1 Identification

- Product identifier
- **Trade name:** M-Desulphonation Buffer
- **Article number:** D5001-5, D5002-5, D5040-5
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** Zymo Research Corp.
    17062 Murphy Ave.
    Irvine, CA 92614
    USA
    Phone: 1-949-679-1190 or 1-888-882-9682
    sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
  During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - GHS02 Flame
  - Flam. Liq. 3 H226 Flammable liquid and vapor.
  - GHS07
  - Skin Irrit. 2 H315 Causes skin irritation.
  - Eye Irrit. 2A H319 Causes serious eye irritation.
  - STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**
  - **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms** GHS02, GHS07
  - **Signal word** Warning

- **Hazard-determining components of labeling:**
  - propan-2-ol
  - ethanol
  - sodium hydroxide
- **Hazard statements**
  - Flammable liquid and vapor.
  - Causes skin irritation.
  - Causes serious eye irritation.
  - May cause drowsiness or dizziness.
Trade name: M-Desulphonation Buffer

- Precautionary statements
  Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  Use explosion-proof electrical/ventilating/lighting/equipment.
  Avoid breathing dust/fume/gas/mist/vapors/spray
  Wear protective gloves / eye protection / face protection.
  Wear protective gloves / eye protection / face protection.
  Ground/bond container and receiving equipment.
  Take precautionary measures against static discharge.
  Wash thoroughly after handling.
  Use only outdoors or in a well-ventilated area.
  If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
  Continue rinsing.
  Specific treatment (see on this label).
  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  Call a POISON CENTER/doctor if you feel unwell.
  If skin irritation occurs: Get medical advice/attention.
  If eye irritation persists: Get medical advice/attention.
  In case of fire: Use for extinction: CO2, powder or water spray.
  Take off contaminated clothing and wash it before reuse.
  Store in a well-ventilated place. Keep container tightly closed.
  Store in a well-ventilated place. Keep cool.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

- Classification system:

- NFPA ratings (scale 0 - 4)
  Health = 1
  Fire = 3
  Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  HEALTH 1 Health = 1
  FIRE 9 Fire = 3
  REACTIVITY 0 Reactivity = 0

- Other hazards

- Results of PBT and vPvB assessment
  PBT: Not applicable.
  vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.
4 First-aid measures

- **Description of first aid measures**
  - **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
  - **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
  - **After eye contact:**
    - Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - **After swallowing:** Do not induce vomiting; immediately call for medical help.
  - **Information for doctor:**
  - **Most important symptoms and effects, both acute and delayed** No further relevant information available.
  - **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
  - **Suitable extinguishing agents:**
    - CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - **Special hazards arising from the substance or mixture**
    - Products of thermal decomposition of this material would include caustic vapors as well as sodium and sulfur compounds.
  - **Advice for firefighters**
  - **Protective equipment:**
    - Wear protective clothing, including self-contained breathing apparatus, for fighting fires involving this material.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Wear protective equipment. Keep unprotected persons away.
  - **Environmental precautions:** Dilute with plenty of water.
  - **Methods and material for containment and cleaning up:**
    - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
    - Ensure adequate ventilation.
  - **Reference to other sections**
    - See Section 7 for information on safe handling.
    - See Section 8 for information on personal protection equipment.
    - See Section 13 for disposal information.
Safety Data Sheet
acc. to OSHA HCS

Trade name: M-Desulphonation Buffer

(Contd. of page 3)

· Protective Action Criteria for Chemicals

- PAC-1:
  CAS: 67-63-0 propan-2-ol 400 ppm
  CAS: 64-17-5 ethanol 1,800 ppm
  CAS: 1310-73-2 sodium hydroxide 0.5 mg/m³

- PAC-2:
  CAS: 67-63-0 propan-2-ol 2000* ppm
  CAS: 64-17-5 ethanol 3300* ppm
  CAS: 1310-73-2 sodium hydroxide 5 mg/m³

- PAC-3:
  CAS: 67-63-0 propan-2-ol 12000** ppm
  CAS: 64-17-5 ethanol 15000* ppm
  CAS: 1310-73-2 sodium hydroxide 50 mg/m³

7 Handling and storage

- Handling:
- Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Prevent formation of aerosols.
- Information about protection against explosions and fires:
  Keep ignition sources away - Do not smoke.
  Protect against electrostatic charges.
- Conditions for safe storage, including any incompatibilities
- Storage:
- Requirements to be met by storerooms and receptacles:
  Store in cool, dry place. Store in well-ventilated location.
- Information about storage in one common storage facility:
  Do not store together with acids, chlorinated solvents, and reactive metals (e.g. aluminum, phosphorous, tin/tin oxides, zinc).
- Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) Laboratory reagent

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters
  Work under a chemical fume hood when using this product. Ensure eyewash station and safety showers are readily accessible.
Safety Data Sheet
acc. to OSHA HCS

Printing date 08/01/2017
Reviewed on 11/13/2015

Trade name: M-Desulphonation Buffer

<table>
<thead>
<tr>
<th>Components with limit values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 67-63-0 propan-2-ol</td>
</tr>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>TLV</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>BEI</td>
</tr>
<tr>
<td>CAS: 64-17-5 ethanol</td>
</tr>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>TLV</td>
</tr>
<tr>
<td>CAS: 1310-73-2 sodium hydroxide</td>
</tr>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>TLV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredients with biological limit values:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 67-63-0 propan-2-ol</td>
</tr>
<tr>
<td>BEI</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

| Additional information: The lists that were valid during the creation were used as basis. |
| Exposure controls                                            |
| Personal protective equipment:                               |
| General protective and hygienic measures:                    |
| Keep away from foodstuffs, beverages and feed.               |
| Immediately remove all soiled and contaminated clothing.     |
| Wash hands before breaks and at the end of work.            |
| Avoid contact with the eyes and skin.                        |
| Breathing equipment:                                         |
| In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air. |
| Protection of hands:                                         |
| Protective gloves                                           |

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Trade name: M-Desulphonation Buffer

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**

  ![Tightly sealed goggles]

---

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
    - **Appearance:**
      - **Form:** Liquid
      - **Color:** Clear
    - **Odor:** Alcohol-like
    - **Odor threshold:** Not determined.
  - **pH-value:** Not determined.

- **Change in condition**
  - **Melting point/Melting range:** Undetermined.
  - **Boiling point/Boiling range:** Undetermined.

- **Flash point:** >25 °C (>77 °F)

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 425 °C (797 °F)

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not selfigniting.

- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

- **Explosion limits:**
  - **Lower:** 2.0 Vol %
  - **Upper:** 15.0 Vol %

- **Vapor pressure at 20 °C (68 °F):** 59 hPa (44 mm Hg)

- **Density:** Not determined.
  - **Relative density** Not determined.
  - **Vapor density** Not determined.

(Contd. on page 7)
Safety Data Sheet
acc. to OSHA HCS

Printing date 08/01/2017
Reviewed on 11/13/2015

Trade name: M-Desulphonation Buffer

(Contd. of page 6)

- Evaporation rate: Not determined.
- Solubility in / Miscibility with Water: Fully miscible.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  Dynamic: Not determined.
  Kinematic: Not determined.
- Solvent content:
  Organic solvents: 58.0 %
  VOC content: 58.0 %
  580.0 g/l / 4.84 lb/gl
- Solids content: 0.9 %
- Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:

  - LD/LC50 values that are relevant for classification:

    CAS: 1310-73-2 sodium hydroxide
    Oral LD50 2000 mg/kg (rat)

- Primary irritant effect:
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Irritating effect.
  - Sensitization: No sensitizing effects known.

  Additional toxicological information:
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Irritant

(Contd. on page 8)
12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
- Additional ecological information:
  - General notes: Generally not hazardous for water
  - Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
- Recommendation:
  Dispose of contents in accordance with local/regional/national, and international recommendations.
- Uncleaned packagings:
- Recommendation:
  Dispose of container in accordance with local/regional/national and international recommendations.
- Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT, IMDG, IATA: UN1993
- UN proper shipping name
  - DOT: Flammable liquids, n.o.s. (Isopropanol, Ethanol)
### Trade name: M-Desulphonation Buffer

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IMDG</strong></td>
<td>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL), ETHANOL (ETHYL ALCOHOL))</td>
</tr>
<tr>
<td><strong>IATA</strong></td>
<td>FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL), ETHANOL)</td>
</tr>
</tbody>
</table>

#### Transport hazard class(es)

**DOT**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td><strong>Label</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

**IMDG, IATA**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td><strong>Label</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

#### Packing group

**DOT, IMDG, IATA**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Packing group</strong></td>
<td>III</td>
</tr>
</tbody>
</table>

#### Environmental hazards:

Not applicable.

**Special precautions for user**

Warning: Flammable liquids

**Danger code (Kemler):**

30

**EMS Number:**

F-E,S,E

**Stowage Category**

A

#### Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

#### Transport/Additional information:

**DOT**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **Quantity limitations** | On passenger aircraft/rail: 60 L  
On cargo aircraft only: 220 L |

**IMDG**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **Limited quantities (LQ)** | 5L  
Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml |
### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**
- **Section 355 (extremely hazardous substances):**
  None of the ingredients is listed.
- **Section 313 (Specific toxic chemical listings):**
  CAS: 67-63-0  propan-2-ol
- **TSCA (Toxic Substances Control Act):**
  All ingredients are listed.
- **Proposition 65**
- **Chemicals known to cause cancer:**
  None of the ingredients is listed.
- **Chemicals known to cause reproductive toxicity for females:**
  None of the ingredients is listed.
- **Chemicals known to cause reproductive toxicity for males:**
  None of the ingredients is listed.
- **Chemicals known to cause developmental toxicity:**
  None of the ingredients is listed.

- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)**
  None of the ingredients is listed.
- **TLV (Threshold Limit Value established by ACGIH)**
<table>
<thead>
<tr>
<th>CAS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>67-63-0</td>
<td>propan-2-ol</td>
<td>A4</td>
</tr>
<tr>
<td>64-17-5</td>
<td>ethanol</td>
<td>A5</td>
</tr>
</tbody>
</table>
- **NIOSH-Ca (National Institute for Occupational Safety and Health)**
  None of the ingredients is listed.

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS02, GHS07
- **Signal word** Warning
- **Hazard-determining components of labeling:**
  propan-2-ol
  ethanol
  sodium hydroxide
- **Hazard statements**
  Flammable liquid and vapor.
Trade name: M-Desulphonation Buffer

(Contd. of page 10)

Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.

· Precautionary statements
  Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  Use explosion-proof electrical/ventilating/lighting/equipment.
  Avoid breathing dust/fume/gas/mist/vapors/spray
  Wear protective gloves / eye protection / face protection.
  Wear protective gloves / eye protection / face protection.
  Ground/bond container and receiving equipment.
  Use only non-sparking tools.
  Take precautionary measures against static discharge.
  Wash thoroughly after handling.
  Use only outdoors or in a well-ventilated area.
  If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
  Continue rinsing.
  Specific treatment (see on this label).
  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  Call a POISON CENTER/doctor if you feel unwell.
  If skin irritation occurs: Get medical advice/attention.
  If eye irritation persists: Get medical advice/attention.
  In case of fire: Use for extinction: CO2, powder or water spray.
  Take off contaminated clothing and wash it before reuse.
  Store in a well-ventilated place. Keep container tightly closed.
  Store in a well-ventilated place. Keep cool.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS:
  Zymo Research Corp.
  Safety Department
  17062 Murphy Ave.
  Irvine, CA 92614
  USA
  Phone: 1-949-679-1190 or 1-888-882-9682
  · Contact: sds@zymoresearch.com
  · Date of preparation / last revision 08/01/2017 / -

· Abbreviations and acronyms:
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation

(Contd. on page 12)
Trade name: M-Desulphonation Buffer

IATA: International Air Transport Association  
ACGIH: American Conference of Governmental Industrial Hygienists  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
NFPA: National Fire Protection Association (USA)  
HMIS: Hazardous Materials Identification System (USA)  
VOC: Volatile Organic Compounds (USA, EU)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
NIOSH: National Institute for Occupational Safety  
OSHA: Occupational Safety & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
BEI: Biological Exposure Limit  
Flam. Liq. 3: Flammable liquids – Category 3  
Skin Irrit. 2: Skin corrosion/irritation – Category 2  
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A  
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3