SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Product name: CALDOFIX-2 HARDENER
Cat. No. 40200086, 40200084
CAS-No.: 1761-71-3
EC No.: 217-168-8
REACH Reg. No: 01-2119541673-38-xxxx
Container size: 300ml; 500ml

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

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 Australia
27 Mayneview Street
Milton QLD 4064, Australia

Responsible for safety data sheet authoring: 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

+61 7 3512 9600
(Only during office hours)
SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

WHS:
- Acute toxicity – oral – Category 4
- Skin corrosion/irritation - Category 1B
- Serious eye damage/eye irritation - Category 1
- Skin Sensitisation - Category 1
- Specific target organ toxicity (repeated exposure) - Category 2

Label elements

Danger

Contains:
- 4,4’-Methylenebis(cyclohexylamine)

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H373 May cause damage to organs through prolonged or repeated exposure.

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): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.
P501 Dispose of contents/container in accordance with local regulations.

Other hazards

Vapours are corrosive. After 24-36 hours, injured persons may develop serious shortness of breath and lung oedema.

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

The product contains: amine compound.
SECTION 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 oedema (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 a bring 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. Bring 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.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Extinguishing media: Extinguish with foam, carbon dioxide, dry powder or water fog. Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

Specific hazards: In case of fire, toxic gases may be formed (COx, NOx).

Advice for firefighters

Protective equipment for firefighters: Use air-supplied respirator, gloves and protective goggles.
SECTION 6: ACCIDENTAL RELEASE MEASURES

For non-emergency personnel:
Avoid inhalation of vapours 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:
Do not discharge into drains, water courses or onto the ground.

Methods and material for containment and cleaning up:
Dam and absorb spillages with sand, earth or other non-combustible material.

Reference to other sections:
For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:
Safe handling advice: Avoid inhalation of vapours 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): No information available.
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

No occupational exposure limit assigned.

Exposure controls

Engineering measures: Local exhaust is recommended. 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.

Personal protection: Personal protection equipment should be chosen according to relevant AS/NZS 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: Wear protective gloves. Butyl rubber gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. 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.
### SECTION 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>Colourless</td>
</tr>
<tr>
<td><strong>Odour</strong></td>
<td>ammonia</td>
</tr>
<tr>
<td><strong>Odour threshold</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>12</td>
</tr>
<tr>
<td><strong>Melting point</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Boiling point</strong></td>
<td>320°C / 608°F</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>160°C / 320°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>0.0549 Pa @ 20°C OECD 104 (*)</td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td>7.24 (*)</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>0.96</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>insoluble in water</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>log Pow: 2.03 (*)</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature (°C)</strong></td>
<td>300°C / 572°F (*)</td>
</tr>
<tr>
<td><strong>Decomposition temperature (°C)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>29.6 mPa s @ 40°C (*)</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:** Volatile Organic Compound (VOC): 0 g/l
SECTION 10: STABILITY AND REACTIVITY

Reactivity
Reactivity: Reacts violently with strong oxidising substances.

Chemical stability
Stability: Stable under normal temperature conditions.

Possibility of hazardous reactions
Hazardous Reactions: No data available.

Conditions to avoid
Conditions/materials to avoid: Avoid heat, flames and other sources of ignition.

Incompatible materials
Incompatible materials: Strong oxidising substances. Acids and metals (e.g. aluminium and zinc).

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

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute Toxicity (Oral): Harmful if swallowed.
Acute Toxicity (Dermal): Based on available data, the classification criteria are not met.
Acute Toxicity (Inhalation): Based on available data, the classification criteria are not met.
Skin Corrosion/Irritation: Causes severe burns.
Serious eye damage/irritation: Causes serious eye damage.
Respiratory or skin sensitisation: 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.
I.A.R.C. Monographs: No.
Reproductive Toxicity: Based on available data, the classification criteria are not met.
STOT - Single exposure: Based on available data, the classification criteria are not met.
STOT - Repeated exposure: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard: Based on available data, the classification criteria are not met.
Inhalation: Vapours are corrosive. After 24-36 hours, injured persons may develop serious shortness of breath and lung oedema.
Ingestion: Strongly corrosive. Even small amounts may be fatal. Symptoms are severe burning pains in mouth, throat and stomach.
Toxicological data: LD50 (Oral, Rat): 625 mg/kg
LD50 (Dermal, Rabbit): 2110 mg/kg
SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity: LC50 96 hours, fish, mg/l (Leuciscus idus): > 100

Persistence and degradability

Degradability: The product is slowly degradable.

Bioaccumulative potential

Bioaccumulative potential: No data available on bioaccumulation.

\[ \text{log Pow: 2.03 (*)} \]

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.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues: Dispose of waste and residues in accordance with local authority requirements.

Note that fully cured material is not considered as hazardous waste.

For personal protection, see section 8.

Hazardous characteristics of waste: H8 (Corrosives)

Contaminated packaging: Dispose of waste and residues in accordance with local authority requirements.
## SECTION 14: TRANSPORT INFORMATION

### UN number

**UN-No:** 2735

### UN proper shipping name

**Proper Shipping Name:** AMINES, LIQUID, CORROSIVE, N.O.S. (4,4’-Methylenebicyclohexanamine)

**Additional IMDG information:**
- EmS: F-A, S-B
- MFAG: 1
- Segregation Group: Alkali

### Transport hazard class(es)

**Class:** 8

### Packing group

**PG:** II

### Environmental hazards

- Marine pollutant: No.
- Environmentally Hazardous substance: No.

### Special precautions for user

**Special precautions:** None known.

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

**Transport in bulk:** Not relevant.

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## SECTION 15: REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

**Special provisions:** AICS: Listed.

**National regulation:**
- Work Health and Safety Regulations 2011, with amendments.
- Hazardous Waste (Regulation of Exports and Imports) Act 1989, with amendments.
- The Industrial Chemicals (Notification and Assessment) Act 1989, as amended.
SECTION 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, 9, 12.
The (*) indicates the changes made with respect to the previous version.

Approved by DHI.

Abbreviations and acronyms used in the safety data sheet:
PBT = Persistent, Bioaccumulative and Toxic.
vPvB = very Persistent and very Bioaccumulative.

Additional information:
Classification according to WHS Regulations 2011:
Calculation method.

Wording of H-statements:
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H373 May cause damage to organs through prolonged or repeated exposure.

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.