

# SAFETY DATA SHEET

PRONTOFIX HARDENER

## Section 1. Identification

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

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

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

**Supplier's details** : Struers Inc.  
24766 Detroit Rd. Westlake  
Cleveland, OH 44145  
United States  
Telephone: +1 (440) 871 0071

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

**Emergency telephone number (with hours of operation)** : National Capital Poison Center: 1-800-222-1222  
Infotrac: 1-800-535-5053  
Struers US:  
1-440-871-0071

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** :  227 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 SENSITIZATION - Category 1  
H361 TOXIC TO REPRODUCTION - Category 2  
H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

### GHS label elements

**Hazard pictograms** :    

**Signal word** : Danger

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## Section 2. Hazards identification

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hazard statements</b>                | : <ul style="list-style-type: none"> <li>H227 - Combustible liquid.</li> <li>H302 + H312 - Harmful if swallowed or in contact with skin.</li> <li>H314 - Causes severe skin burns and eye damage.</li> <li>H317 - May cause an allergic skin reaction.</li> <li>H331 - Toxic if inhaled.</li> <li>H335 - May cause respiratory irritation.</li> <li>H361 - Suspected of damaging fertility or the unborn child.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Precautionary statements</b>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Prevention</b>                       | : <ul style="list-style-type: none"> <li>P201 - Obtain special instructions before use.</li> <li>P202 - Do not handle until all safety precautions have been read and understood.</li> <li>P280 - Wear protective gloves, protective clothing and eye or face protection.</li> <li>P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</li> <li>P271 - Use only outdoors or in a well-ventilated area.</li> <li>P261 - Avoid breathing vapor.</li> <li>P270 - Do not eat, drink or smoke when using this product.</li> <li>P264 - Wash thoroughly after handling.</li> <li>P272 - Contaminated work clothing must not be allowed out of the workplace.</li> </ul>                                                                                                                                                                                                                                                 |
| <b>Response</b>                         | : <ul style="list-style-type: none"> <li>P308 + P313 - IF exposed or concerned: Get medical advice or attention.</li> <li>P304 + P340, P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.</li> <li>P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting.</li> <li>P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor.</li> <li>P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.</li> <li>P363 - Wash contaminated clothing before reuse.</li> <li>P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.</li> </ul> |
| <b>Storage</b>                          | : <ul style="list-style-type: none"> <li>P405 - Store locked up.</li> <li>P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Disposal</b>                         | : <ul style="list-style-type: none"> <li>P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Supplemental label elements</b>      | : <ul style="list-style-type: none"> <li>Do not taste or swallow. Wash thoroughly after handling.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Hazards not otherwise classified</b> | : <ul style="list-style-type: none"> <li>Causes digestive tract burns.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Hazards identified when used</b>     | : <ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Section 3. Composition/information on ingredients

|                                      |                  |
|--------------------------------------|------------------|
| <b>Substance/mixture</b>             | : Mixture        |
| <b>Other means of identification</b> | : Not available. |

| Ingredient name                                          | Synonyms | %         | Identifiers     |
|----------------------------------------------------------|----------|-----------|-----------------|
| 4-tert-butylphenol                                       | -        | ≥15 - ≤40 | CAS: 98-54-4    |
| Amines, polyethylenepoly-, triethylenetetramine fraction | -        | ≥15 - ≤40 | CAS: 90640-67-8 |
| m-phenylenebis(methylamine)                              | -        | ≥10 - ≤30 | CAS: 1477-55-0  |
| 2-methylpentane-1,5-diamine                              | -        | ≥10 - ≤30 | CAS: 15520-10-2 |

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## Section 3. Composition/information on ingredients

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

## Section 4. First aid measures

### Description of necessary first aid measures

- |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye contact</b>  | : 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Inhalation</b>   | : 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. |
| <b>Skin contact</b> | : 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.                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Ingestion</b>    | : 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

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

#### Over-exposure signs/symptoms

- |                    |                                                                              |
|--------------------|------------------------------------------------------------------------------|
| <b>Eye contact</b> | : Adverse symptoms may include the following:<br>pain<br>watering<br>redness |
|--------------------|------------------------------------------------------------------------------|



## Section 4. First aid measures

- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
stomach pains  
reduced fetal weight  
increase in fetal 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. Fire-fighting measures

### Extinguishing media

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

- Specific hazards arising from the chemical** : 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.
- 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.



## Section 5. Fire-fighting measures

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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

### Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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 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 spilled 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 vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. 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.



## Section 7. Handling and storage

**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 oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. 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                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4-tert-butylphenol<br>Amines, polyethylenepoly-, triethylenetetramine fraction<br>m-phenylenebis(methylamine) | None.<br>None.<br><b>ACGIH TLV (United States, 1/2025)</b> Absorbed through skin.<br>C: 0.018 ppm.<br><b>NIOSH REL (United States, 10/2020)</b> Absorbed through skin.<br>CEIL: 0.1 mg/m <sup>3</sup> .<br><b>CAL OSHA PEL (United States, 1/2025)</b> Absorbed through skin.<br>C: 0.1 mg/m <sup>3</sup> . |
| 2-methylpentane-1,5-diamine                                                                                   | None.                                                                                                                                                                                                                                                                                                       |

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

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

### Individual protection measures

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

**Eye/face protection** : 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.



## Section 8. Exposure controls/personal protection

### 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

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

### Appearance

- Physical state** : Liquid.
- Color** : Yellowish.
- Odor** : Amine.
- Odor threshold** : Not available.
- 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.
- Vapor pressure** :

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

- Relative vapor density** : Not available.
- Relative density** : 0.99 to 1
- Density** : Not available.
- Solubility(ies)** :



## Section 9. Physical and chemical properties

| 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.

**SADT** : Not available.

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): 115 to 200 mm<sup>2</sup>/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.

### Additional 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.

**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
Under normal conditions of storage and use, hazardous polymerization will not occur.

**Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

**Incompatible materials** : Reactive or incompatible with the following materials:  
oxidizing 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 |
|-------------------------|--------|
|-------------------------|--------|



## Section 11. Toxicological information

|                                                             |                                                                          |                                                                                                               |
|-------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| 4-tert-butylphenol                                          | <b>Rabbit - Dermal - LD50</b><br>2318 mg/kg                              |                                                                                                               |
|                                                             | <b>Rat - Oral - LD50</b><br>4000 mg/kg                                   |                                                                                                               |
| Amines, polyethylenepoly-,<br>triethylenetetramine fraction | <b>Rat - Oral - LD50</b><br>1716.2 mg/kg                                 |                                                                                                               |
|                                                             | <b>Rat - Male - Dermal - LD50</b><br>1465 mg/kg                          |                                                                                                               |
| m-phenylenebis(methylamine)                                 | <b>Rabbit - Dermal - LD50</b><br>2 g/kg                                  |                                                                                                               |
|                                                             | <b>Rat - Oral - LD50</b><br>940 mg/kg                                    |                                                                                                               |
|                                                             | <b>Rat - Inhalation - LC50 Gas.</b><br>700 ppm [1 hours]                 | <u>Toxic effects:</u> Eye - Lacrimation Lung,<br>Thorax, or Respiration - Respiratory<br>depression           |
| 2-methylpentane-1,5-diamine                                 | <b>Rat - Dermal - LD50</b><br>1900 mg/kg                                 |                                                                                                               |
|                                                             | <b>Rat - Oral - LD50</b><br>1690 mg/kg                                   |                                                                                                               |
|                                                             | <b>Rat - Inhalation - LC50 Vapor</b><br>2900 mg/m <sup>3</sup> [1 hours] | <u>Toxic effects:</u> Lung, Thorax, or<br>Respiration - Dyspnea Gastrointestinal -<br>Hypermotility, diarrhea |

**Conclusion/Summary [Product]** : Not available.

### Skin corrosion/irritation

| Product/ingredient name | Result                                                                                                                      |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 4-tert-butylphenol      | <b>Rabbit - Skin - Mild irritant</b><br>Duration of treatment/exposure: 24<br>hours<br>Amount/concentration applied: 500 mg |
|                         | <b>Rabbit - Skin - Mild irritant</b><br>Duration of treatment/exposure: 4 hours<br>Amount/concentration applied: 500 mg     |

**Conclusion/Summary [Product]** : Not available.

### Serious eye damage/eye irritation

| Product/ingredient name | Result                                                                                                                       |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 4-tert-butylphenol      | <b>Rabbit - Eyes - Severe irritant</b><br>Duration of treatment/exposure: 24<br>hours<br>Amount/concentration applied: 50 ug |
|                         | <b>Rabbit - Eyes - Severe irritant</b><br>Amount/concentration applied: 10 mg                                                |

**Conclusion/Summary [Product]** : Not available.

### Respiratory corrosion/irritation

**Conclusion/Summary [Product]** : Not available.



## Section 11. Toxicological information

### 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.

### Specific target organ toxicity (single exposure)

#### Product/ingredient name

4-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 the 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. May cause respiratory irritation.

**Skin contact** : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.

**Ingestion** : Harmful if swallowed. Corrosive to the digestive tract. Causes burns.

### Symptoms related to the physical, chemical and toxicological characteristics



## Section 11. Toxicological information

|                     |                                                                                                                                                                                      |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye contact</b>  | : Adverse symptoms may include the following:<br>pain<br>watering<br>redness                                                                                                         |
| <b>Inhalation</b>   | : Adverse symptoms may include the following:<br>respiratory tract irritation<br>coughing<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations              |
| <b>Skin contact</b> | : Adverse symptoms may include the following:<br>pain or irritation<br>redness<br>blistering may occur<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations |
| <b>Ingestion</b>    | : Adverse symptoms may include the following:<br>stomach pains<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations                                         |

### Delayed and immediate effects and also 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



## Section 11. Toxicological information

| Product/ingredient name                                  | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapors) (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

4-tert-butylphenol

#### Result

##### 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

OECD 211 [Daphnia Magna Reproduction Test]

Amines, polyethylenepoly-, triethylenetetramine fraction

m-phenylenebis(methylamine)



## Section 12. Ecological information

|                             |                                              |                                            |
|-----------------------------|----------------------------------------------|--------------------------------------------|
| 2-methylpentane-1,5-diamine | 4.7 mg/l [21 days]                           | OECD 201 [Alga, Growth Inhibition Test]    |
|                             | <b>Acute - NOEC - Fresh water</b>            |                                            |
|                             | Algae                                        |                                            |
|                             | 10.5 mg/l [72 hours]                         |                                            |
|                             | <b>Acute - LC50</b>                          | OECD 211 [Daphnia Magna Reproduction Test] |
|                             | Fish - <i>Leuciscus idus</i> (golden orphan) |                                            |
|                             | 215 mg/l [96 hours]                          |                                            |
|                             | <b>Chronic - NOEC - Fresh water</b>          |                                            |
|                             | Daphnia                                      |                                            |
|                             | ≥9.3 mg/l [21 days]                          |                                            |

**Conclusion/Summary [Product]** : Not available.

### Persistence and degradability

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

**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 <sub>ow</sub> | 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 minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

|                               | DOT<br>Classification                                                                                                                           | TDG<br>Classification                                                                                                                                                        | Mexico<br>Classification                                                                                                                              | IMDG                                                                                                                                                                             | IATA                                                                                                                                            |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| UN number                     | UN2735                                                                                                                                          | UN2735                                                                                                                                                                       | UN2735                                                                                                                                                | UN2735                                                                                                                                                                           | UN2735                                                                                                                                          |
| UN proper<br>shipping name    | Amines, liquid,<br>corrosive, n.o.s.<br>(Amines,<br>polyethylenepoly-,<br>triethylenetetramine<br>fraction,<br>2-methylpentane-<br>1,5-diamine) | AMINES, LIQUID,<br>CORROSIVE, N.<br>O.S. (Amines,<br>polyethylenepoly-,<br>triethylenetetramine<br>fraction,<br>2-methylpentane-<br>1,5-diamine)                             | AMINAS<br>LÍQUIDAS,<br>CORROSIVAS, N.<br>E.P. (Amines,<br>polyethylenepoly-,<br>triethylenetetramine<br>fraction,<br>2-methylpentane-<br>1,5-diamine) | AMINES, LIQUID,<br>CORROSIVE, N.<br>O.S. (Amines,<br>polyethylenepoly-,<br>triethylenetetramine<br>fraction,<br>2-methylpentane-<br>1,5-diamine)                                 | Amines, liquid,<br>corrosive, n.o.s.<br>(Amines,<br>polyethylenepoly-,<br>triethylenetetramine<br>fraction,<br>2-methylpentane-<br>1,5-diamine) |
| Transport<br>hazard class(es) | 8<br>                                                        | 8<br>  | 8<br>                                                              | 8<br>  | 8<br>                                                      |
| Packing group                 | I                                                                                                                                               | I                                                                                                                                                                            | I                                                                                                                                                     | I                                                                                                                                                                                | I                                                                                                                                               |
| Environmental<br>hazards      | No.                                                                                                                                             | Yes.                                                                                                                                                                         | Yes. The<br>environmentally<br>hazardous<br>substance mark is<br>not required.                                                                        | Yes.                                                                                                                                                                             | Yes. The<br>environmentally<br>hazardous<br>substance mark is<br>not required.                                                                  |

### Additional information

**DOT Classification** : Limited quantity No.  
**Packaging instruction** Exceptions: None. Non-bulk: 201. Bulk: 243.  
**Quantity limitation** Passenger aircraft/rail: 0.5 L. Cargo aircraft: 2.5 L.  
**Special provisions** B10, N34, T14, TP2, TP27



## Section 14. Transport information

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TDG Classification</b>           | : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8), 2.7 (Marine pollutant mark).<br>The marine pollutant mark is not required when transported by road or rail.<br><b><u>Explosive Limit and Limited Quantity Index</u></b> 0<br><b><u>ERAP Index</u></b> 1000<br><b><u>Passenger Carrying Road or Rail Index</u></b> 0.5<br><b><u>Special provisions</u></b> 16 |
| <b>Mexico Classification</b>        | : <b><u>Special provisions</u></b> 274                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>IMDG</b>                         | : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.<br><b><u>Emergency schedules</u></b> F-A, S-B<br><b><u>Special provisions</u></b> 274                                                                                                                                                                                                                                                              |
| <b>IATA</b>                         | : The environmentally hazardous substance mark may appear if required by other transportation regulations.<br><b><u>Quantity limitation</u></b> 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.<br><b><u>Special provisions</u></b> A3, A803                             |
| <b>Special precautions for user</b> | : <b>Transport within user's premises:</b> 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

|                                 |                                                                                                                                                                                                  |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>U.S. Federal regulations</b> | : <b>TSCA 8(a) PAIR:</b> 4-tert-butylphenol<br><b>TSCA 8(a) CDR Exempt/Partial exemption:</b> Not determined<br><b>United States inventory (TSCA 8b):</b> All components are active or exempted. |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **TSCA 12(b) - Chemical export notification**

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### **SARA 302/304**

#### **Composition/information on ingredients**

No products were found.

**SARA 304 RQ** : Not applicable.

### **SARA 311/312**



## Section 15. Regulatory information

**Classification** :  FLAMMABLE LIQUIDS - Category 4  
 ACUTE TOXICITY (oral) - Category 4  
 ACUTE TOXICITY (dermal) - Category 4  
 ACUTE TOXICITY (inhalation) - Category 3  
 SKIN CORROSION - Category 1A  
 SERIOUS EYE DAMAGE - Category 1  
 SKIN SENSITIZATION - Category 1  
 TOXIC TO REPRODUCTION - Category 2  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
 HNOC - Corrosive to digestive tract

### Composition/information on ingredients

| Name                                                                                                | %         | Classification                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  -tert-butylphenol | ≥15 - ≤40 | SKIN IRRITATION - Category 2<br>SERIOUS EYE DAMAGE - Category 1<br>TOXIC TO REPRODUCTION - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3                                                                                                                                                              |
| Amines, polyethylenepoly-, triethylenetetramine fraction                                            | ≥15 - ≤40 | ACUTE TOXICITY (oral) - Category 4<br>ACUTE TOXICITY (dermal) - Category 4<br>SKIN CORROSION - Category 1B<br>SERIOUS EYE DAMAGE - Category 1<br>SKIN SENSITIZATION - Category 1<br>HNOC - Corrosive to digestive tract                                                                                                                                            |
| m-phenylenebis(methylamine)                                                                         | ≥10 - ≤30 | ACUTE TOXICITY (oral) - Category 4<br>ACUTE TOXICITY (dermal) - Category 4<br>ACUTE TOXICITY (inhalation) - Category 2<br>SKIN CORROSION - Category 1B<br>SERIOUS EYE DAMAGE - Category 1<br>SKIN SENSITIZATION - Category 1A<br>HNOC - Corrosive to digestive tract                                                                                               |
| 2-methylpentane-1,5-diamine                                                                         | ≥10 - ≤30 | FLAMMABLE LIQUIDS - Category 4<br>ACUTE TOXICITY (oral) - Category 4<br>ACUTE TOXICITY (dermal) - Category 4<br>ACUTE TOXICITY (inhalation) - Category 4<br>SKIN CORROSION - Category 1A<br>SERIOUS EYE DAMAGE - Category 1<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>HNOC - Corrosive to digestive tract |

### SARA 313

Not applicable.

### State regulations

**Massachusetts** : The following components are listed: M-XYLENE-ALPHA,ALPHA'-DIAMINE  
**New York** : None of the components are listed.  
**New Jersey** : The following components are listed: m-XYLENE alpha, alpha'-DIAMINE  
**Pennsylvania** : The following components are listed: 1,3-BENZENED, IMETHANAMINE

### California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.



## Section 15. Regulatory information

### 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

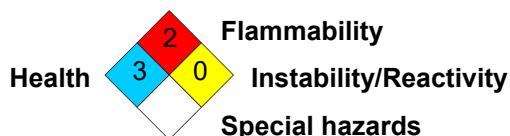
### Hazardous Material Information System (U.S.A.)

|                  |   |   |
|------------------|---|---|
| Health           | * | 3 |
| Flammability     |   | 2 |
| Physical hazards |   | 0 |
|                  |   |   |

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

### National Fire Protection Association (U.S.A.)



### Procedure used to derive the classification

| Classification                                                                                                                                                                                                                                                                                                                                                                                       | Justification                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FLAMMABLE LIQUIDS - Category 4<br>ACUTE TOXICITY (oral) - Category 4<br>ACUTE TOXICITY (dermal) - Category 4<br>ACUTE TOXICITY (inhalation) - Category 3<br>SKIN CORROSION - Category 1A<br>SERIOUS EYE DAMAGE - Category 1<br>SKIN SENSITIZATION - Category 1<br>TOXIC TO REPRODUCTION - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 | On basis of test data<br>Calculation method<br>Calculation method<br>Calculation method<br>Calculation method<br>Calculation method<br>Calculation method<br>Calculation method<br>Calculation method |

### History

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## Section 16. Other information

- 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
  - TDG = Transportation of Dangerous Goods
  - UN = United Nations
- References**
- : HCS (U.S.A.)- Hazard Communication Standard
  - International transport regulations

Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

