



SAFETY DATA SHEET

Hardener HRP-155

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

1.1 Product identifier

Product name : Hardener HRP-155

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/
mixture : Industrial/Professional Use: Hardener. Woodworking industry.

1.3 Details of the supplier of the safety data sheet

Supplier : Dynea AS
P.O.Box 160, N-2001 Lillestrøm
Norway
Tel. +47 63897100
Fax. +47 63897610

e-mail address of person
responsible for this SDS : sds@dynea.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : Not available.

Supplier

Telephone number : +47 63897100

Hours of operation : 24 hours

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]

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

Acute Tox. 4, H332
Skin Irrit. 2, H315
Eye Dam. 1, H318
Skin Sens. 1, H317
Carc. 1B, H350

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

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

2.2 Label elements

SECTION 2: Hazards identification

Hazard pictograms



Signal word

: Danger

Hazard statements

: H332 - Harmful if inhaled.
 H318 - Causes serious eye damage.
 H315 - Causes skin irritation.
 H317 - May cause an allergic skin reaction.
 H350 - May cause cancer.

Precautionary statements

: P201 - Obtain special instructions before use.
 P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
 P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.
 P405 - Store locked up.
 P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients

: Paraformaldehyde
formaldehyde

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

Not applicable.

2.3 Other hazards

Other hazards which do
 not result in classification

: Fine dust clouds may form explosive mixtures with air. Combustible. Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

: Mixture

Product/ingredient name	Identifiers	%	Classification	Type
Starch	EC: 232-679-6 CAS: 9005-25-8	≥25 - <50	Not classified.	[2]
Paraformaldehyde	REACH #: Exempted CAS: 30525-89-4	≥25 - <29	Acute Tox. 4, H302 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Carc. 2, H351	[1]
Cellulose	EC: 232-674-9 CAS: 9004-34-6	≥10 - <25	Not classified.	[2]
methanol	REACH #: 01-2119433307-44 EC: 200-659-6 CAS: 67-56-1	≥0.3 - <0.5	Flam. Liq. 2, H225 Acute Tox. 3, H301 Acute Tox. 3, H311	[1] [2]

SECTION 3: Composition/information on ingredients

formaldehyde	Index: 603-001-00-X	≥0.1 - <0.15	Acute Tox. 3, H331 STOT SE 1, H370 (central nervous system (CNS) and optic nerve)	[1] [2]
	REACH #: 01-2119488953-20 EC: 200-001-8 CAS: 50-00-0 Index: 605-001-00-5		Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 2, H330 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350 STOT SE 3, H335 See Section 16 for the full text of the H statements declared above.	

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 or vPvBs 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

[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

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

SECTION 4: First aid measures**4.1 Description of first aid measures**

- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Move exposed person to fresh air. If breathing is difficult, give oxygen. If necessary, call a poison center or physician.
- Skin contact** : Get medical attention immediately. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation occurs.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician.
- General** : Move the victim to a safe area as soon as possible. If unconscious, place in recovery position and seek medical advice. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Allow the victim to rest in a well-ventilated area.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

4.2 Most important symptoms and effects, both acute and delayed**Potential acute health effects**

- Eye contact** : Causes serious eye damage.

SECTION 4: First aid measures

- Inhalation** : Harmful if inhaled. May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system. Vapour may be irritating to eyes and respiratory system.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction. May cause allergic skin reactions with repeated exposure.
- Ingestion** : May cause burns to mouth, throat and stomach.

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
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
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** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

- Suitable extinguishing media** : Use alcohol-resistant foam or water spray (mist).
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Take precautionary measures against static discharges. Fine dust clouds may form explosive mixtures with air.
- Hazardous combustion products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

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 dust. 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).

6.3 Methods and material for containment and cleaning up

- Small spill** : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container.
- Large spill** : Approach the release from upwind. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Avoid creating dusty conditions and prevent wind dispersal. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container.

- 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** : See Section 8 for information on appropriate personal protective equipment. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. 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.
- 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

SECTION 7: Handling and storage

Store in accordance with local regulations. Store away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Keep away from food, drink and animal feeding stuffs. 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. Keep container dry.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product.

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Starch	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: inhalable dust TWA: 4 mg/m ³ 8 hours. Form: respirable dust
Cellulose	EH40/2005 WELs (United Kingdom (UK), 12/2011). STEL: 20 mg/m ³ 15 minutes. Form: inhalable dust TWA: 10 mg/m ³ 8 hours. Form: inhalable dust TWA: 4 mg/m ³ 8 hours. Form: respirable dust
methanol	EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. STEL: 333 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 266 mg/m ³ 8 hours. TWA: 200 ppm 8 hours.
formaldehyde	EH40/2005 WELs (United Kingdom (UK), 12/2011). STEL: 2.5 mg/m ³ 15 minutes. STEL: 2 ppm 15 minutes. TWA: 2 ppm 8 hours. TWA: 2.5 mg/m ³ 8 hours.

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/DMELs

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Exposure	Value	Population	Effects
methanol	DNEL	Short term Dermal	40 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	260 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	260 mg/m ³	Workers	Local
	DNEL	Long term Dermal	40 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	260 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	260 mg/m ³	Workers	Local
	DNEL	Short term Dermal	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Inhalation	50 mg/m ³	Consumers	Systemic
	DNEL	Short term Oral	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Inhalation	50 mg/m ³	Consumers	Local
	DNEL	Long term Dermal	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	50 mg/m ³	Consumers	Systemic
	DNEL	Long term Oral	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	50 mg/m ³	Consumers	Local
formaldehyde	DNEL	Short term Inhalation	0.6 ppm	Workers	Local
	DNEL	Long term Dermal	240 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	9 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	0.037 mg/cm ²	Workers	Local
	DNEL	Long term Inhalation	0.3 ppm	Workers	Local
	DNEL	Long term Dermal	102 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	3.2 mg/cm ²	Consumers	Systemic
	DNEL	Long term Oral	4.1 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Dermal	0.012 mg/cm ²	Consumers	Local
	DNEL	Long term Inhalation	0.1 mg/m ³	Consumers	Local

PNECs

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
methanol	PNEC	Fresh water	154 mg/l	Assessment Factors
	PNEC	Marine	15.4 mg/l	Assessment Factors
	PNEC	Intermittent release	1540 mg/l	Assessment Factors
	PNEC	Sediment	570.4 mg/kg dwt	Equilibrium Partitioning
	PNEC	Soil	23.5 mg/kg wwt	Equilibrium Partitioning
	PNEC	Sewage Treatment Plant	100 mg/l	Assessment Factors
formaldehyde	PNEC	Fresh water	0.47 mg/l	Assessment Factors
	PNEC	Marine	0.47 mg/l	Assessment Factors
	PNEC	Fresh water sediment	2.44 mg/kg dwt	Equilibrium Partitioning
	PNEC	Marine water sediment	2.44 mg/kg dwt	Equilibrium Partitioning

SECTION 8: Exposure controls/personal protection

	PNEC PNEC	Soil Sewage Treatment Plant	0.21 mg/kg dwt 0.19 mg/l	Equilibrium Partitioning Assessment Factors
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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. Immediately remove any contaminated clothing, shoes or socks. 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 : Use eye protection according to EN 166, designed to protect against powders and dusts. Recommended: Tightly-fitting goggles

Hand protection : Wear suitable gloves tested to EN374. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.

Recommended : Protective Index 6 / Breakthrough time >480 minutes: neoprene rubber 0.7 mm thickness or nitrile rubber 0.4 mm thickness

Other skin protection : Wear work clothing with long sleeves. Handling of product where, due to high pressure, speed or force, large quantities of dust are generated and dispersed Wear dust-resistant protective clothing.

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.

Long Term Exposure / high concentrations : disposable particulate mask ; particulate filter (P3)

Short term exposure / Low exposure : disposable particulate mask ; 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.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Physical state : Solid. [Powder.]
Colour : White to yellowish. [Light]
Odour : Formaldehyde. [Slight]
Odour threshold : Not available.

pH : 6 [Conc. (% w/w): 10%]

Melting point/freezing point : Not available.

Initial boiling point and boiling range : Not available.

Flash point : Closed cup: >75°C

Evaporation rate : Not available.

Flammability (solid, gas) : Non-flammable but will burn on prolonged exposure to flame or high temperature.

SECTION 9: Physical and chemical properties

Burning time	: >2.75 min
Burning rate	: Not applicable.
Upper/lower flammability or explosive limits	: Not available.
Vapour pressure	: Not available.
Vapour density	: Not available.
Relative density	: Not available.
Bulk density	: 360 kg/m ³
Solubility	: Dispersible in water
Partition coefficient: n-octanol/ water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Not applicable.
Explosive properties	: Fine dust clouds may form explosive mixtures with air.
Oxidising properties	: Not available.

9.2 Other information

VOC content (Without volume exclusion)	: 26 % (w/w) 260.1 g/l
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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	: Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. Prevent dust accumulation.
10.5 Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials
10.6 Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Potential Adverse effects**

Inhalation	: Harmful if inhaled. May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system. Vapour may be irritating to eyes and respiratory system. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	: May cause burns to mouth, throat and stomach. Adverse symptoms may include the following: stomach pains

SECTION 11: Toxicological information

- Skin contact** : Causes skin irritation. May cause an allergic skin reaction. May cause allergic skin reactions with repeated exposure.
 Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
 Adverse symptoms may include the following:
 pain or irritation
 redness
 blistering may occur
- Eye contact** : Causes serious eye damage.
 Adverse symptoms may include the following:
 pain
 watering
 redness

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<input checked="" type="checkbox"/> Paraformaldehyde methanol	LC50 Inhalation Dusts and mists	Rat	1.07 mg/l	4 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	680 mg/kg	-
	LC50 Inhalation Vapour	Rat - Male, Female	128.2 mg/l	4 hours
formaldehyde	LD50 Dermal	Rabbit	17100 mg/kg	-
	LC50 Inhalation Gas.	Rat	<463 mg/l	4 hours
	LD50 Oral	Rat - Male	460 mg/kg	-

Paraformaldehyde: Harmful if swallowed or if inhaled.

methanol: Toxic by inhalation, in contact with skin and if swallowed.

Formaldehyde: Toxic if swallowed or in contact with skin. Fatal if inhaled.

Acute toxicity estimates

Product	ATE value
<input checked="" type="checkbox"/> Oral	2305.1 mg/kg
Dermal	49803.3 mg/kg
Inhalation (gases)	353570.1 ppm
Inhalation (vapours)	636.4 mg/l
Inhalation (dusts and mists)	4.212 mg/l

Product Conclusion/ Summary : Harmful if inhaled. May be harmful if swallowed.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<input checked="" type="checkbox"/> formaldehyde	Skin - Irritant	Rat	-	-	7 days
	Eyes - Irritant	Rabbit	-	-	-
	Skin - Oedema	Rabbit	3	-	24 hours
	Eyes - Cornea opacity	Rat	4	-	7 days

Skin : **Paraformaldehyde**: Irritating to skin.
methanol: Based on available data, the classification criteria are not met.
Formaldehyde: Causes burns.

Eyes : **Paraformaldehyde**: Irritating to eyes.
methanol: Based on available data, the classification criteria are not met.
Formaldehyde: Causes serious eye damage.

Respiratory : **Formaldehyde**: Irritating to respiratory system.

Product Conclusion/ Summary : Causes skin irritation. Causes serious eye damage.

Sensitisation

SECTION 11: Toxicological information

Product/ingredient name	Route of exposure	Species	Result
methanol	Respiratory	Guinea pig	Not sensitizing
formaldehyde	skin	Guinea pig	Not sensitizing
	skin	Mouse	Sensitising
	skin	Guinea pig	Sensitising

Skin : **Paraformaldehyde**: Sensitising
methanol: Not sensitizing
Formaldehyde: Sensitising

Respiratory : **methanol**: Not sensitizing
Formaldehyde: Not sensitizing

Product Conclusion/ Summary : **May** cause an allergic skin reaction.

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
methanol	Chronic NOAEL Oral	Rat - Male, Female	466 to 529 mg/kg Repeated dose	104 weeks
formaldehyde	Chronic NOEC Inhalation Vapour	Rat - Male, Female	0.13 mg/l	12 months
	Chronic NOAEC Inhalation Vapour	Rat - Male, Female	1.3 mg/l	108 days
	Chronic NOAEC Inhalation Vapour	Rat	1.33 mg/l	17 days; 22.7 hours per day
	Chronic LOAEL Oral	Rat - Male, Female	82 mg/kg	105 weeks
	Chronic NOAEC Inhalation Gas.	Rat - Male, Female	1 ppm	26 weeks
	Sub-acute NOAEC Inhalation Gas.	Rat - Male	2 ppm	6 weeks
	Sub-acute LOAEC Inhalation Gas.	Rat - Male	6 ppm	6 weeks

Mutagenicity

Product/ingredient name	Test	Experiment	Result
formaldehyde	OECD 471	Experiment: In vitro Subject: Bacteria	Positive
	OECD 741	Experiment: In vitro Subject: Mammalian-Animal	Positive

methanol: Based on available data, the classification criteria are not met.
Formaldehyde: Genetic toxicity: Positive.

Product Conclusion/ Summary : **Based** on available data, the classification criteria are not met.

Carcinogenicity

Paraformaldehyde: Suspected of causing cancer.
methanol: Based on available data, the classification criteria are not met.

Product Conclusion/ Summary : **May** cause cancer. Risk of cancer depends on duration and level of exposure. Formaldehyde is classified as a category 1B carcinogen by EU (Suspected of causing cancer in humans). The classification is mainly based on carcinogenic effects demonstrated in animal experiments, but also on experience from occupational use indicating, but not proving, increased risk of cancer in humans. The actual risk is a rare type of cancer in the nasopharyngeal area (upper part of the throat, behind the nose).

Animal experiments have demonstrated that the cancer risk has a strong link to high and repeated doses of formaldehyde, with an effect threshold at 2 ppm. This is the

SECTION 11: Toxicological information

basis for the derived no effect level (DNEL) for occupational use of 0,3 ppm.
Exposure below this level gives limited or no risk of adverse effects.

Reproductive toxicity

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

Formaldehyde: It is not expected that formaldehyde reaches the reproductive organs and there is no evidence for effects on fertility and gonads in experimental animals after long-term oral or inhalation exposure.

Product Conclusion/ Summary

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

Teratogenicity

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

Formaldehyde: There is no evidence for adverse effects of formaldehyde on embryo and fetal development as dose levels inducing local maternal effects and secondary decrease in body weights and growth.

Product Conclusion/ Summary

: 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
methanol	Category 1	All	central nervous system (CNS) and optic nerve
formaldehyde	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

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

Aspiration hazard**Product Conclusion/ Summary**

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

Interactive effects

: No specific data.

Other information

: No specific data.

SECTION 12: Ecological information**12.1 Toxicity**

Product/ingredient name	Result	Species	Exposure
Paraformaldehyde methanol	LC50 60 mg/l	Fish	96 hours
	EC50 22000 mg/l Fresh water	Algae - Selenastrum capricornutum	96 hours Static
	IC50 8800 mg/l Fresh water	Micro-organism - Nitrosomonas sp.	24 hours Static
	Acute EC50 >10000 mg/l Fresh water	Daphnia - Daphnia magna	48 hours Static
	Acute LC50 15400 mg/l Fresh water	Fish - Lepomis macrochirus	96 hours Flow through
formaldehyde	Chronic NOEC 7900 mg/l Fresh water	Fish - Oryzias latipes	200 hours Static
	EC50 4.89 mg/l Fresh water	Algae - Scenedesmus subspicatus	72 hours

SECTION 12: Ecological information

	Acute EC50 5.8 mg/l Fresh water Acute LC50 6.7 mg/l Fresh water	Daphnia - Daphnia pulex Fish - Morone saxatilis	48 hours 96 hours
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Conclusion/Summary : **methanol**: No known significant effects or critical hazards.
Formaldehyde: Toxic to aquatic organisms.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
methanol	-	83 to 91 % - Readily - 3 days	-	Fresh water
	-	71 to 83 % - Readily - 5 days	BOD/ThOD	Sediment
	-	69 to 97 % - 5 days	O ₂ Consumption	Sewage
	-	53.4 % - 5 days	-	Marine water
	-	46.3 % - 5 days	-	-
formaldehyde	Anaerobic biodegradation OECD 303 A	100 % - 4 days	Degradation	Anaerobic sludge
	OECD 301 C	99.5 % - 160 days	Degradation	Activated sludge
	OECD 301 D	97 % - Readily - 14 days 90 % - Readily - 28 days	TOC removal 30 mg/l O ₂ Consumption	Industrial Adapted - -

Conclusion/Summary : **methanol**: Readily biodegradable
Formaldehyde: Readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
methanol	-	50%; 17.2 day(s)	Readily
formaldehyde	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
methanol	-0.77	<10	low
formaldehyde	0.35	0.396	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 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**

SECTION 13: Disposal considerations

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 04 99	wastes not otherwise specified

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.

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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

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 73/78 and the IBC Code : Not available.

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 : Restricted to professional users.

Other EU regulations

Europe inventory : Not determined.

Black List Chemicals : Not listed

Priority List Chemicals : Not listed

Integrated pollution prevention and control list (IPPC) - Air : Not listed

Integrated pollution prevention and control list (IPPC) - Water : Not listed

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
<input checked="" type="checkbox"/> Paraformaldehyde formaldehyde	Carc. 2, H351 Carc. 1B, H350	- Muta. 2, H341	- -	- -

Seveso II Directive

This product is not controlled under the Seveso II Directive.

National regulations**Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

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

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification																																				
☑ Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Carc. 1B, H350	Calculation method Calculation method Calculation method Calculation method Calculation method																																				
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