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

Product identifier

Product name: DUROCIT-3 LIQUID I
Cat. No.40200095, 40200096
Container size: 300 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: 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 3
Aspiration Toxicity Category 1
Skin Irritant Category 2
Eye irritant Category 2A
Skin Sensitizer Category 1
Category 2 reproductive toxicant
Category 1 Target organ toxicant, Repeated Exposure

Label elements

Danger
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317  May cause an allergic skin reaction.
H319  Causes serious eye irritation.
H361  Suspected of damaging fertility or the unborn child.
H372H Causes damage to organs (hearing organs) through prolonged or repeated exposure.
P210  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280  Wear protective clothing, gloves, eye and face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331  Do NOT induce vomiting.
P101  If medical advice is needed, have product container or label at hand.
P102  Keep out of reach of children.
P103  Read label before use.
P201  Obtain special instructions before use.
P202  Do not handle until all safety precautions have been read and understood.
P233  Keep container tightly closed.
P240  Ground/bond container and receiving equipment.
P241  Use explosion-proof electrical, ventilating and lighting equipment.
P242  Use only non-sparking tools.
P243  Take precautionary measures against static discharge.
P260  Do not breathe gas, fume, vapours or spray.
P264  Wash contaminated skin thoroughly after handling.
P270  Do not eat, drink or smoke when using this product.
P272  Contaminated work clothing should not be allowed out of the workplace.
P273  Avoid release to the environment.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use alcohol resistant foam, carbon dioxide or dry powder to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405  Store locked up.
P501  Dispose of contents/container in accordance with local regulations.
**Other hazards**

**PBT/vPvB:** No information available.

---

**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>100-42-5</td>
<td>202-851-5</td>
<td>-</td>
<td>Styrene</td>
<td>Flammable Liquid Category 3</td>
<td>Acute Inhalation Toxicity Category 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Irritant Category 2</td>
<td>Eye irritant Category 2A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Category 2 reproductive toxicant</td>
<td>Category 1 Target organ toxicant, Repeated Exposure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aspiration Toxicity Category 1</td>
<td>Aquatic Chronic Toxicity Category 3</td>
</tr>
<tr>
<td>10–&lt;20</td>
<td>80-62-6</td>
<td>201-297-1</td>
<td>-</td>
<td>Methyl 2-methylprop-2-enoate</td>
<td>Flammable Liquid Category 2</td>
<td>Skin Irritant Category 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Sensitizer Category 1B</td>
<td>Category 3 Target organ toxicant, Single Exposure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(respiratory tract irritation)</td>
<td></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: Aspiration hazard: Risk of chemical pneumonia after aspiration. Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure. 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**

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

**Methods and material for containment and cleaning up**

Absorb spillage with non-combustible, absorbent 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**

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.

Local exhaust is recommended.

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

Follow rules for flammable liquids.

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

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

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

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 Phenyglyoxylic acid in urine</td>
<td>400 mg/g Cre</td>
<td>End of shift</td>
<td>Ns</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>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not determined</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>213.8°F</td>
</tr>
<tr>
<td>Flash point</td>
<td>78.8°F</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>1.2-12.5 vol%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>47 hPa (68°F)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.1</td>
</tr>
<tr>
<td>Solubility</td>
<td>Immiscible with water</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition temperature (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>&lt; 20.5 mm²/s (104°F)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Other information**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other data</td>
<td>Volatile Organic Compound (VOC): 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**

**Acute Toxicity (Oral):** Based on available data, the classification criteria are not met.

**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 skin irritation.

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

**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): Group R for Styrene.
- IARC Cancer Review: Group 2A for Styrene.
- IARC Cancer Review: Group 3 for Methyl methacrylate.
- OSHA: No.

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

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

**STOT - Repeated exposure:** Causes damage to organs (hearing organs) through prolonged or repeated exposure.

**Aspiration hazard:** May be fatal if swallowed and enters airways.

**Inhalation:** Vapors may irritate throat and respiratory system and cause coughing. In high concentrations, vapors are narcotic and may cause headache, fatigue, dizziness and nausea.

**Ingestion:** May irritate and cause malaise.
SECTION 12: ECOLOGICAL INFORMATION

Toxicity
Ecotoxicity: Harmful 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: 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: III

**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: 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.

The (*) indicates the changes made with respect to the previous version.

Approved by DHI.

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.