1. IDENTIFICATION

Product identifier

Product name: PRONTOFIX HARDENER
Cat. No. 40200108, 40200110 (and mixed with ProntoFix Accelerator in the recommended ratio)

Container size: 280 ml, 500 ml

Recommended use and restrictions on use

Application: For embedding and impregnation of materialographic specimens
Uses advised against: No specific uses advised against are identified. (*)

Details of the supplier of the safety data sheet

Supplier: Struers Ltd
7275 West Credit Avenue
Ontario L5N 5M9 Mississauga
Canada
Tel: +1 (905) 8148855

Responsible for safety data sheet authoring: DHI
Any questions to the contents of this safety data sheet should be sent to: struers@struers.dk

Emergency telephone number

Alberta & NWT:
Poison & Drug Information Service (PADIS): 1-800-332-1414

British Columbia:
Drug and Poison Information Centre (DPIC): 604-682-5050 / 1-800-567-8911

Ontario:
Poison Centre: 1-800-268-9017

Québec:
Poison Control Centre: 1-800-463-5060

Infotrac:
1-800-535-5053

Struers CAN:
+1 (905) 8148855
(Only during office hours)

2. HAZARDS IDENTIFICATION

Classification of the hazardous product

WHMIS 2015:
Acute (Oral) Toxicity — Category 4
Acute (Inhalation) Toxicity — Category 4
Skin Corrosion — Category 1A
Serious Eye Damage — Category 1
Skin Sensitizer — Category 1
Reproductive Toxicity — Category 2
Aquatic Acute Toxicity — Category 1
Aquatic Chronic Toxicity — Category 1
**Danger**

H302 + H332  Harmful if swallowed or if inhaled.
H314         Causes severe skin burns and eye damage.
H317         May cause an allergic skin reaction.
H361         Suspected of damaging fertility or the unborn child.
H410         Very toxic to aquatic life with long lasting effects.

P280         Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310         Immediately call a POISON CENTER/doctor.
P501         Dispose of contents/container in accordance with local regulations.

P201         Obtain special instructions before use.
P202         Do not handle until all safety precautions have been read and understood.
P260         Do not breathe dust/fume/gas/mist/vapours/spray.
P261         Avoid breathing dust/fume/gas/mist/vapours/spray.
P264         Wash hands thoroughly after handling.
P270         Do not eat, drink or smoke when using this product.
P271         Use only outdoors or in a well-ventilated area.
P272         Contaminated work clothing should not be allowed out of the workplace.
P273         Avoid release to the environment.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF skin exposed or concerned: Get medical advice/attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391         Collect spillage.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405         Store locked up.
Other hazards
Vapors are corrosive. After 24-36 hours, injured persons may develop serious shortness of breath and lung edema.

PBT/vPvB: Not Classified as PBT/vPvB by current EU criteria.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures
The product contains: Amines.
<table>
<thead>
<tr>
<th>%:</th>
<th>CAS-No.:</th>
<th>EC No.:</th>
<th>REACH Reg. No.:</th>
<th>Chemical name:</th>
<th>Hazard classification:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-&lt;40</td>
<td>98-54-4</td>
<td>202-679-0</td>
<td>01-2119489419-21-xxxx</td>
<td>4-tert-Butylphenol</td>
<td>Skin Irritation Category 2</td>
<td>Serious Eye Damage Category 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Reproductive Toxicity Category 2</td>
<td>Aquatic Acute Toxicity Category 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Chronic Toxicity Category 1</td>
<td></td>
</tr>
<tr>
<td>10-&lt;25</td>
<td>1477-55-0</td>
<td>216-032-5</td>
<td>01-2119480150-50-xxxx</td>
<td>m-Phenylenebis (methylamine)</td>
<td>Acute (Oral) Toxicity Category 4</td>
<td>Acute (Dermal) Toxicity Category 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute (Inhalation) Toxicity Category 4</td>
<td>Acute (Inhalation) Toxicity Category 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Corrosion Category 1B</td>
<td>Skin Sensitizer Category 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Serious Eye Damage Category 1</td>
<td>Aquatic Chronic Toxicity Category 3</td>
</tr>
<tr>
<td>15-&lt;25</td>
<td>90640-67-8</td>
<td>292-588-2</td>
<td>01-2119487919-13-xxxx</td>
<td>Amines, polyethylene-poly-, triethylenetetramine fraction</td>
<td>Acute (Oral) Toxicity Category 4</td>
<td>Acute (Dermal) Toxicity Category 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute (Inhalation) Toxicity Category 4</td>
<td>Skin Corrosion Category 1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Sensitizer Category 1</td>
<td>Serious Eye Damage Category 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Chronic Toxicity Category 3</td>
<td></td>
</tr>
<tr>
<td>10-&lt;20</td>
<td>15520-10-2</td>
<td>239-556-6</td>
<td>01-2119976310-41-xxxx</td>
<td>2-Methyl-1,5-pentamethylene-diamine</td>
<td>Acute (Oral) Toxicity Category 4</td>
<td>Acute (Dermal) Toxicity Category 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute (Inhalation) Toxicity Category 4</td>
<td>Skin Corrosion Category 1A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Sensitizer Category 1</td>
<td>Specific Target Organ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Toxicity Single Exposure Category 3</td>
<td></td>
</tr>
</tbody>
</table>
4. FIRST-AID MEASURES

Description of first-aid measures

Inhalation: Move injured person into fresh air immediately. Call an ambulance. Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure. Bring these instructions.

Skin contact: Flush immediately with plenty of water and remove contaminated clothing. Call an ambulance, continue to rinse during transportation to hospital and take along these instructions.

Eye contact: Immediately flush with plenty of water. Remove any contact lenses and open eyes wide apart. Call an ambulance and continue flushing during transportation to hospital taking along these instructions.

Ingestion: Immediately call a Poison Center/doctor. Rinse mouth. Do not induce vomiting. Do not drink anything without first consulting a doctor. Have these instructions at hand.

Most important symptoms and effects, both acute and delayed

Symptoms/effects: See section 11 for more detailed information on health effects and symptoms.

Indication of any immediate medical attention and special treatment needed

Medical attention/treatments: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Extinguish with foam, carbon dioxide, dry powder or water fog.

Specific hazards arising from the hazardous product

Specific hazards: During fire, health hazardous gases may be formed.

Advice for fire-fighters

Protective equipment for fire-fighters: Use air-supplied respirator, gloves and protective goggles.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Avoid inhalation of vapors and contact with skin and eyes. For personal protection, see section 8.

For emergency responders: No specific recommendations. For personal protection, see section 8.

Environmental precautions

Environmental precautions: Do not discharge into drains, water courses or onto the ground.

Methods and material for containment and cleaning up

Spill Cleanup Methods: Dam and absorb spillages with sand, earth or other non-combustible material.

References to other items

References: For personal protection, see section 8. For waste disposal, see section 13.
7. HANDLING AND STORAGE

**Precautions for safe handling**

**Safe handling advice:** Avoid inhalation of vapors and contact with skin and eyes. Observe good chemical hygiene practices.

**Technical measures:** Wash hands before breaks and before smoking, eating or drinking.

**Technical precautions:** Local exhaust is recommended. First-aid equipment, including eye wash bottle, must be available at the work site.

**Conditions for safe storage, including any incompatibilities**

**Storage conditions:** Store in tightly closed original container in a dry, cool and well-ventilated place.

**Specific end-use(s)**

**Specific use(s):** No information available.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Other provincial OEL's may apply.

Occupational exposure limits:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Chemical name</th>
<th>As</th>
<th>Exposure limits</th>
<th>Type</th>
<th>Notes</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1477-55-0</td>
<td>m-Xylene α,α′-diamine</td>
<td>-</td>
<td>0.1 mg/m3</td>
<td>C</td>
<td>Skin</td>
<td>BC</td>
</tr>
<tr>
<td>1477-55-0</td>
<td>m-Xylene-α, α′diamine</td>
<td>-</td>
<td>0.1 mg/m3</td>
<td>C</td>
<td>Pc</td>
<td>Quebec</td>
</tr>
<tr>
<td>112-24-3</td>
<td>Triethylenetetramine</td>
<td>-</td>
<td>0.5 ppm</td>
<td>3 mg/m3</td>
<td>TWA</td>
<td>Skin; Ont</td>
</tr>
</tbody>
</table>

Notes: Pc: SKIN (percutaneous).

Exposure controls

Engineering measures: Mix and prepare in a place with efficient exhaust ventilation. An eye wash bottle must be available at the work site. Provide access to washing facilities including soap, skin cleanser and fatty cream. Observe Occupational Exposure Limits and minimize the risk of inhalation.

Personal protection: Personal protection equipment should be chosen according to relevant standards and in discussion with the supplier of the personal protective equipment.

Respiratory equipment: In case of inadequate ventilation and work of brief duration, use suitable respiratory equipment. It is recommended to use respiratory equipment with combination filter, type ABEK

Hand protection: Use disposable gloves protecting against epoxy and amines along with cotton gloves closest to the skin. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material. (*)

Eye protection: Wear goggles/face shield.

Skin protection: Wear apron or protective clothing in case of splashes.

Hygiene measures: Remove contaminated clothing and wash the skin thoroughly with soap and water after work. When using do not eat, drink or smoke.

Environmental Exposure Controls: Not available.
### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>Yellowish</td>
</tr>
<tr>
<td><strong>Odour</strong></td>
<td>Amine</td>
</tr>
<tr>
<td><strong>Odour threshold</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Melting point</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Boiling point</strong></td>
<td>180 - 300°C</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>&gt;83°C / &gt;181.4°F (*)</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Explosion limits</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>0.99 - 1.00</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>Partially soluble in water</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature (°C):</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Decomposition temperature (°C):</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>115 - 200 mPa*s</td>
</tr>
<tr>
<td><strong>Explosive properties</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Oxidising properties</strong></td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Other information**

**Other data:** No information available.
10. STABILITY AND REACTIVITY

Reactivity:
Reacts violently with strong oxidizing substances.

Chemical stability:
Stable under normal temperature conditions.

Possibility of hazardous reactions:
None under normal conditions.

Conditions to avoid:
Moisture, heating and strong oxidizing substances.

Incompatible materials:
Oxidising materials. Strong acids.

Hazardous decomposition products:
When heated, toxic and corrosive vapours/gases may be formed.
11. TOXICOLOGICAL INFORMATION

**Information on toxicological effects**

**Acute Toxicity (Oral):** Harmful if swallowed.
- m-Phenylenebis(methylamine):
  - LD$_{50}$ (Oral, Rat): 940 mg/kg
- 2-Methyl-1,5-pentamethylen-diamine:
  - LD$_{50}$ (Oral, Rat): 1690 mg/kg

**Acute Toxicity (Dermal):** Based on available data, the classification criteria are not met.
- m-Phenylenebis(methylamine):
  - LD$_{50}$ (Dermal, Rabbit): 2000 mg/kg
- 2-Methyl-1,5-pentamethylen-diamine:
  - LD$_{50}$ (Dermal, Rabbit): 1900 mg/kg

**Acute Toxicity (Inhalation):** Harmful if inhaled.

**Skin Corrosion/Irritation:** Causes severe burns.

**Serious eye damage/irritation:** Causes serious eye damage.

**Respiratory or skin sensitization:** May cause an allergic skin reaction.

**Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

**Carcinogenicity:** Based on available data, the classification criteria are not met.
- National Toxicology Program (NTP): No.
- IARC Not Listed.

**Reproductive Toxicity:** Suspected of damaging fertility or the unborn child.

**STOT - Single exposure:** May cause respiratory irritation.

**STOT - Repeated exposure:** Based on available data the classification criteria are not met.

**Aspiration hazard:** Vapors are corrosive. After 24-36 hours, injured persons may develop serious shortness of breath and lung edema.

**Inhalation:**
- Strongly corrosive. Even small amounts may be fatal. Symptoms are severe burning pains in mouth, throat and stomach.

**Ingestion:**
12. ECOLOGICAL INFORMATION

Ecotoxicity
Ecotoxicity: Very toxic to aquatic life with long lasting effects.

Persistence and degradability
Degradability: The degradability of the product has not been stated.

Bioaccumulative potential
Bioaccumulative potential: No data available on bioaccumulation.

Mobility in soil
Mobility: No data available.

Results of PBT and vPvB assessment
PBT/vPvB: This product does not contain any PBT or vPvB substances.

Other adverse effects
Other adverse effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Waste from residues: Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. Note that fully cured material is not considered as hazardous waste.

Contaminated packaging: Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.
14. TRANSPORT INFORMATION

The product is covered by international regulation on the transport of dangerous goods (IMDG, IATA).

| UN number                                      | 2735                  |
| UN proper shipping name                       | AMINES, LIQUID, CORROSIVE, N.O.S. (2-Methyl-1,5-pentamethylen-diamine, m-Phenylenebis(methylamine)) |
| Transport hazard class(es)                    | 8                    |
| Packing group                                  | I                    |
| Environmental hazards                          |                      |
| Marine pollutant: Yes.                        |                      |
| Environmentally Hazardous substance:          | Yes.                 |
| Special precautions for user                  | None known.          |

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport in bulk: Not relevant
15. REGULATORY INFORMATION

Safety, health and environmental regulations specific to the product

Special provisions: This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

DSL: Not available.

National regulation:
Hazardous Products Regulations, with amendments.
Canadian Environmental Protection Act, Reporting for the Domestic Substances List (DSL), with amendments.
Quebec: Regulation respecting the quality of the work environment, with amendments (2013-12-13).
Ontario: Control of Exposure to Biological or Chemical Agents R.R.O. 1990, Reg. 833, with amendments (2016).

16. OTHER INFORMATION

The user must be instructed in the proper work procedure and be familiar with the contents of these instructions.

The following sections contain revisions or new statements: 1, 8, 9.
The (*) indicates the changes made with respect to the previous version.

Approved by DHI.

Additional information: Classification according to WHMIS 2015:
Calculation method.

The information on this data sheet represents our current data and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product which involves using the product in combination with any other product or any other process is the responsibility of the user.

Made by DHI - Environment and Toxicology, Agern Allé 5, DK-2970 Hørsholm, Denmark.