

SAFETY DATA SHEET

PRONTOFIX HARDENER



Section 1. Identification

Product identifier : PRONTOFIX HARDENER
Cat. No. : 40200110, 50209130
Container size : 280 ml, 500 ml
Other means of identification : Not available.
Product type : Liquid.

Recommended use of the chemical and restrictions on use

Product use : For embedding and impregnation of materialographic specimens
Area of application : Professional applications.

Supplier's details : Struers ApS
Pederstrupvej 84
DK-2750 Ballerup

Telephone: +45 44 600 800

e-mail address of person responsible for this SDS : sdsquestions@struers.dk

Emergency telephone number (with hours of operation) : +45 44 600 800 (Only during office hours)

Section 2. Hazards identification

Classification of the substance or mixture	: H227	FLAMMABLE LIQUIDS - Category 4
	H302	ACUTE TOXICITY (oral) - Category 4
	H312	ACUTE TOXICITY (dermal) - Category 4
	H331	ACUTE TOXICITY (inhalation) - Category 3
	H314	SKIN CORROSION - Category 1A
	H318	SERIOUS EYE DAMAGE - Category 1
	H317	SKIN SENSITISATION - Category 1
	H361	REPRODUCTIVE TOXICITY - Category 2
	H401	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 2
	H410	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Date of issue/Date of revision : 2026/03/20 **Date of previous issue** : 2025/01/13 **Version** : 5 1/17



Section 2. Hazards identification

Hazard statements	: H227 - Combustible liquid. H302 + H312 - Harmful if swallowed or in contact with skin. H314 - Causes severe skin burns and eye damage. H317 - May cause an allergic skin reaction. H331 - Toxic if inhaled. H361 - Suspected of damaging fertility or the unborn child. H401 - Toxic to aquatic life. H410 - Very toxic to aquatic life with long lasting effects.
<u>Precautionary statements</u>	
Prevention	: P203 - Obtain, read and follow all safety instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P261 - Avoid breathing vapour. P270 - Do not eat, drink or smoke when using this product. P264 + P265 - Wash hands thoroughly after handling. Do not touch eyes. P272 - Contaminated work clothing should not be allowed out of the workplace.
Response	: P391 - Collect spillage. P318 - IF exposed or concerned, get medical advice. P304 + P340, P316 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get emergency medical help immediately. P301 + P316, P317, P330, P331 - IF SWALLOWED: Get emergency medical help immediately. Get medical help. Rinse mouth. Do NOT induce vomiting. P302 + P316, P317, P352, P361, P354 - IF ON SKIN: Get emergency medical help immediately. Get medical help. Wash with plenty of water. Take off immediately all contaminated clothing. Immediately rinse with water for several minutes. P333 + P317 - If skin irritation or rash occurs: Get medical help. P362 + P364 - Take off contaminated clothing and wash it before reuse. P363 - Wash contaminated clothing before reuse. P305 + P354 + P338, P317 - IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical help.
Storage	: P405 - Store locked up.
Disposal	: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : Causes respiratory tract burns. Causes digestive tract burns.

Section 3. Composition/information on ingredients

Substance/mixture	: Mixture
Other means of identification	: Not available.



Section 3. Composition/information on ingredients

Ingredient name	%	Identifiers
4-tert-butylphenol	≥25 - ≤50	CAS: 98-54-4
Amines, polyethylenepoly-, triethylenetetramine fraction	≥25 - ≤45	CAS: 90640-67-8
m-phenylenebis(methylamine)	≥10 - ≤25	CAS: 1477-55-0
2-methylpentane-1,5-diamine	≥10 - ≤25	CAS: 15520-10-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. 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. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. 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. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Toxic if inhaled. Corrosive to the respiratory system.
- Skin contact** : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.



Section 4. First aid measures

Ingestion : May cause burns to mouth, throat and stomach. Harmful if swallowed. Corrosive to the digestive tract. Causes burns.

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

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
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

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.



Section 5. Firefighting measures

Specific hazards arising from the chemical	: Combustible liquid. 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 very 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 thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through 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".
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.

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. Dispose of via a licensed waste disposal contractor. Absorb spill with inert material (e.g. dry sand or earth) and place in a chemical waste container.
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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. 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.



Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. 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 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. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store 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.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
m-phenylenebis(methylamine)	ACGIH TLV (United States, 1/2025) Absorbed through skin. C: 0.018 ppm.

Biological exposure indices

No exposure indices known.

- 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.



Section 8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

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.

Recommended: butyl rubber.

The breakthrough time must be greater than the end use time of the product.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

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

Appearance

Physical state : Liquid.

Colour : Yellowish.

Odour : Amine.

Odour threshold : Not available.



Section 9. Physical and chemical properties and safety characteristics

pH : Not applicable.

Melting point/freezing point : Not available.

Boiling point or initial boiling point and boiling range : 180 to 300°C (356 to 572°F)

Flash point : Closed cup: >83°C (>181.4°F)

Evaporation rate : Not available.

Flammability : Not available.

Lower and upper explosion limit/flammability limit : Not available.

Vapour pressure	:	Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
			mm Hg	kPa	Method	mm Hg	kPa	Method
		2-methylpentane-1,5-diamine	0.2	0.027				

Relative vapour density : Not available.

Relative density : 0.99 to 1

Solubility(ies)	Media	Result
	water	Not soluble

Miscible with water : No.

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

Auto-ignition temperature	Ingredient name	°C	°F	Method
	2-methylpentane-1,5-diamine	350	662	

Decomposition temperature : Not available.

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): 115 to 200 mm²/s (115 to 200 cSt)
Kinematic (40°C (104°F)): Not available.

Flow time (ISO 2431) : Not available.

Particle characteristics

Median particle size : Not applicable.

Other information

Physical/chemical properties comments : No additional information.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.



Section 10. Stability and reactivity

Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	: Reactive or incompatible with the following materials: oxidising materials Reactive or incompatible with the following materials: acids.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	
 tert-butylphenol	Rabbit - Dermal - LD50 2318 mg/kg Rat - Oral - LD50 4000 mg/kg Rat - Oral - LD50 1716.2 mg/kg Rat - Male - Dermal - LD50 1465 mg/kg Rabbit - Dermal - LD50 2 g/kg Rat - Oral - LD50 940 mg/kg Rat - Inhalation - LC50 Gas. 700 ppm [1 hours]	<u>Toxic effects:</u> Eye - Lacrimation Lung, Thorax, or Respiration - Respiratory depression
Amines, polyethylenepoly-, triethylenetetramine fraction		
m-phenylenebis(methylamine)		
2-methylpentane-1,5-diamine	Rat - Dermal - LD50 1900 mg/kg Rat - Oral - LD50 1690 mg/kg Rat - Inhalation - LC50 Vapour 2900 mg/m ³ [1 hours]	<u>Toxic effects:</u> Lung, Thorax, or Respiration - Dyspnea Gastrointestinal - Hypermotility, diarrhea

Conclusion/Summary[Product] : Not available.

Skin corrosion/irritation

Product/ingredient name	Result
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Section 11. Toxicological information

 tert-butylphenol

Rabbit - Skin - Mild irritant

Duration of treatment/exposure: 24 hours

Amount/concentration applied: 500 mg

Rabbit - Skin - Mild irritant

Duration of treatment/exposure: 4 hours

Amount/concentration applied: 500 mg

Conclusion/Summary[Product] : Not available.

Serious eye damage/eye irritation

Product/ingredient name

 tert-butylphenol

Result

Rabbit - Eyes - Severe irritant

Duration of treatment/exposure: 24 hours

Amount/concentration applied: 50 ug

Rabbit - Eyes - Severe irritant

Amount/concentration applied: 10 mg

Conclusion/Summary[Product] : Not available.

Respiratory corrosion/irritation

Conclusion/Summary[Product] : Not available.

Respiratory or skin sensitization

Skin

Conclusion/Summary[Product] : Not available.

Respiratory

Conclusion/Summary[Product] : Not available.

Germ cell mutagenicity

Conclusion/Summary[Product] : Not available.

Carcinogenicity

Conclusion/Summary[Product] : Not available.

Reproductive toxicity

Conclusion/Summary[Product] : Not available.



Section 11. Toxicological information

Specific target organ toxicity (single exposure)

Product/ingredient name

tert-butylphenol

2-methylpentane-1,5-diamine

Result

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE
(Respiratory tract irritation) - Category 3

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE
(Respiratory tract irritation) - Category 3

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- | | |
|---------------------|---|
| Eye contact | : Causes serious eye damage. |
| Inhalation | : Toxic if inhaled. Corrosive to the respiratory system. |
| Skin contact | : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction. |
| Ingestion | : May cause burns to mouth, throat and stomach. Harmful if swallowed. Corrosive to the digestive tract. Causes burns. |

Symptoms related to the physical, chemical and toxicological characteristics

- | | |
|---------------------|--|
| 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 |
| Skin contact | : Adverse symptoms may include the following:
pain or irritation
redness
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 |



Section 11. Toxicological information

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

Conclusion/Summary[Product] : Not available.

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : Suspected of damaging fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
PRONTOFIX HARDENER	1895.2	1979.7	1866.7	73.3	N/A
4-tert-butylphenol	4000	2318	N/A	N/A	N/A
Amines, polyethylenepoly-, triethylenetetramine fraction	1716.2	1465	N/A	N/A	N/A
m-phenylenebis(methylamine)	940	2000	350	N/A	N/A
2-methylpentane-1,5-diamine	1690	1900	N/A	11	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result
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Section 12. Ecological information

4-tert-butylphenol

Chronic - NOEC - Fresh water

Fish - *Pimephales promelas*

0.01 mg/l [128 days]

OECD 210 [Fish, Early-Life Stage Toxicity Test]

Acute - EC50 - Fresh water

Algae - Green algae - *Scenedesmus*

quadricauda - Exponential growth

phase

11.08 mg/l [72 hours]

Effect: Population

OECD

Chronic - NOEC - Fresh water

Algae - Green algae - *Scenedesmus*

quadricauda - Exponential growth

phase

1 mg/l [72 hours]

Effect: Population

OECD

Acute - LC50

Fish - *Oryzias latipes* (Ricefish))

5.1 mg/l [96 hours]

Acute - EC50

Daphnia - *Daphnia magna* (Big water flea)

3.4 mg/l [48 hours]

Chronic - NOEC - Fresh water

Crustaceans - Shrimp - *Neocaridina*

sp. - Sub-adult

265.38 µg/l [21 days]

Effect: Population

ASTM

Acute - EC50 - Fresh water

Daphnia

33.9 mg/l [48 hours]

Acute - EC50

Algae - *Scenedesmus subspicatus*

12 mg/l [72 hours]

Acute - LC50 - Fresh water

Fish

87.6 mg/l [96 hours]

OECD 203 [Fish, Acute Toxicity Test]

Acute - EC50 - Fresh water

Daphnia

15.2 mg/l [48 hours]

OECD 202 [Daphnia sp. Acute Immobilization Test and Reproduction Test]

Chronic - NOEC - Fresh water

Daphnia

4.7 mg/l [21 days]

OECD 211 [Daphnia Magna Reproduction Test]

Acute - NOEC - Fresh water

Algae

10.5 mg/l [72 hours]

OECD 201 [Alga, Growth Inhibition Test]

Acute - LC50

Fish - *Leuciscus idus* (golden orphan)

215 mg/l [96 hours]

Chronic - NOEC - Fresh water

Daphnia

≥9.3 mg/l [21 days]

OECD 211 [Daphnia Magna Reproduction Test]

Amines, polyethylenepoly-, triethylenetetramine fraction

m-phenylenebis(methylamine)

2-methylpentane-1,5-diamine

Conclusion/Summary[Product]

: Not available.

Persistence and degradability

Date of issue/Date of revision

: 2026/03/20

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Section 12. Ecological information

Product/ingredient name	Result	
4-tert-butylphenol	Aerobic	OECD 301F [Ready Biodegradability - Manometric Respirometry Test]
m-phenylenebis(methylamine)	60% [28 days] - Readily 49% [28 days] - Not readily	OECD 301B [Ready Biodegradability - CO2 Evolution Test]
2-methylpentane-1,5-diamine	Aerobic - 1.1 mg/l 100% [28 days] - Readily	OECD 301D [Ready Biodegradability - Closed Bottle Test]

Conclusion/Summary[Product] : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
4-tert-butylphenol	-	-	Readily
Amines, polyethylenepoly-, triethylenetetramine fraction	-	-	Not readily
m-phenylenebis(methylamine)	-	-	Not readily
2-methylpentane-1,5-diamine	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
4-tert-butylphenol	3	44 to 48 [OECD 305 C, METI guideline (concentration test on chemical substances in fish)]	Low
Amines, polyethylenepoly-, triethylenetetramine fraction	-2.65	-	Low
m-phenylenebis(methylamine)	0.18	2.69	Low

Mobility in soil

Soil/water partition coefficient : Not available.

Other adverse effects

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create



Section 13. Disposal considerations

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 spill material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	UN2735	UN2735	UN2735
UN proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S. (Amines, polyethylenepoly-, triethylenetetramine fraction, 2-methylpentane-1,5-diamine)	AMINES, LIQUID, CORROSIVE, N.O.S. (Amines, polyethylenepoly-, triethylenetetramine fraction, 2-methylpentane-1,5-diamine)	Amines, liquid, corrosive, n.o.s. (Amines, polyethylenepoly-, triethylenetetramine fraction, 2-methylpentane-1,5-diamine)
Transport hazard class(es)	8 	8  	8 
Packing group	I	I	I
Environmental hazards	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

- UN** : **Special provisions** 274
- IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-A, S-B
Special provisions 274
- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 0.5 L. Packaging instructions: 850. Cargo Aircraft Only: 2.5 L. Packaging instructions: 854. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A3, A803

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

Transport in bulk according to IMO instruments : Not available.



Section 15. Regulatory information

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Other information

History

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Version	: 5
Prepared by	: Sphera Solutions
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods IMO = International Maritime Organization LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available SGG = Segregation Group UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 4	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (dermal) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 3	Calculation method
SKIN CORROSION - Category 1A	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method
SKIN SENSITISATION - Category 1	Calculation method
REPRODUCTIVE TOXICITY - Category 2	Calculation method
SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 2	Calculation method
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1	Calculation method



Section 16. Other information

References : GHS - Globally Harmonised System of Classification and Labelling of Chemicals -
Version : 9.
International transport regulations

▢ Indicates information that has changed from previously issued version.

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