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

Product identifier

Product name: DUROCIT-3 LIQUID II
Cat. No.40200095, 40200097
Container size: 150 ml, 1l

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

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

Details of the supplier of the safety data sheet

Supplier: Struers ApS
Pederstrupvej 84
DK-2750 Ballerup
Tel:+45 44 600 800

Responsible for material safety data sheet authoring: DHI

Any questions to the contents of this material safety data sheet should be sent to: struers@struers.dk

Emergency telephone number

National Capital Poison Center: 1-800-222-1222

Infotrac:
1-800-535-5053
Struers US:
1-440-871-0071

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

OSHA 2012:
Flammable Liquid Category 2
Skin Irritant Category 2
Skin Sensitizer Category 1
Category 2 reproductive toxicant
Category 3 Target organ toxicant, Single Exposure (respiratory tract irritation)
Category 2 Target organ toxicant, Repeated Exposure

Label elements

Danger
H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
Section 3: Composition/Information on Ingredients

Mixtures

The product contains: Methyl methacrylate and Styrene.
## OSHA 2012:

<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>25-50</td>
<td>80-62-6</td>
<td>201-297-1</td>
<td></td>
<td>Methyl methacrylate</td>
<td>Flammable Liquid Category 2, Category 3 Target organ toxicant, Single Exposure (respiratory tract irritation) Skin Irritant Category 2 Skin Sensitizer Category 1</td>
<td>D</td>
</tr>
<tr>
<td>5-10</td>
<td>100-42-5</td>
<td>202-851-5</td>
<td></td>
<td>Styrene</td>
<td>Flammable Liquid Category 3, Acute Inhalation Toxicity Category 4, Skin Irritant Category 2, Eye irritant Category 2A Category 2 reproductive toxicant Category 1 Target organ toxicant, Repeated Exposure Aspiration Toxicity Category 1 Aquatic Chronic Toxicity Category 3</td>
<td></td>
</tr>
<tr>
<td>&lt;1</td>
<td>99-97-8</td>
<td>202-805-4</td>
<td></td>
<td>N,N-Dimethyl-p-toluidine</td>
<td>Acute Inhalation Toxicity Category 3, Acute Dermal Toxicity Category 3, Acute Oral Toxicity Category 3 Category 2 Target organ toxicant, Repeated Exposure Aquatic Chronic Toxicity Category 3</td>
<td>C</td>
</tr>
</tbody>
</table>
SECTION 4: FIRST AID MEASURES

Description of first aid measures

Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

Inhalation: Move injured person into fresh air and keep person calm under observation. If uncomfortable: Seek hospital and bring these instructions.

Skin contact: Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and bring these instructions.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. Remove any contact lenses and open eyelids widely. If irritation persists: Continue flushing during transport to hospital. Bring along these instructions.

Ingestion: Immediately rinse mouth and drink plenty of water. Keep person under observation. If person becomes uncomfortable seek hospital and bring these instructions. Do not induce vomiting.

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 alcohol-resistant foam, carbon dioxide, dry powder or water fog. Cool containers exposed to heat with water spray and remove container, if no risk is involved. Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

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

Advice for firefighters

Protective equipment for firefighters: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.
SECTION 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:
Absorb spillage with non-combustible, absorbent material.

Reference to other sections

References:
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 vapors and contact with skin and eyes.

Technical measures:
Use work methods which minimize aerosol production. Do not smoke or use open fire or other sources of ignition. Do not eat, drink or smoke when using the product.

Technical precautions:
Local exhaust is recommended.

Conditions for safe storage, including any incompatibilities

Technical measures for safe storage:
Follow rules for flammable liquids.

Storage conditions:
Store in tightly closed original container in a dry and cool place.

Specific end use(s)

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

Control parameters

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>80-62-6</td>
<td>Methyl methacrylate</td>
<td>-</td>
<td>100 ppm</td>
<td>410 mg/m³</td>
<td>TWA</td>
<td>-</td>
</tr>
<tr>
<td>100-42-5</td>
<td>Styrene</td>
<td>-</td>
<td>100 ppm</td>
<td>TWA</td>
<td>-</td>
<td>OSHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>200 ppm</td>
<td>STEL</td>
<td>5min</td>
<td>A4; BEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>600 ppm</td>
<td>CLV</td>
<td>-</td>
<td>A4; BEI;</td>
</tr>
<tr>
<td>100-42-5</td>
<td>Styrene, monomer</td>
<td>-</td>
<td>20 ppm</td>
<td>TWA</td>
<td>A4; BEI</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>40 ppm</td>
<td>STEL</td>
<td>A4; BEI</td>
<td>15min</td>
</tr>
<tr>
<td>80-62-6</td>
<td>Methyl methacrylate</td>
<td>-</td>
<td>50 ppm</td>
<td>TWA</td>
<td>DSEN; A4</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>100 ppm</td>
<td>STEL</td>
<td>DSEN; A4</td>
<td>15min</td>
</tr>
</tbody>
</table>

Notes: A4: Not Classifiable as a Human Carcinogen.
DSEN: Dermal Sensitization.
BEI: Biological Exposure Index.

Biological Limit Values:

<table>
<thead>
<tr>
<th>CAS-No.:</th>
<th>Chemical name:</th>
<th>As:</th>
<th>Exposure limits:</th>
<th>Sampling time:</th>
<th>Notes:</th>
<th>References:</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-42-5</td>
<td>Styrene</td>
<td>Mandelic acid plus Phenylglyoxylic acid in urine</td>
<td>400 mg/g Cre</td>
<td>End of shift</td>
<td>Na</td>
<td>-</td>
</tr>
<tr>
<td>100-42-5</td>
<td>Styrene</td>
<td>Styrene in urine</td>
<td>40 μg/L</td>
<td>End of shift</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Exposure controls

Engineering measures: Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors.

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

Respiratory equipment: In case of inadequate ventilation: Use respiratory equipment with gas filter, type A2.

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. Thickness: 0,3 mm Breakthrough time: 60 min (*)

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>Color</strong></td>
<td>Greenish</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Characteristic</td>
</tr>
<tr>
<td><strong>Odor 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>101°C / 213.8°F (*)</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>10°C / 50°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>2.1-12.5 vol%</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>47 hPa (20°C / 68°F)</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>1.05</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>Immiscible with water</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature (°F)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Decomposition temperature (°F)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Explosive properties</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Oxidizing properties</strong></td>
<td>Not available</td>
</tr>
</tbody>
</table>

### Other information

<table>
<thead>
<tr>
<th>Other data</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volatile Organic Compound (VOC):</strong></td>
<td>approx. 650 g/l (calculated)</td>
</tr>
</tbody>
</table>
SECTION 10: STABILITY AND REACTIVITY

Reactivity
Reactivity: No data available.

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 exposure to high temperatures or direct sunlight.

Incompatible materials
Incompatible materials: Avoid contact with oxidizing agents.

Hazardous decomposition products
Hazardous decomposition products: Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.
# SECTION 11: TOXICOLOGICAL INFORMATION

## Information on toxicological effects

<table>
<thead>
<tr>
<th>Effect Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity (Oral)</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Acute Toxicity (Dermal)</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Acute Toxicity (Inhalation)</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
<tr>
<td></td>
<td>National Toxicology Program (NTP): Group R for Styrene.</td>
</tr>
<tr>
<td></td>
<td>IARC Cancer Review: Group 2A for Styrene.</td>
</tr>
<tr>
<td></td>
<td>IARC Cancer Review: Group 3 for Methyl methacrylate.</td>
</tr>
<tr>
<td></td>
<td>IARC Cancer Review: Group 2B for N,N-Dimethyl-p-toluidine</td>
</tr>
<tr>
<td></td>
<td>OSHA: No.</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>Suspected of damaging fertility or the unborn child.</td>
</tr>
<tr>
<td>STOT - Single exposure</td>
<td>May cause respiratory irritation.</td>
</tr>
<tr>
<td>STOT - Repeated exposure</td>
<td>May cause damage to organs (hearing organs) through prolonged or repeated</td>
</tr>
<tr>
<td></td>
<td>exposure.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Vapors may irritate throat and respiratory system and cause coughing.</td>
</tr>
<tr>
<td></td>
<td>In high concentrations, vapors are narcotic and may cause headache, fatigue,</td>
</tr>
<tr>
<td></td>
<td>dizziness and nausea.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Direct contact may irritate.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May irritate and cause malaise.</td>
</tr>
</tbody>
</table>
SECTION 12: ECOLOGICAL INFORMATION

**Toxicity**

Ecotoxicity: The product contains a substance which causes risk of hazardous effects to the environment.

**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: No information available.

**Other adverse effects**

Other adverse effects: The product contains volatile, organic compounds which have a photochemical ozone creation potential.

SECTION 13: DISPOSAL CONSIDERATIONS

**Waste treatment methods**

Waste from residues: Dispose of waste and residues in accordance with local authority requirements. RCRA: Waste number U162 (Methyl methacrylate)

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

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

**UN number**

UN-No: 1866

**UN proper shipping name**

Proper Shipping Name: RESIN SOLUTION, flammable

Additional IMDG information:
EmS: F-E, S-E
MFAG: 1

**Transport hazard class(es)**

Class: 3

**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.
SECTION 15: REGULATORY INFORMATION

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

Special provisions: State and local regulation may apply.

TSCA: Not available.

NFPA Rating: Health:2  Fire:3  Reactivity:0  Other:-

SARA Section 302: No.
SARA Section 304: Yes.
SARA Section 313: Yes.
SARA (311/312) Hazard categories: Yes.
CAA: Yes. (Methyl methacrylate)
CAA: Yes. (Styrene)
California Proposition 65: N,N-Dimethyl-p-toluidine, Styrene

National regulation: The following lists have been checked:
Threshold Limit Values (2019), ACGIH, by the American Conference on Governmental Industrial Hygienists.
NIOSH Pocket Guide to Chemical Hazards.
The Code of Federal Regulation, Title 40, part 261.33. Identification and listing of hazardous waste.
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, 8, 9.
The (*) indicates the changes made with respect to the previous version.

Approved by DHI.

[Signature]

Allan Vorup

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 HCS 2012:
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.