

# SAFETY DATA SHEET



The information in this Safety Data Sheet is required pursuant to Hazardous Product Regulations 2023.

Date of issue/Date of revision 5 June 2025

Version 9.05

## Section 1. Identification

**Product name** : SIGMA SHIELD 905 HARDENER  
**Product code** : 00292419  
**Other means of identification** : Not available.  
**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.; Hardener.

**Uses advised against** : Not applicable.

**Supplier** : PPG Canada Inc.  
5676 Timberlea Blvd  
Mississauga ON L4W 4M6  
Canada  
+1 905-629-7999

PPG Industries, Inc.  
One PPG Place  
Pittsburgh, PA 15272

**Emergency telephone number** : (412) 434-4515 (U.S.)  
(514) 645-1320 (Canada)  
SETIQ Interior de la República: 800-00-214-00 (México)  
SETIQ Ciudad de México: (55) 5559-1588 (México)

**Technical Phone Number** : 888-977-4762

## Section 2. Hazard identification

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 3  
ACUTE TOXICITY (oral) - Category 4  
ACUTE TOXICITY (dermal) - Category 3  
ACUTE TOXICITY (inhalation) - Category 3  
SKIN CORROSION - Category 1A  
SERIOUS EYE DAMAGE - Category 1  
SKIN SENSITIZATION - Category 1B  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
Health Hazards Not Otherwise Classified - Category 1

### GHS label elements

## Section 2. Hazard identification

### Hazard pictograms :



### Signal word

: Danger

### Hazard statements

- : Flammable liquid and vapor.
- : Harmful if swallowed.
- : Toxic in contact with skin or if inhaled.
- : Causes severe skin burns and eye damage.
- : May cause an allergic skin reaction.
- : May cause damage to organs through prolonged or repeated exposure.
- : Prolonged or repeated contact may dry skin and cause irritation.

### Precautionary statements

#### Prevention

- : 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. 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

- : IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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

- : Store locked up.

#### Disposal

- : Dispose of contents and container in accordance with all local, regional, national and international regulations.

### Supplemental label elements

- : Trimethoxysilanes are capable of forming methanol if hydrolyzed or ingested. If swallowed, methanol may be harmful or fatal or cause blindness. 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. This product either contains formaldehyde or is capable of releasing formaldehyde above 0.5 ppm under certain conditions. Formaldehyde is a known cancer hazard, a skin sensitizer and a respiratory sensitizer. Avoid contact with skin and clothing. Wash thoroughly after handling. Emits toxic fumes when heated.
- : Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 6.5%

## Section 3. Composition/information on ingredients

### Substance/mixture

- : Mixture

### Product name

- : SIGMA SHIELD 905 HARDENER

### Other means of identification

- : Not available.

### CAS number/other identifiers

### Section 3. Composition/information on ingredients

| Ingredient name                                  | Synonyms  | % (w/w)  | CAS number |
|--|---|----------|------------|
| 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine) | Cyclohexanamine, 4,4'-methylenebis [2-methyl-; 3,3'-Dimethyl-4,4'-diaminodicyclohexylmethane; 4,4'-Methylenebis(2-methylcyclohexylamine); di(4-amino-3-methylcyclohexyl)methane; Cyclohexanamine, 4,4'-methylenebis (2-methyl-; Bis(4-amino-3-methylcyclohexyl)methane; 4,4'-Methylenebis(2-methylcyclohexan-1-amine); 3,3'-dimethyl-4,4'-diaminodicyclohexylmethane; 2,2'-DIMETHYL-4,4'-METHYLENEBIS; 4,4'-Methylenebis-(2-methylcyclohexanamine); 4,4'-Diamino-3,3'-dimethyldicyclohexylmethane | 60 - 80* | 6864-37-5  |
| benzyl alcohol                                   | Benzenemethanol; .alpha.-Hydroxytoluene; Phenylcarbinol; Phenylmethanol; E 1519; $\alpha$ -hydroxytoluene; Phenylmethyl alcohol; toluenol, $\alpha$ -; (hydroxymethyl)benzene; BENZENECARBINOL; alpha-Hydroxytoluene  | 10 - 30* | 100-51-6   |
| butanone   | ethyl methyl ketone; 2-Butanone; Methyl ethyl ketone; MEK; 2-Butanone (Methyl ethyl ketone); Methyl acetone; butane-2-one; 2-oxobutane; methyl ethyl ketone; butanone-2; ketobutan; MEC; MEETCO; MEK; methyl acetone; methylethylketone; oxobutane; ethylmethylketone;; butan-2-one; Methyl ethyl ketone (MEK) (I,T)  | 3 - 7*   | 78-93-3    |
| 2,4,6-tris(dimethylaminomethyl)phenol            | Phenol, 2,4,6-tris[(dimethylamino)methyl]-; Phenol, 2,4,6-tris(dimethylaminomethyl)-; 2,4,6-tris((dimethylamino)methyl)phenol; Phenol, 2,4,6-tris((dimethylamino)methyl)-; 2,4,6-Tris[(dimethylamino)methyl]phenol; 2,4,6-Tri(dimethylaminomethyl)phenol; 2,4,6-Tris(N,N-dimethylaminomethyl)phenol; 2,4,6-Tridimethylaminomethylphenol; TRIS (2,4,6-DIMETHYLAMINOMONOMETHYL) PHENOL; TRIS (2,4,6-DIMETHYLAMINOMETHYL) PHENOL; TRIS[(DIMETHYLAMINO)METHYL]PHENOL, 2,4,6-                          | 1 - 5*   | 90-72-2    |
| N-(3-(trimethoxysilyl)propyl)ethylenediamine     | 1,2-Ethanediamine, N1-[3-(trimethoxysilyl)propyl]-; 1,2-Ethanediamine, N-[3-(trimethoxysilyl)propyl]-; [3-[(2-Aminoethyl)amino; 3-(2-aminoethylamino)propyltrimethoxysilane; 2-aminoethyl (3-trimethoxysilylpropyl)amine;   | 1 - 5*   | 1760-24-3  |

## Section 3. Composition/information on ingredients

Ethylenediamine, N-(3-(trimethoxysilyl)propyl)-; (trimethoxysilylpropyl)ethylenediamine; 1,2-Ethanediamine, N-{3-(trimethoxysilyl)propyl}-; N-[3-(Trimethoxysilyl)propyl]ethane-1,2-diamine; 3-(2-Aminoethylamino)propyltrimethoxysilane; 1,2-Ethanediamine, N-(3-(trimethoxysilyl)propyl)-; Dehydrochlorination reaction products of 3-[(2-aminoethyl)amino]propyltrimethoxysilane and 3-chloropropyltrimethoxysilane

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

SUB codes represent substances without registered CAS Numbers.

**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.

## Section 4. First-aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

### Description of necessary first aid measures

|                     |  |
|---------------------|--|
| <b>Eye contact</b>  | : 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.                            |
| <b>Inhalation</b>   | : 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. |
| <b>Skin contact</b> | : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.   |
| <b>Ingestion</b>    | : 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

|                     |  |
|---------------------|--|
| <b>Eye contact</b>  | : Causes serious eye damage.   |
| <b>Inhalation</b>   | : Toxic if inhaled.  |
| <b>Skin contact</b> | : Causes severe burns. Toxic in contact with skin. Defatting to the skin. May cause an allergic skin reaction. |
| <b>Ingestion</b>    | : Harmful if swallowed.  |

#### Over-exposure signs/symptoms

|                    |  |
|--------------------|--|
| <b>Eye contact</b> | : Adverse symptoms may include the following:<br>pain<br>watering<br>redness |
| <b>Inhalation</b>  | : No specific data.  |

## Section 4. First-aid measures

**Skin contact**

- : Adverse symptoms may include the following:  
pain or irritation  
redness  
dryness  
cracking  
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. Fire-fighting measures

**Extinguishing media****Suitable extinguishing media**

- : Use dry chemical, CO<sub>2</sub>, 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.

**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.

## 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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

#### **For emergency responders**

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

#### **Environmental precautions**

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### 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.

## 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 vapor or mist. Do not ingest. 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.

#### **Special precautions**

: Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Vapors are heavier than air and may spread along floors. If this material is part of a multiple component system, read the Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts.

## Section 7. Handling and storage

### Advice on general occupational hygiene

: Wash hands thoroughly after handling.

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 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.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

| Ingredient name   | Exposure limits   |
|---|---|
| 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)<br>benzyl alcohol<br>butanone        | <p>None.<br/>None.</p> <p><b>CA Alberta Provincial (Canada, 3/2023)</b><br/>OEL 15 minutes: 300 ppm.<br/>OEL 8 hours: 200 ppm.<br/>OEL 8 hours: 590 mg/m<sup>3</sup>.<br/>OEL 15 minutes: 885 mg/m<sup>3</sup>.</p> <p><b>CA British Columbia Provincial (Canada, 4/2024)</b> Absorbed through skin.<br/>TWA 8 hours: 50 ppm.<br/>STEL 15 minutes: 100 ppm.</p> <p><b>CA Ontario Provincial (Canada, 6/2019)</b><br/>TWA 8 hours: 200 ppm.<br/>STEL 15 minutes: 300 ppm.</p> <p><b>CA Quebec Provincial (Canada, 2/2024)</b><br/>TWAEV 8 hours: 50 ppm.<br/>TWAEV 8 hours: 150 mg/m<sup>3</sup>.<br/>STEV 15 minutes: 100 ppm.<br/>STEV 15 minutes: 300 mg/m<sup>3</sup>.</p> <p><b>CA Saskatchewan Provincial (Canada, 4/2021)</b><br/>STEL 15 minutes: 300 ppm.<br/>TWA 8 hours: 200 ppm.</p> |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>N-(3-(trimethoxysilyl)propyl)ethylenediamine | <p>None.<br/>None.</p>  |

Consult local authorities for acceptable exposure limits.

**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.

## Section 8. Exposure controls/personal protection

### 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

#### 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

: 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

: nitrile neoprene

#### 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.

## Section 9. Physical and chemical properties

### Appearance

#### Physical state

: Liquid.

#### Color

: Green.

#### Odor

: Aromatic. [Strong]

#### pH

: Not applicable.

#### Melting point

: Not available.

#### Boiling point

: >37.78°C (>100°F)

## Section 9. Physical and chemical properties

**Flash point** : Closed cup: 52°C (125.6°F)

**Auto-ignition temperature** : 426°C (798.8°F)

**Decomposition temperature** : Not available.

**Flammability** : Not available.

**Lower and upper explosive (flammable) limits** : Not available.

**Vapor pressure** : Not available.

**Vapor density** : Not available.

**Relative density** : 0.96

**Density ( lbs / gal )** : 8.01

| <b>Solubility(ies)</b> | <b>Media</b> | <b>Result</b> |
|------------------------|--------------|---------------|
|                        | cold water   | Not soluble   |

**Partition coefficient: n-octanol/water** : Not applicable.

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): <14 mm<sup>2</sup>/s (<14 cSt)

**% Solid. (w/w)** : 93.539

### Particle characteristics

**Median particle size** : 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** : When exposed to high temperatures may produce hazardous decomposition products.  
Refer to protective measures listed in sections 7 and 8.

**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

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

| Product/ingredient name                           | Result   | Dose   |
|---|--|--|
| 2,2'-dimethyl-4,4'-methylenebis (cyclohexylamine) | Rat - Oral - LD50<br>Rabbit - Dermal - LD50<br>Rat - Inhalation - LC50 Dusts and mists | >0.32 g/kg<br>>0.2 g/kg<br>420 mg/m <sup>3</sup> [4 hours] |
| benzyl alcohol                                    | Rabbit - Dermal - LD50<br>Rat - Oral - LD50<br>Rat - Inhalation - LC50 Dusts and mists | >2000 mg/kg<br>1200 mg/kg<br>>5 mg/l [4 hours]             |
| butanone  | Rabbit - Dermal - LD50<br>Rat - Oral - LD50  | 6480 mg/kg<br>2737 mg/kg                                   |
| 2,4,6-tris(dimethylaminomethyl)phenol             | Rat - Dermal - LD50<br>Rat - Oral - LD50   | 1280 mg/kg<br>1200 mg/kg                                   |
| N-(3-(trimethoxysilyl)propyl)ethylenediamine      | Rat - Oral - LD50<br>Rabbit - Dermal - LD50  | 2413 mg/kg<br>>2000 mg/kg                                  |

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

#### Skin corrosion/irritation

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

#### Serious eye damage/eye irritation

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

#### Respiratory corrosion/irritation

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

#### Sensitization

##### Skin

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

##### Respiratory

**Conclusion/Summary** : 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.

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

| Product/ingredient name                      | Result  |
|--|---|
| butanone                                     | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)<br>(Narcotic effects) - Category 3             |
| N-(3-(trimethoxysilyl)propyl)ethylenediamine | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)<br>(Respiratory tract irritation) - Category 3 |

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

| Product/ingredient name                           | Result  |
|---|---|
| 2,2'-dimethyl-4,4'-methylenebis (cyclohexylamine) | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |

## Section 11. Toxicological information

### Target organs

: Contains material which causes damage to the following organs: blood, liver, heart, brain.  
Contains material which may cause damage to the following organs: kidneys, the nervous system, the reproductive system, upper respiratory tract, skin, eyes, adrenal, central nervous system (CNS).

### Information on the likely routes of exposure

#### Potential acute health effects

**Eye contact** : Causes serious eye damage.  
**Inhalation** : Toxic if inhaled.  
**Skin contact** : Causes severe burns. Toxic in contact with skin. Defatting to the skin. 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  
**Inhalation** : No specific data.  
**Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
dryness  
cracking  
blistering may occur  
**Ingestion** : Adverse symptoms may include the following:  
stomach pains

#### Delayed and immediate effects and also chronic effects from short and long term exposure

**Conclusion/Summary** : There are no data available on the mixture itself. Trimethoxysilanes are capable of forming methanol if hydrolyzed or ingested. If swallowed, methanol may be harmful or fatal or cause blindness. This product either contains formaldehyde or is capable of releasing formaldehyde above 0.5 ppm under certain conditions. Formaldehyde is a known cancer hazard, a skin sensitizer and a respiratory sensitizer. Exposure to component solvent vapor 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. There is some evidence that repeated exposure to organic solvent vapors in combination with constant loud noise can cause greater hearing loss than expected from exposure to noise alone. 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.

## Section 11. Toxicological information

### 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

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

**General** : May cause 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** : No known significant effects or critical hazards.

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

**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 (vapors) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|--|--------------|----------------|--------------------------|----------------------------|-------------------------------------|
| SIGMAHIELD 905 HARDENER                          | 622.6        | 404.1          | N/A                      | N/A                        | 0.70                                |
| 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine) | 500          | 300            | N/A                      | N/A                        | 0.5                                 |
| benzyl alcohol                                   | 1200         | 2500           | N/A                      | N/A                        | N/A                                 |
| butanone   | 2737         | 6480           | N/A                      | N/A                        | N/A                                 |
| 2,4,6-tris(dimethylaminomethyl)phenol            | 1200         | 1280           | N/A                      | N/A                        | N/A                                 |
| N-(3-(trimethoxysilyl)propyl)ethylenediamine     | 2413         | 2500           | N/A                      | N/A                        | N/A                                 |

## Section 12. Ecological information

### Toxicity

| Product/ingredient name                      | Result  | Species |
|--|---|---------|
| 2,4,6-tris(dimethylaminomethyl)phenol        | Acute - LC50<br>OECD [Daphnia sp. Acute Immobilization Test and Reproduction Test]<br>>100 mg/l [48 hours]<br>Acute - LC50<br>OECD [Fish, Acute Toxicity Test]<br>>100 mg/l [96 hours]<br>EC50<br>597 mg/l [96 hours] | Daphnia |
| N-(3-(trimethoxysilyl)propyl)ethylenediamine |   | Fish    |

**Conclusion/Summary** : Not available.

### Persistence and degradability

## Section 12. Ecological information

| Product/ingredient name               | Result   |
|---------------------------------------|--|
| 2,4,6-tris(dimethylaminomethyl)phenol | OECD [Ready Biodegradability - Closed Bottle Test]<br>4% [28 days] - Not readily |

**Conclusion/Summary** : Not available.

### Bioaccumulative potential

| Product/ingredient name                          | LogP <sub>ow</sub> | BCF | Potential |
|--|--------------------|-----|-----------|
| 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine) | 1.8                | -   | Low       |
| benzyl alcohol                                   | 0.87               | -   | Low       |
| butanone   | 0.3                | -   | Low       |
| 2,4,6-tris(dimethylaminomethyl)phenol            | 0.219              | -   | Low       |

### Mobility in soil

**Soil/Water partition coefficient** : Not available.

## Section 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.

**Disposal should be in accordance with applicable regional, national and local laws and regulations.**

**Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Section 6. Accidental release measures**

## Section 14. Transport information

## Section 14. Transport information

|                             | TDG  | IMDG   | IATA   |
|-----------------------------|--|--|--|
| UN number                   | UN3470   | UN3470   | UN3470   |
| UN proper shipping name     | PAINT, CORROSIVE, FLAMMABLE                        | PAINT, CORROSIVE, FLAMMABLE                        | Paint, corrosive, flammable  |
| Transport hazard class(es)  | 8 (3)  | 8 (3)  | 8 (3)  |
| Packing group               | II   | II   | II   |
| Environmental hazards       | Yes.   | Yes.   | Yes. The environmentally hazardous substance mark is not required. |
| Marine pollutant substances | (2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)) | (2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)) | Not applicable.  |

### Additional information

**TDG** : The marine pollutant mark is not required when transported by road or rail.

**IMDG** : The marine pollutant mark is not required when transported in sizes of  $\leq 5$  L or  $\leq 5$  kg.

**IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.

**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.

**Proof of classification statement** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8), 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark).

## Section 15. Regulatory information

### National Inventory List

Canada inventory ( DSL ) : At least one component is not listed.

## Section 16. Other information

Please refer to Section 2 of this document for GHS hazard classifications.

The customer is responsible for determining the PPE code for this material.

**Date of issue/Date of revision** 5 June 2025

**Organization that prepared the SDS** : 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

## Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)

N/A = Not available

SGG = Segregation Group

UN = United Nations

 Indicates information that has changed from previously issued version.

### Disclaimer

*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.*