

SAFETY DATA SHEET

Date of issue/Date of revision

: 24 June 2025

Version

: 3.05



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : SIGMAGUARD CSF 650 HARDENER

Product code : 00254121

Other means of identification

Not available.

1.2 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 : Product is not intended, labelled or packaged for consumer use.

1.3 Details of the supplier of the safety data sheet

PPG Coatings Belgium BV/SRL
Tweemontstraat 104
B-2100 Deurne
Belgium
Telephone +32-33606311
Fax +32-33606435

**e-mail address of person
responsible for this SDS** : Product.Stewardship.EMEA@ppg.com

1.4 Emergency telephone number

Supplier

+31 20 4075210

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226
Acute Tox. 4, H302
Acute Tox. 3, H311
Acute Tox. 3, H331
Skin Corr. 1A, H314
Eye Dam. 1, H318
Skin Sens. 1, H317
Aquatic Chronic 2, H411

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 2: Hazards identification

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

:



- Signal word
- :
- Danger
- Hazard statements
- :
- Flammable liquid and vapour.
Harmful if swallowed.
Toxic in contact with skin or if inhaled.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.

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. Avoid release to the environment.
- Response
- :
- Collect spillage. IF INHALED: Immediately call a POISON CENTER or doctor.
- Storage
- :
- Not applicable.
- Disposal
- :
- Dispose of contents and container in accordance with all local, regional, national and international regulations.
P280, P210, P273, P391, P304 + P310, P501
- Hazardous ingredients
- :
- 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine); benzyl alcohol and N-(3-(trimethoxysilyl)propyl)ethylenediamine
- Supplemental label elements
- :
- Not applicable.

- Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- :
- Not applicable.

Special packaging requirements

- Containers to be fitted with child-resistant fastenings
- :
- Not applicable.
- Tactile warning of danger
- :
- Not applicable.

2.3 Other hazards

- Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- :
- This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
- Other hazards which do not result in classification
- :
- Prolonged or repeated contact may dry skin and cause irritation.

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	% by weight	Classification	Specific Conc. Limits, M-factors and ATEs	Type
2,2'-dimethyl-4,4'-methylenebis (cyclohexylamine)	REACH #: 01-2119497829-12 EC: 229-962-1 CAS: 6864-37-5 Index: 612-110-00-1	≥50 - ≤75	Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Chronic 2, H411	ATE [Oral] = 500 mg/kg ATE [Dermal] = 300 mg/kg ATE [Inhalation (dusts and mists)] = 0.5 mg/l	[1]
benzyl alcohol	REACH #: 01-2119492630-38 EC: 202-859-9 CAS: 100-51-6 Index: 603-057-00-5	≥10 - ≤25	Acute Tox. 4, H302 Eye Irrit. 2, H319 Skin Sens. 1B, H317	ATE [Oral] = 1200 mg/kg	[1]
butanone	REACH #: 01-2119457290-43 EC: 201-159-0 CAS: 78-93-3 Index: 606-002-00-3	≥5.0 - ≤10	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 EUH066	-	[1] [2]
2,4,6-tris (dimethylaminomethyl) phenol	REACH #: 01-2119560597-27 EC: 202-013-9 CAS: 90-72-2	≥1.0 - ≤5.0	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1C, H314 Eye Dam. 1, H318	ATE [Oral] = 1200 mg/kg ATE [Dermal] = 1280 mg/kg	[1]
N-(3-(trimethoxysilyl)propyl) ethylenediamine	REACH #: 01-2119970215-39 EC: 217-164-6 CAS: 1760-24-3	≥1.0 - ≤5.0	Eye Dam. 1, H318 Skin Sens. 1B, H317 STOT SE 3, H335 See Section 16 for the full text of the H statements declared above.	-	[1]

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, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SUB codes represent substances without registered CAS Numbers.

Code : 00254121

Date of issue/Date of revision

: 24 June 2025

SIGMAGUARD CSF 650 HARDENER

SECTION 4: First aid measures

4.1 Description of 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.
- 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.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

- 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.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 5: Firefighting measures

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	: Flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products	: Decomposition products may include the following materials: carbon oxides nitrogen oxides metal oxide/oxides Formaldehyde.

5.3 Advice for firefighters

Special precautions 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 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. Shut off all ignition sources. No flares, smoking or flames in hazard area. 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".

6.2 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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material 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 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 6: Accidental release measures

6.4 Reference to other sections	: See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.
---------------------------------	---

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 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. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
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.

7.2 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 oxidising 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

See Section 1.2 for Identified uses.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
 Butanone	EU OEL (Europe, 1/2022) TWA 8 hours: 200 ppm. TWA 8 hours: 600 mg/m³. STEL 15 minutes: 300 ppm. STEL 15 minutes: 900 mg/m³.

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 8: Exposure controls/personal protection

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Exposure	Value
2,2'-dimethyl-4,4'-methylenebis (cyclohexylamine)	DNEL - General population - Long term - Oral	Effects: Systemic 0.008 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	Effects: Systemic 0.05 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	Effects: Systemic 0.6 mg/m³
	DNEL - Workers - Long term - Inhalation	Effects: Local 1 mg/m³
	DNEL - General population - Long term - Oral	Effects: Systemic 4 mg/kg bw/day
	DNEL - General population - Long term - Dermal	Effects: Systemic 4 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	Effects: Systemic 5.4 mg/m³
	DNEL - Workers - Long term - Dermal	Effects: Systemic 8 mg/kg bw/day
	DNEL - General population - Short term - Oral	Effects: Systemic 20 mg/kg bw/day
	DNEL - General population - Short term - Dermal	Effects: Systemic 20 mg/kg bw/day
benzyl alcohol	DNEL - Workers - Long term - Inhalation	Effects: Systemic 22 mg/m³
	DNEL - General population - Short term - Inhalation	Effects: Systemic 27 mg/m³
	DNEL - Workers - Short term - Dermal	Effects: Systemic 40 mg/kg bw/day
	DNEL - Workers - Short term - Inhalation	Effects: Systemic 110 mg/m³
	DNEL - General population - Long term - Oral	Effects: Systemic 31 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	Effects: Systemic 106 mg/m³
	DNEL - General population - Long term - Dermal	Effects: Systemic 412 mg/kg bw/day
	DNEL - General population - Short term - Inhalation	Effects: Systemic 450 mg/m³
	DNEL - Workers - Long term - Inhalation	Effects: Systemic 600 mg/m³
	DNEL - Workers - Short term - Inhalation	Effects: Systemic 900 mg/m³
butanone	DNEL - Workers - Long term - Dermal	Effects: Systemic 1161 mg/kg bw/day
	DNEL - General population - Long term - Oral	Effects: Systemic 0.075 mg/kg bw/day
	DNEL - General population - Short term - Dermal	Effects: Systemic 0.075 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	Effects: Systemic 0.13 mg/m³
	DNEL - General population - Long term - Inhalation	Effects: Systemic 0.13 mg/m³
	DNEL - Workers - Long term - Dermal	Effects: Systemic 0.15 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	Effects: Systemic 0.53 mg/m³
	DNEL - Workers - Short term - Dermal	Effects: Systemic 0.6 mg/kg bw/day
	DNEL - Workers - Short term - Inhalation	Effects: Systemic 2.1 mg/m³
	DNEL - General population - Long term - Inhalation	Effects: Local 0.1 mg/m³
2,4,6-tris (dimethylaminomethyl) phenol	DNEL - Workers - Long term - Inhalation	Effects: Local 0.6 mg/m³
	DNEL - General population - Long term - Oral	Effects: Systemic 0.075 mg/kg bw/day
	DNEL - General population - Long term - Dermal	Effects: Systemic 0.075 mg/kg bw/day
	DNEL - General population - Short term - Inhalation	Effects: Systemic 0.13 mg/m³
	DNEL - General population - Long term - Inhalation	Effects: Systemic 0.13 mg/m³
	DNEL - Workers - Long term - Dermal	Effects: Systemic 0.15 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	Effects: Systemic 0.53 mg/m³
	DNEL - Workers - Short term - Dermal	Effects: Systemic 0.6 mg/kg bw/day
	DNEL - Workers - Short term - Inhalation	Effects: Systemic 2.1 mg/m³
	DNEL - General population - Long term - Inhalation	Effects: Local 0.1 mg/m³
N-(3-(trimethoxysilyl) propyl)ethylenediamine	DNEL - Workers - Long term - Inhalation	Effects: Local 0.6 mg/m³
	DNEL - General population - Long term - Oral	Effects: Systemic 0.075 mg/kg bw/day
	DNEL - General population - Long term - Dermal	Effects: Systemic 0.075 mg/kg bw/day
	DNEL - General population - Short term - Inhalation	Effects: Systemic 0.13 mg/m³
	DNEL - General population - Long term - Inhalation	Effects: Systemic 0.13 mg/m³
	DNEL - Workers - Long term - Dermal	Effects: Systemic 0.15 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	Effects: Systemic 0.53 mg/m³
	DNEL - Workers - Short term - Dermal	Effects: Systemic 0.6 mg/kg bw/day
	DNEL - Workers - Short term - Inhalation	Effects: Systemic 2.1 mg/m³
	DNEL - General population - Long term - Inhalation	Effects: Local 0.1 mg/m³

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 8: Exposure controls/personal protection

	DNEL - General population - Long term - Oral	Effects: Systemic	4 mg/kg bw/day
	DNEL - General population - Short term - Inhalation	Effects: Local	4 mg/m³
	DNEL - Workers - Short term - Inhalation	Effects: Local	5.36 mg/m³
	DNEL - General population - Long term - Inhalation	Effects: Systemic	26 mg/m³
	DNEL - Workers - Long term - Inhalation	Effects: Systemic	130 mg/m³
	DNEL - General population - Short term - Inhalation	Effects: Systemic	26400 mg/m³

PNECs

Product/ingredient name	Compartment Detail - Method	Value
Butanone	Fresh water - Sensitivity Distribution	55.8 mg/l
	Marine water - Sensitivity Distribution	55.8 mg/l
	Sewage Treatment Plant - Sensitivity Distribution	709 mg/l
	Fresh water sediment - Equilibrium Partitioning	284.74 mg/kg dwt
	Marine water sediment - Equilibrium Partitioning	284.7 mg/kg dwt
	Soil - Equilibrium Partitioning	22.5 mg/kg dwt

8.2 Exposure controls

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, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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. Use eye protection according to EN 166.
- 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. When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended. The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.
- Gloves** : nitrile neoprene

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 8: Exposure controls/personal protection

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. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
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. Wear a respirator conforming to EN140. Filter type: organic vapour (Type A) and particulate filter P3
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.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance					
Physical state	: Liquid.				
Colour	: Various				
Odour	: Aromatic. [Strong]				
Melting point/freezing point	: Not determined.				
Boiling point or initial boiling point and boiling range	: >37.78°C				
Flammability	: Not determined. There are no data available on the mixture itself.				
Lower and upper explosion limit	: Not available.				
Flash point	: Closed cup: 52°C				
Auto-ignition temperature	: 426°C (798.8°F)				
Decomposition temperature	: Stable under recommended storage and handling conditions (see Section 7).				
pH	: Not applicable. insoluble in water.				
Viscosity	:  Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C): <14 mm²/s				
Solubility	:				
<table><tr><th>Media</th><th>Result</th></tr><tr><td>cold water</td><td>Not soluble</td></tr></table>		Media	Result	cold water	Not soluble
Media	Result				
cold water	Not soluble				
Partition coefficient n-octanol/ water (log Pow)	: Not applicable.				
Vapour pressure	:				

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 9: Physical and chemical properties

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
butanone	78.7564	10.5				

Relative density	: 0.96
Particle characteristics	
Median particle size	: Not applicable.
9.2 Other information	
9.2.1 Information with regard to physical hazard classes	
Explosive properties	: The product itself is not explosive, but the formation of an explosible mixture of vapour or dust with air is possible.
Oxidising properties	: Product does not present an oxidizing hazard.
No additional information.	

SECTION 10: Stability and reactivity

10.1 Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: The product is stable.
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: When exposed to high temperatures may produce hazardous decomposition products. Refer to protective measures listed in sections 7 and 8.
10.5 Incompatible materials	: Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis, strong acids.
10.6 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

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008	
The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly.	
Toxic in contact with skin or if inhaled.	
Harmful if swallowed.	
Causes severe skin burns and eye damage.	
May cause an allergic skin reaction.	
Acute toxicity	

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 11: Toxicological information

Product/ingredient name	Result	Dose / Exposure
☒ 2,2'-dimethyl-4,4'-methylenebis (cyclohexylamine)	Rat - Oral - LD50	>0.32 g/kg
benzyl alcohol	Rabbit - Dermal - LD50 Rat - Inhalation - LC50 Dusts and mists Rabbit - Dermal - LD50 Rat - Oral - LD50	>0.2 g/kg 420 mg/m³ [4 hours] >2000 mg/kg 1200 mg/kg
butanone	Rat - Inhalation - LC50 Dusts and mists Rabbit - Dermal - LD50 Rat - Oral - LD50	>5 mg/l [4 hours] 6480 mg/kg 2737 mg/kg
2,4,6-tris(dimethylaminomethyl) phenol	Rat - Dermal - LD50	1280 mg/kg
N-(3-(trimethoxysilyl)propyl) ethylenediamine	Rat - Oral - LD50 <u>Toxic effects:</u> Peripheral Nerve and Sensation - Flaccid paralysis without anesthesia (usually neuromuscular blockage) Lung, Thorax, or Respiration - Dyspnea Rat - Oral - LD50 <u>Toxic effects:</u> Behavioral - Tremor Gastrointestinal - Hypermotility, diarrhea Gastrointestinal - Other changes Rabbit - Dermal - LD50	1200 mg/kg 2413 mg/kg >2000 mg/kg

Acute toxicity estimates

Route	ATE value
☒ Oral Dermal Inhalation (dusts and mists)	636.14 mg/kg 415.63 mg/kg 0.7 mg/l

Conclusion/Summary : ☒ Toxic in contact with skin or if inhaled.
Harmful if swallowed.

Irritation/Corrosion

Conclusion/Summary

Skin : ☒ Causes severe burns.
Eyes : ☒ Causes serious eye damage.
Respiratory : ☒ Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Conclusion/Summary

Skin : ☒ May cause an allergic skin reaction.
Respiratory : ☒ Based on available data, the classification criteria are not met.

Mutagenicity

☒ Based on available data, the classification criteria are not met.

Carcinogenicity

☒ Based on available data, the classification criteria are not met.

Reproductive toxicity

☒ Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
☒ butanone	Category 3	-	Narcotic effects
N-(3-(trimethoxysilyl)propyl)ethylenediamine	Category 3	-	Respiratory tract irritation

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 11: Toxicological information

Conclusion/Summary	:	Based on available data, the classification criteria are not met.
Specific target organ toxicity (repeated exposure)	:	Based on available data, the classification criteria are not met.
Aspiration hazard	:	Based on available data, the classification criteria are not met.
Information on likely routes of exposure	:	Not available.
Potential acute health effects	:	
Inhalation	:	Toxic if inhaled.
Ingestion	:	Harmful if swallowed.
Skin contact	:	Causes severe burns. Toxic in contact with skin. Defatting to the skin. May cause an allergic skin reaction.
Eye contact	:	Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	:	
Inhalation	:	No specific data.
Ingestion	:	Adverse symptoms may include the following: stomach pains
Skin contact	:	Adverse symptoms may include the following: pain or irritation redness dryness cracking blistering may occur
Eye contact	:	Adverse symptoms may include the following: pain watering redness
Delayed and immediate effects as well as chronic effects from short and long-term exposure	:	
Short term exposure	:	
Potential immediate effects	:	No known significant effects or critical hazards.
Potential delayed effects	:	No known significant effects or critical hazards.
Long term exposure	:	
Potential immediate effects	:	No known significant effects or critical hazards.
Potential delayed effects	:	No known significant effects or critical hazards.
Potential chronic health effects	:	
General	:	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.
Other information	:	

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 11: Toxicological information

Prolonged or repeated contact may dry skin and cause irritation. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapour/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Trimethoxysilanes are capable of forming methanol if hydrolyzed or ingested. If swallowed, methanol may be harmful or fatal or cause blindness. Contains a substance that may emit formaldehyde if stored beyond its shelf life and/or during cure at curing temperatures greater than 60C/140F. Avoid contact with skin and clothing. 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.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

There are no data available on the mixture itself.
Do not allow to enter drains or watercourses.

The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

12.1 Toxicity

Product/ingredient name	Result	Species	Dose / Exposure
2,4,6-tris (dimethylaminomethyl)phenol	Acute - LC50	Daphnia	>100 mg/l [48 hours]
	Acute - LC50	Fish	>100 mg/l [96 hours]
	N-(3-(trimethoxysilyl)propyl) ethylenediamine EC50	Fish	597 mg/l [96 hours]

Conclusion/Summary : Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

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

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Benzyl alcohol	-	-	Readily
2,4,6-tris (dimethylaminomethyl)phenol	-	-	Not readily

12.3 Bioaccumulative potential

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 12: Ecological information

Product/ingredient name	LogP _{ow}	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

12.4 Mobility in soil

Soil/water partition coefficient

Product/ingredient name	logK _{oc}	K _{oc}
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	2.5	313.55
benzyl alcohol	1.1	12.6442
butanone	1.2	15.8984
2,4,6-tris(dimethylaminomethyl)phenol	2.72	525.589
N-(3-(trimethoxysilyl)propyl)ethylenediamine	1.54	34.5002

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : 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.

Hazardous waste :

European waste catalogue (EWC)

Waste code	Waste designation
08 01 11*	waste paint and varnish containing organic solvents or other hazardous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 13: Disposal considerations

Type of packaging	European waste catalogue (EWC)	
Container	15 01 06	mixed packaging

Special precautions : 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. Vapour 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN3470	UN3470	UN3470	UN3470
14.2 UN proper shipping name	PAINT, CORROSIVE, FLAMMABLE	PAINT, CORROSIVE, FLAMMABLE	PAINT, CORROSIVE, FLAMMABLE	PAINT, CORROSIVE, FLAMMABLE
14.3 Transport hazard class(es)	8 (3)	8 (3)	8 (3)	8 (3)
14.4 Packing group	II	II	II	II
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.
Marine pollutant substances	Not applicable.	Not applicable.	(2,2'-dimethyl-4,4'-methylenebis (cyclohexylamine))	Not applicable.

Additional information

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Tunnel code : (D/E)

ADN : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

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

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not applicable.

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Product/ingredient name	Entry Number (REACH)
 SIGMAGUARD CSF 650 HARDENER	3

Labelling : Not applicable.

Explosive precursors : Not applicable.

Ozone depleting substances (EU 2024/590)

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
 H2 P5c E2

15.2 Chemical safety assessment : No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

 Indicates information that has changed from previously issued version.

Abbreviations and acronyms

- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- PBT = Persistent, Bioaccumulative and Toxic
- vPvB = Very Persistent and Very Bioaccumulative
- ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- IMDG = International Maritime Dangerous Goods
- IATA = International Air Transport Association

Full text of abbreviated H statements

Code	: 00254121	Date of issue/Date of revision	: 24 June 2025
SIGMAGUARD CSF 650 HARDENER			

SECTION 16: Other information

H225 H226 H302 H311 H312 H314 H317 H318 H319 H331 H335 H336 H411 EUH066	Highly flammable liquid and vapour. Flammable liquid and vapour. Harmful if swallowed. Toxic in contact with skin. Harmful in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Causes serious eye irritation. Toxic if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. Toxic to aquatic life with long lasting effects. Repeated exposure may cause skin dryness or cracking.
--	---

Full text of classifications [CLP/GHS]

Acute Tox. 3 Acute Tox. 4 Aquatic Chronic 2 Eye Dam. 1 Eye Irrit. 2 Flam. Liq. 2 Flam. Liq. 3 Skin Corr. 1A Skin Corr. 1C Skin Sens. 1 Skin Sens. 1B STOT SE 3	ACUTE TOXICITY - Category 3 ACUTE TOXICITY - Category 4 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 FLAMMABLE LIQUIDS - Category 2 FLAMMABLE LIQUIDS - Category 3 SKIN CORROSION/IRRITATION - Category 1A SKIN CORROSION/IRRITATION - Category 1C SKIN SENSITISATION - Category 1 SKIN SENSITISATION - Category 1B SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3
---	---

History

Date of issue/ Date of revision	: 24 June 2025
Date of previous issue	: 27 August 2024
Prepared by	: EHS
Version	: 3.05

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 us, 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.