tr><td>cold water</td><td>Not soluble</td></tr></tbody></table> | Media | Result | cold water | Not soluble |
| Media  | Result   |       |        |            |             |
| cold water                                   | Not soluble  |       |        |            |             |
| Partition coefficient: n-octanol/water       | : Not applicable.  |       |        |            |             |
| 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                                  | Dose / Exposure      |
|---|---|----------------------|
| 3-aminomethyl-3,5,5-trimethylcyclohexylamine  | Rat - Oral - LD50                       | 1030 mg/kg           |
|   | Rat - Dermal - LD50                     | >2000 mg/kg          |
|   | Rat - Inhalation - LC50 Dusts and mists | >5.01 mg/l [4 hours] |
|   | Rat - Oral - LD50                       | 2885 mg/kg           |
| Poly[oxy(methyl-1,2-ethanediyl)], α-(2-aminomethylethyl)-ω-(2-aminomethylethoxy)-2-piperazin-1-ylethylamine | Rat - Dermal - LD50                     | 2980 mg/kg           |
|   | Rat - Oral - LD50                       | 2140 mg/kg           |
|   | Rabbit - Dermal - LD50                  | 866 mg/kg            |
|   | Rat - Inhalation - LC50 Dusts and mists | >5 mg/l [4 hours]    |

**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                      | Species / Route of exposure | Result              |
|--|-----------------------------|---------------------|
| 3-aminomethyl-3,5,5-trimethylcyclohexylamine | Guinea pig - skin           | Result: Sensitising |
| 2-piperazin-1-ylethylamine                   | Guinea pig - skin           | Result: 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.

#### Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

Not available.

## Section 11. Toxicological information

### Aspiration hazard

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. Exposure to amine vapor has been reported to cause transient corneal edema described as blue haze, halo effect, foggy or blurred vision for several hours. This condition is typically temporary and does not cause permanent visual effects. When the proper eye protection specified in Section 8 is worn, exposure is significantly reduced and the condition has not been observed.

### 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.



## Section 11. Toxicological information

**Reproductive toxicity** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### 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  | 1896.9       | 2396.9         | N/A                      | N/A                         | 30.5                                |
| 3-aminomethyl-3,5,5-trimethylcyclohexylamine   | 1030         | 1100           | N/A                      | N/A                         | N/A                                 |
| Poly[oxy(methyl-1,2-ethanediyl)], $\alpha$ -<br>(2-aminomethylethyl)- $\omega$ -(2-aminomethylethoxy)- | 2885         | 2980           | N/A                      | N/A                         | N/A                                 |
| 2-piperazin-1-ylethylamine   | 500          | 1100           | N/A                      | N/A                         | N/A                                 |

## Section 12. Ecological information

### Toxicity

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

### Persistence and degradability

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

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

### Bioaccumulative potential

| Product/ingredient name                      | LogP <sub>ow</sub> | BCF | Potential |
|--|--------------------|-----|-----------|
| 3-aminomethyl-3,5,5-trimethylcyclohexylamine | 0.99               | -   | Low       |
| 2-piperazin-1-ylethylamine                   | -1.48              | -   | Low       |

### Mobility in soil

## Section 12. Ecological information




**Soil/water partition coefficient** : 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   |
|------------------------------------|--|---|--|
| <b>UN number</b>                   | UN3066   | UN3066  | UN3066   |
| <b>UN proper shipping name</b>     | PAINT  | PAINT   | PAINT  |
| <b>Transport hazard class (es)</b> | 8<br> | 8<br> | 8<br> |
| <b>Packing group</b>               | II   | II  | II   |
| <b>Environmental hazards</b>       | No.  | No.   | No.  |
| <b>Marine pollutant substances</b> | Not applicable.  | Not applicable.   | Not applicable.  |

### Additional information

**ADG** : None identified.

**Hazchem code** : 2X

**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.

**Transport in bulk according to IMO instruments** : Not applicable.

## Section 15. Regulatory information

### Standard for the Uniform Scheduling of Medicines and Poisons

SUSMP : Not scheduled

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

No listed substance

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

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

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

## Section 16. Any other relevant information

### History

Date of issue/Date of revision : 21 March 2025

Date of previous issue : 7/25/2023

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

## Section 16. Any other relevant information

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.