1. IDENTIFICATION

Product name: ELECTROLYTE D2
Cat. No. 40900032
Container size: 1 l

Recommended use and restrictions on use
Application: For electrolytic preparation of metallographic 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:
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:
Flammable Liquids — Category 3
Skin Corrosion — Category 1B
Serious Eye Damage — Category 1
Label elements

Danger

H226 Flammable liquid and vapour.
H314 Causes severe skin burns and eye damage.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection
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.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical, ventilating and lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P264 Wash contaminated skin thoroughly after handling.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P363 Wash contaminated clothing 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

The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms. Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure. Organic solvents may be absorbed into the body by inhalation and cause permanent damage to the nervous system, including the brain.
PBT/vPvB: No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS
Mixtures
The product contains: acid and water.

WHMIS 2015:

<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>
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<tr>
<td>25-50</td>
<td>7664-38-2</td>
<td>231-633-2</td>
<td>-</td>
<td>Phosphoric acid</td>
<td>Skin Corrosion Category 1B</td>
<td>B</td>
</tr>
<tr>
<td>15-25</td>
<td>64-17-5</td>
<td>200-578-6</td>
<td>-</td>
<td>Ethanol</td>
<td>Flammable Liquids Category 2</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Irritation Category 2</td>
<td></td>
</tr>
<tr>
<td>&lt;5</td>
<td>71-23-8</td>
<td>200-746-9</td>
<td>-</td>
<td>Propan-1-ol</td>
<td>Flammable Liquids Category 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Serious Eye Damage Category 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Specific Target Organ</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Toxicity Single Exposure Category 3</td>
<td></td>
</tr>
<tr>
<td>25-50</td>
<td>7732-18-5</td>
<td>231-791-2</td>
<td>-</td>
<td>Water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1</td>
<td>57-13-6</td>
<td>200-315-5</td>
<td>-</td>
<td>Urea</td>
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<td></td>
</tr>
</tbody>
</table>

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 into fresh air and keep at rest. Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure. Immediately call an ambulance.

Skin contact: Remove contaminated clothes and rinse skin thoroughly with water.

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**

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. Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the hazardous product**

Specific hazards: The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures.

**Advice for fire-fighters**

Protective equipment for fire-fighters: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

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. Flush away spillage with plenty of water.

**Reference 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: Never pour water into acid/base. Dilute by slowly pouring the product into water while stirring.

Technical precautions: Local exhaust is recommended. Provide easy access to water supply or an emergency shower. Provide easy access to water supply and eye wash facilities.

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


Storage conditions: Store in a cool and well-ventilated place. Do not store near heat sources or expose to high temperatures.

**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>
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<tr>
<td>64-17-5</td>
<td>Ethyl alcohol</td>
<td>-</td>
<td>1000 ppm</td>
<td>1880 mg/m³</td>
<td>TWA</td>
<td>-</td>
</tr>
<tr>
<td>64-17-5</td>
<td>Ethyl alcohol</td>
<td>-</td>
<td>1000 ppm</td>
<td>1880 mg/m³</td>
<td>TWA</td>
<td>-</td>
</tr>
<tr>
<td>64-17-5</td>
<td>Ethanol</td>
<td>-</td>
<td>1000 ppm</td>
<td>STEL</td>
<td>-</td>
<td>BC</td>
</tr>
<tr>
<td>71-23-8</td>
<td>n-Propyl alcohol</td>
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<td>200 ppm</td>
<td>492 mg/m³</td>
<td>TWA</td>
<td>3</td>
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<td></td>
<td></td>
<td></td>
<td>400 ppm</td>
<td>984 mg/m³</td>
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<td>3; 15min</td>
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<tr>
<td>71-23-8</td>
<td>n-Propanol</td>
<td>-</td>
<td>100 ppm</td>
<td>TWA</td>
<td>-</td>
<td>BC</td>
</tr>
<tr>
<td>71-23-8</td>
<td>n-Propyl alcohol</td>
<td>-</td>
<td>200 ppm</td>
<td>492 mg/m³</td>
<td>TWA</td>
<td>Pc</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>250 ppm</td>
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<td>7664-38-2</td>
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<td>-</td>
<td>1 mg/m³</td>
<td>TWA</td>
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<td>Alberta</td>
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<td></td>
<td></td>
<td></td>
<td>3 mg/m³</td>
<td>STEL</td>
<td>3; 15min</td>
<td></td>
</tr>
<tr>
<td>7664-38-2</td>
<td>Phosphoric acid</td>
<td>-</td>
<td>1 mg/m³</td>
<td>TWA</td>
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<td>BC</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>3 mg/m³</td>
<td>STEL</td>
<td>-</td>
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<tr>
<td>7664-38-2</td>
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<td>-</td>
<td>1 mg/m³</td>
<td>TWA</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>3 mg/m³</td>
<td>STEL</td>
<td>15min</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. Local exhaust is recommended. An eye wash bottle must be available at the work site.

Personal protection: Personal protection equipment should be chosen according to the CEN 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. Use respiratory equipment with combination filter, type A2/P2.

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.

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

Information on basic physical and chemical properties

Form: Liquid.
Colour: Colourless.
Odour: Odourless.
Odour threshold: Not available.
pH: < 2
Melting point: Not available.
Boiling point: Not available.
Flash point: ≥ 23 °C and ≤ 60 °C
Evaporation rate: Not available.
Flammability (solid, gas): Not available.
Explosion limits: Not available.
Vapour pressure: Not available.
Vapour density: Not available.
Relative density: 1,11
Solubility: soluble in water
Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature (°C): Not available.
Decomposition temperature (°C): Not available.
Viscosity: Not available.
Explosive properties: Not available.
Oxidising properties: Not available.

Other information

Other data: Volatile Organic Compound (VOC): 225,3 g/l (calculated)
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: Heating. Strong oxidising substances and strong bases.

**Incompatible materials**
Incompatible materials: No information available.

**Hazardous decomposition products**
Hazardous decomposition products: When water is added, the product reacts with a number of metals forming hydrogen gas, which may form explosive vapor/air mixtures.

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 severe skin burns and eye damage.

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

**Respiratory or skin sensitization:** Based on available data the classification criteria are not met.

**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:** 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:** Based on available data the classification criteria are not met.

**Aspiration hazard:** Based on available data the classification criteria are not met.

**Inhalation:** Vapors are corrosive. After 24-36 hours, injured persons may develop serious shortness of breath and lung edema. Vapours of organic solvents have narcotic effect and may cause headache, fatigue, dizziness and nausea.

**Ingestion:** Corrosive. Even small amounts may cause serious damage.

**Specific effects:** Frequent inhalation of even small concentrations may cause irritability, fatigue and memory failure and eventually permanent damage to the nervous system, including the brain.
12. ECOLOGICAL INFORMATION

Ecotoxicity
Ecotoxicity: The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

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: 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. Waste is classified 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
UN-No: 2920

UN proper shipping name
Proper Shipping Name: CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Phosphoric acid, Ethanol)

Additional IMDG information:
EmS: F-E, S-C
MFAG: 1
Segregation Group: Alkali

Transport hazard class(es)
Class: 8 (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

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: All chemicals included in the product are DSL listed or exempt.

National regulation: Hazardous Products Regulations, 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.

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 WHMIS 2015:
Calculation method.
The classification as corrosive has been made based on the pH value of the product.

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.