

# SAFETY DATA SHEET



Date of issue/Date of revision : 16 January 2020 Version : 22

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

### 1.1 Product identifier

**Product name** : SIGMASHIELD 220/420/460/880/880GF HARDENER

**Product code** : 00192326

#### 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.

**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** : PMC.Safety@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

Skin Corr. 1C, H314

Eye Dam. 1, H318

Skin Sens. 1, H317

Repr. 1B, H360F (Fertility)

STOT SE 3, H335

Aquatic Chronic 3, H412

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.

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

Code : 00192326

Date of issue/Date of revision

: 16 January 2020

SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 2: Hazards identification

### 2.2 Label elements

Hazard pictograms :



Signal word :

Danger

Hazard statements :

Flammable liquid and vapour.  
Causes severe skin burns and eye damage.  
May cause an allergic skin reaction.  
May damage fertility.  
May cause respiratory irritation.  
Harmful to aquatic life with long lasting effects.

### Precautionary statements

Prevention :

Wear protective gloves. Wear protective clothing. Wear eye or face protection.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.  
No smoking. Avoid breathing vapour.

Response :

IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF SWALLOWED: Immediately call a POISON CENTER or physician. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage :

Store in a well-ventilated place. Keep cool.

Disposal :

Not applicable.

P280, P210, P261, P304 + P340, P301 + P310, P303 + P361 + P353, P305 + P351 + P338, P403, P235

Hazardous ingredients :

Epoxy Amine Resin  
xylene  
Propylidynetrimethanol, propoxylated, reaction products with ammonia  
2-methylpropan-1-ol  
4,4'-isopropylidenediphenol  
m-phenylenebis(methylamine)  
2,4,6-tris(dimethylaminomethyl)phenol

Supplemental label elements :

Not applicable.

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

: Restricted to professional users.

### 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 :

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 : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

### SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	% by weight	Classification Regulation (EC) No. 1272/2008 [CLP]	Type
Epoxy Amine Resin xylene	CAS: SUB123903 REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	≥25 - ≤50 ≥10 - ≤25	Skin Sens. 1, H317 Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304	[1] [1] [2]
Propylidynetrimethanol, propoxylated, reaction products with ammonia	REACH #: 01-2119556886-20 EC: 500-105-6 CAS: 39423-51-3	≥10 - ≤17	Acute Tox. 4, H302 Acute Tox. 4, H312 Eye Dam. 1, H318 Aquatic Chronic 2, H411	[1]
benzyl alcohol	REACH #: 01-2119492630-38 EC: 202-859-9 CAS: 100-51-6 Index: 603-057-00-5	≥5.0 - ≤10	Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Irrit. 2, H319	[1] [2]
2-methylpropan-1-ol	REACH #: 01-2119484609-23 EC: 201-148-0 CAS: 78-83-1 Index: 603-108-00-1	≥5.0 - ≤10	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 STOT SE 3, H336	[1] [2]
bisphenol A	REACH #: 01-2119457856-23 EC: 201-245-8 CAS: 80-05-7 Index: 604-030-00-0	≥1.0 - ≤5.0	Eye Dam. 1, H318 Skin Sens. 1, H317 Repr. 1B, H360F (Fertility) STOT SE 3, H335 Aquatic Chronic 2, H411	[1] [2] [5]
m-phenylenebis(methylamine)	REACH #: 01-2119480150-50 EC: 216-032-5 CAS: 1477-55-0	≥1.0 - ≤4.3	Acute Tox. 4, H302 Acute Tox. 4, H332 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1B, H317 Aquatic Chronic 3, H412 EUH071	[1] [2]
ethylbenzene	REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	≥1.0 - ≤5.0	Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 (hearing organs) Asp. Tox. 1, H304	[1] [2]
2,4,6-tris(dimethylaminomethyl) phenol	REACH #: 01-2119560597-27 EC: 202-013-9 CAS: 90-72-2 Index: 603-069-00-0	≥0.30 - ≤2.6	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1C, H314 Eye Dam. 1, H318 Skin Sens. 1B, H317	[1]
			<b>See Section 16 for the full text of the H statements declared above.</b>	

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.

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

### SECTION 3: Composition/information on ingredients

Xylene: Several REACH registrations cover the REACH registered substance with xylene isomers, ethylbenzene (and toluene). The other REACH Registrations include: 01-2119555267-33 reaction mass of ethylbenzene and m-xylene and p-xylene, 01-2119486136-34 Aromatic hydrocarbons, C8, 01-2119539452-40 reaction mass of ethylbenzene and xylene.

#### Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

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

**SUB codes represent substances without registered CAS Numbers.**

### 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** : May cause respiratory irritation.
- Skin contact** : Causes severe burns. Defatting to the skin. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

##### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
 pain  
 watering  
 redness
- Inhalation** : Adverse symptoms may include the following:  
 respiratory tract irritation  
 coughing  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 4: First aid measures

- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
dryness  
cracking  
blistering may occur  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
stomach pains  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

### 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, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

### 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 harmful 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

### 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.

Code : 00192326	Date of issue/Date of revision : 16 January 2020
SIGMASHIELD 220/420/460/880/880GF HARDENER	

## 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.

### 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.

- 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). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. 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 non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous.

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 7: Handling and storage

### Advice on general occupational hygiene

Do not reuse container.

- : 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 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 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
xylene	<b>EU OEL (Europe, 2/2017). Absorbed through skin.</b> STEL: 442 mg/m <sup>3</sup> 15 minutes. STEL: 100 ppm 15 minutes. TWA: 221 mg/m <sup>3</sup> 8 hours. TWA: 50 ppm 8 hours.
benzyl alcohol	<b>IPEL (PPG).</b> TWA: 10 ppm STEL: 50 ppm
2-methylpropan-1-ol	<b>ACGIH TLV (United States, 3/2019).</b> TWA: 152 mg/m <sup>3</sup> 8 hours. TWA: 50 ppm 8 hours.
4,4'-isopropylidenediphenol	<b>EU OEL (Europe, 2/2017).</b> TWA: 2 mg/m <sup>3</sup> 8 hours. Form: Inhalable fraction
m-phenylenebis(methylamine)	<b>ACGIH TLV (United States, 3/2019). Absorbed through skin.</b> C: 0.018 ppm
ethylbenzene	<b>EU OEL (Europe, 2/2017). Absorbed through skin.</b> STEL: 884 mg/m <sup>3</sup> 15 minutes. STEL: 200 ppm 15 minutes. TWA: 442 mg/m <sup>3</sup> 8 hours. TWA: 100 ppm 8 hours.



Code : 00192326

Date of issue/Date of revision

: 16 January 2020

SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 8: Exposure controls/personal protection

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to 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

Product/ingredient name	Type	Exposure	Value	Population	Effects
xylene	DNEL	Short term Inhalation	260 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Short term Inhalation	260 mg/m <sup>3</sup>	General population	Local
	DNEL	Long term Dermal	125 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	65.3 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Oral	12.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	221 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Short term Inhalation	442 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Inhalation	221 mg/m <sup>3</sup>	Workers	Local
	DNEL	Short term Inhalation	442 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Dermal	212 mg/kg bw/day	Workers	Systemic
benzyl alcohol	DNEL	Long term Oral	4 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	4 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	5.4 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Dermal	8 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Oral	20 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	20 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	22 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Short term Inhalation	27 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Short term Dermal	40 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	110 mg/m <sup>3</sup>	Workers	Systemic
2-methylpropan-1-ol	DNEL	Long term Inhalation	55 mg/m <sup>3</sup>	General population	Local
	DNEL	Long term Inhalation	310 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Inhalation	2 mg/m <sup>3</sup>	Workers	Systemic
4,4'-isopropylidenediphenol	DNEL	Short term Inhalation	2 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Inhalation	2 mg/m <sup>3</sup>	Workers	Local
	DNEL	Short term Inhalation	2 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Dermal	0.031 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Dermal	0.031 mg/kg bw/day	Workers	Systemic



Code : 00192326

Date of issue/Date of revision

: 16 January 2020

SIGMASHIELD 220/420/460/880/880GF HARDENER

### SECTION 8: Exposure controls/personal protection

m-phenylenebis(methylamine)	DNEL	Long term Inhalation	1 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Short term Inhalation	1 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Inhalation	1 mg/m <sup>3</sup>	General population	Local
	DNEL	Short term Inhalation	1 mg/m <sup>3</sup>	General population	Local
	DNEL	Long term Dermal	0.002 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	0.002 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.004 mg/kg bw/day	General population	Systemic
	DNEL	Short term Oral	0.004 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.2 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Dermal	0.33 mg/kg bw/day	Workers	Systemic
ethylbenzene	DNEL	Long term Inhalation	1.2 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Oral	1.6 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	15 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Inhalation	77 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Dermal	180 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	293 mg/m <sup>3</sup>	Workers	Local

#### PNECs

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
xylene	-	Fresh water	0.327 mg/l	-
	-	Marine water	0.327 mg/l	-
	-	Sewage Treatment Plant	6.58 mg/l	-
	-	Fresh water sediment	12.46 mg/kg dwt	-
	-	Marine water sediment	12.46 mg/kg dwt	-
	-	Soil	2.31 mg/kg	-
2-methylpropan-1-ol	-	Fresh water	0.4 mg/l	Assessment Factors
	-	Marine water	0.04 mg/l	Assessment Factors
	-	Sewage Treatment Plant	10 mg/l	Assessment Factors
	-	Fresh water sediment	1.56 mg/kg dwt	Equilibrium Partitioning
	-	Marine water sediment	0.156 mg/kg dwt	-
	-	Soil	0.076 mg/kg dwt	Equilibrium Partitioning
4,4'-isopropylidenediphenol	-	Fresh water	0.018 mg/l	Sensitivity Distribution
	-	Marine water	0.018 mg/l	Sensitivity Distribution
	-	Sewage Treatment Plant	320 mg/l	Assessment Factors
	-	Fresh water sediment	1.2 mg/kg dwt	Assessment Factors
	-	Marine water sediment	0.24 mg/kg dwt	Assessment Factors
	-	Sewage Treatment Plant	3.7 mg/kg dwt	Assessment Factors
ethylbenzene	-	Fresh water	0.1 mg/l	Assessment Factors
	-	Marine water	0.01 mg/l	Assessment Factors
	-	Sewage Treatment Plant	9.6 mg/l	Assessment Factors
	-	Fresh water sediment	13.7 mg/kg dwt	Equilibrium Partitioning
	-	Marine water sediment	1.37 mg/kg dwt	Equilibrium Partitioning

<b>Code</b> : 00192326	<b>Date of issue/Date of revision</b> : 16 January 2020
<b>SIGMASHIELD 220/420/460/880/880GF HARDENER</b>	

## SECTION 8: Exposure controls/personal protection

	-	Soil	2.68 mg/kg dwt	Equilibrium Partitioning
	-	Secondary Poisoning	20 mg/kg	-

### 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

**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.

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	: Liquid.
Colour	: Various
Odour	: Amine-like.
Odour threshold	: Not available.
pH	: insoluble in water.
Melting point/freezing point	: May start to solidify at the following temperature: 14°C (57.2°F) This is based on data for the following ingredient: m-phenylenebis(methylamine). Weighted average: -52.5°C (-62.5°F)
Initial boiling point and boiling range	: >37.78°C
Flash point	: Closed cup: 36°C
Evaporation rate	: Highest known value: 0.84 (ethylbenzene) Weighted average: 0.55 compared with butyl acetate
Flammability (solid, gas)	: liquid
Upper/lower flammability or explosive limits	: Greatest known range: Lower: 1.3% Upper: 13% (benzyl alcohol)
Vapour pressure	: Highest known value: <1.6 kPa (<12 mm Hg) (at 20°C) (2-methylpropan-1-ol). Weighted average: 0.67 kPa (5.03 mm Hg) (at 20°C)
Vapour density	: Highest known value: 3.7 (Air = 1) (xylene). Weighted average: 3.53 (Air = 1)
Relative density	: 1.02
Solubility(ies)	: Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/ water	: Not applicable.
Auto-ignition temperature	: 305°C
Decomposition temperature	: Stable under recommended storage and handling conditions (see Section 7).
Viscosity	: Kinematic (40°C): >0.21 cm <sup>2</sup> /s
Viscosity	: > 100 s (ISO 6mm)
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.

### 9.2 Other information

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.

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 10: Stability and reactivity

**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

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
xylene	LD50 Dermal	Rabbit	>1.7 g/kg	-
	LD50 Oral	Rat	4.3 g/kg	-
Propylidynetrimethanol, propoxylated, reaction products with ammonia	LD50 Dermal	Rabbit	0.4 g/kg	-
benzyl alcohol	LD50 Oral	Rat	0.22 g/kg	-
	LC50 Inhalation Dusts and mists	Rat	>4178 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	2000 mg/kg	-
	LD50 Oral	Rat	1.23 g/kg	-
2-methylpropan-1-ol	LC50 Inhalation Vapour	Rat	24.6 mg/l	4 hours
	LD50 Dermal	Rabbit	2460 mg/kg	-
	LD50 Oral	Rat	2830 mg/kg	-
bisphenol A	LD50 Dermal	Rabbit	3600 mg/kg	-
	LD50 Oral	Rat	3.25 g/kg	-
m-phenylenebis(methylamine)	LC50 Inhalation Gas.	Rat	700 ppm	1 hours
	LD50 Dermal	Rat - Male, Female	>3100 mg/kg	-
	LD50 Oral	Rat	930 mg/kg	-
ethylbenzene	LC50 Inhalation Vapour	Rat	17.8 mg/l	4 hours
	LD50 Dermal	Rabbit	17.8 g/kg	-
	LD50 Oral	Rat	3.5 g/kg	-
2,4,6-tris(dimethylaminomethyl)phenol	LD50 Dermal	Rabbit	1.28 g/kg	-
	LD50 Dermal	Rat	1280 mg/kg	-
	LD50 Oral	Rat	1200 mg/kg	-

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

#### Acute toxicity estimates

Route	ATE value
Oral	2124.45 mg/kg
Dermal	2939.31 mg/kg
Inhalation (gases)	108958.84 ppm
Inhalation (vapours)	51.63 mg/l
Inhalation (dusts and mists)	14.5 mg/l

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
xylene	Skin - Moderate irritant	Rabbit	-	24 hours 500 mg	-
m-phenylenebis(methylamine)	Skin - Severe irritant	Rat	-	4 hours	4 hours
2,4,6-tris(dimethylaminomethyl)phenol	Skin - Visible necrosis	Rabbit	-	4 hours	7 days

#### Conclusion/Summary

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

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

Code : 00192326

Date of issue/Date of revision

: 16 January 2020

SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 11: Toxicological information

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

### Sensitisation

Product/ingredient name	Route of exposure	Species	Result
m-phenylenebis(methylamine) 2,4,6-tris(dimethylaminomethyl)phenol	skin skin	Mouse Guinea pig	Sensitising Sensitising

### Conclusion/Summary

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

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

### Mutagenicity

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

### Carcinogenicity

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

### Reproductive toxicity

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

### Teratogenicity

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

### Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
xylene	Category 3	Not applicable.	Respiratory tract irritation
2-methylpropan-1-ol	Category 3	Not applicable.	Narcotic effects
bisphenol A	Category 3	Not applicable.	Respiratory tract irritation
	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	Not determined	hearing organs

### Aspiration hazard

Product/ingredient name	Result
xylene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1

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

### Potential acute health effects

**Inhalation** : May cause respiratory irritation.

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

**Skin contact** : Causes severe burns. 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** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 11: Toxicological information

**Ingestion** : Adverse symptoms may include the following:  
 stomach pains  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations

**Skin contact** : Adverse symptoms may include the following:  
 pain or irritation  
 redness  
 dryness  
 cracking  
 blistering may occur  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations

**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** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

Not available.

**Conclusion/Summary** : Not available.

**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.

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

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

**Fertility effects** : May damage fertility.

**Other information** : Not available.

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

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

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

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

Ingestion may cause nausea, diarrhea and vomiting.

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

## SECTION 11: Toxicological information

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

Contains Epoxy Amine Resin, 4,4'-isopropylidenediphenol, m-phenylenebis(methylamine), 2,4,6-tris(dimethylaminomethyl)phenol. May produce an allergic reaction.

## SECTION 12: Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
2-methylpropan-1-ol	Acute EC50 1100 mg/l	Daphnia	48 hours
bisphenol A	Chronic EC10 3.47 mg/l	Algae - Cochlodinium polykrikoides - Exponential growth phase	72 hours
	Marine water		
	Chronic NOEC 0.86 mg/l	Daphnia - Daphnia magna - Neonate	21 days
ethylbenzene	Fresh water		
	Acute LC50 150 to 200 mg/l	Fish	96 hours
	Fresh water		
2,4,6-tris(dimethylaminomethyl)phenol	Acute LC50 175 mg/l	Fish	96 hours

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

### 12.2 Persistence and degradability

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

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
xylene	-	-	Readily
benzyl alcohol	-	-	Readily
ethylbenzene	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
xylene	3.16	7.4 to 18.5	low
benzyl alcohol	1.1	-	low
2-methylpropan-1-ol	0.76	-	low
bisphenol A	3.32	43.65	low
m-phenylenebis(methylamine)	0.18	2.69	low
ethylbenzene	3.15	79.43	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

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



Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

## 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** : Yes.

#### 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.

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.

## 14. Transport information

	ADR/RID	ADN	IMDG	IATA
<b>14.1 UN number</b>	UN3469	UN3469	UN3469	UN3469
<b>14.2 UN proper shipping name</b>	PAINT, FLAMMABLE, CORROSIVE	PAINT, FLAMMABLE, CORROSIVE	PAINT, FLAMMABLE, CORROSIVE	PAINT, FLAMMABLE, CORROSIVE
<b>14.3 Transport hazard class(es)</b>	3 (8)	3 (8)	3 (8)	3 (8)
<b>14.4 Packing group</b>	III	III	III	III
<b>14.5 Environmental hazards</b>	No.	Yes.	No.	No.
<b>Marine pollutant substances</b>	Not applicable.	Not applicable.	Not applicable.	Not applicable.

#### Additional information

**ADR/RID** : None identified.

**Tunnel code** : (D/E)

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

## 14. Transport information

**ADN** : The product is only regulated as an environmentally hazardous substance when transported in tank vessels.  
**IMDG** : None identified.  
**IATA** : None identified.

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

## 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

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
Disphenol A	Toxic to reproduction	Candidate	ED/01/2018	1/12/2017
-	Substance of equivalent concern for human health	Candidate	ED/01/2018	1/12/2017
-	Substance of equivalent concern for environment	Candidate	ED/01/2018	1/12/2017

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Restricted to professional users.

Ozone depleting substances (1005/2009/EU)

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
P5c

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

Code : 00192326 Date of issue/Date of revision : 16 January 2020  
 SIGMASHIELD 220/420/460/880/880GF HARDENER

## 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

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H360F	May damage fertility.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

### Full text of classifications [CLP/GHS]

Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Aquatic Chronic 2, H411	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3, H412	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Asp. Tox. 1, H304	ASPIRATION HAZARD - Category 1
EUH071	Corrosive to the respiratory tract.
Eye Dam. 1, H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
Repr. 1B, H360F	REPRODUCTIVE TOXICITY (Fertility) - Category 1B
Skin Corr. 1B, H314	SKIN CORROSION/IRRITATION - Category 1B
Skin Corr. 1C, H314	SKIN CORROSION/IRRITATION - Category 1C
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1, H317	SKIN SENSITISATION - Category 1
Skin Sens. 1B, H317	SKIN SENSITISATION - Category 1B
STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3

<b>Code</b> : 00192326	<b>Date of issue/Date of revision</b> : 16 January 2020
------------------------	---

**SIGMASHIELD 220/420/460/880/880GF HARDENER**

## SECTION 16: Other information

STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3
-----------------	---

### History

**Date of issue/ Date of revision** : 16 January 2020

**Date of previous issue** : 5 June 2019

**Prepared by** : EHS

**Version** : 22

### 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.*