### SECTION 1: Identification

**1.1. Identification**

- **Product form**: Mixtures
- **Product name**: Ferric Chloride, 40% w/v
- **Product code**: LC14370

**1.2. Recommended use and restrictions on use**

- **Use of the substance/mixture**: For laboratory and manufacturing use only.
- **Recommended use**: Laboratory chemicals
- **Restrictions on use**: Not for food, drug or household use

**1.3. Supplier**

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

**1.4. Emergency telephone number**

- **Emergency number**: CHEMTREC: 1-800-424-9300 or 011- 703-527-3887

### SECTION 2: Hazard(s) identification

**2.1. Classification of the substance or mixture**

<table>
<thead>
<tr>
<th>GHS-US classification</th>
<th>H/S statements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>Category 1B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious eye damage/eye irritation Category 1</td>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>Hazardous to the aquatic environment - Acute</td>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
<tr>
<td>Hazard Category 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Full text of H statements**: see section 16

**2.2. GHS Label elements, including precautionary statements**

**GHS-US labeling**

- **Hazard pictograms (GHS-US)**: GHS05

- **Signal word (GHS-US)**: Danger

- **Hazard statements (GHS-US)**:
  - H314 - Causes severe skin burns and eye damage
  - H401 - Toxic to aquatic life

- **Precautionary statements (GHS-US)**:
  - P260 - Do not breathe mist, vapors, spray
  - P264 - Wash exposed skin thoroughly after handling
  - P273 - Avoid release to the environment
  - P280 - Wear protective gloves, eye 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
  - P310 - Immediately call a poison center or doctor/physician
  - P363 - Wash contaminated clothing before reuse
  - P405 - Store locked up
  - P501 - Dispose of contents/container to comply with local, state and federal regulations
  - If inhaled: Remove person to fresh air and keep comfortable for breathing

**2.3. Other hazards which do not result in classification**

**Other hazards not contributing to the classification**: None.
Ferric Chloride, 40% w/v
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classification
2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients
3.1. Substances
Not applicable
3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>54.9</td>
<td>Not classified</td>
</tr>
<tr>
<td>Ferric Chloride, Hexahydrate</td>
<td>(CAS-No.) 10025-77-1</td>
<td>40</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1C, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 2, H401</td>
</tr>
<tr>
<td>Hydrochloric Acid, 37% w/w</td>
<td>(CAS-No.) 7647-01-0</td>
<td>5.1</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1B, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H355</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 3, H402</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures
4.1. Description of first aid measures
First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.
First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)
Symptoms/effects : Causes severe skin burns and eye damage.
Symptoms/effects after eye contact : Causes serious eye damage.

4.3. Immediate medical attention and special treatment, if necessary
No additional information available

SECTION 5: Fire-fighting measures
5.1. Suitable (and unsuitable) extinguishing media
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical
Reactivity : Thermal decomposition generates : Corrosive vapors.

5.3. Special protective equipment and precautions for fire-fighters
Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures : Evacuate unnecessary personnel.
6.1.2. For emergency responders
Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.
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6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe mist, vapors, spray.

Hygiene measures: Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Comply with applicable regulations.
Storage conditions: Keep only in the original container in a cool, well ventilated place away from: incompatible materials. Keep container closed when not in use.
Incompatible products: Strong bases. metals.
Incompatible materials: Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Ferric Chloride, Hexahydrate (10025-77-1)</th>
<th>NIOSH</th>
<th>NIOSH REL (TWA) (mg/m³)</th>
<th>1 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water (7732-18-5)</td>
<td></td>
<td></td>
<td>Not applicable</td>
</tr>
<tr>
<td>Hydrochloric Acid, 37% w/w (7647-01-0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH Ceiling (mg/m³)</td>
<td>2.98 mg/m³</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (Ceiling) (mg/m³)</td>
<td>7 mg/m³</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (Ceiling) (ppm)</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
<td>50 ppm</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (mg/m³)</td>
<td>7 mg/m³</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (ppm)</td>
<td>5 ppm</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls
Appropriate engineering controls: Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

8.3. Individual protection measures: Personal protective equipment

Personal protective equipment:

Hand protection:
Wear protective gloves
**Ferric Chloride, 40% w/v**

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---

**Eye protection:**
- Chemical goggles or face shield

**Skin and body protection:**
- Wear suitable protective clothing

**Respiratory protection:**
- Respiratory protection not required in normal conditions

**Other information:**
- Do not eat, drink or smoke during use.

---

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>amber</td>
</tr>
<tr>
<td>Odor</td>
<td>None.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>1.4 g/ml</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>6.8 cSt</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**9.2. Other information**

No additional information available

---

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

Thermal decomposition generates: Corrosive vapors.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

Not established.

**10.4. Conditions to avoid**

Direct sunlight. Extremely high or low temperatures.

**10.5. Incompatible materials**

metals. Strong bases.
10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure: Skin and eye contact
Acute toxicity: Not classified

Ferric Chloride, Hexahydrate (10025-77-1)
LD50 oral rat 1872 mg/kg (Rat)
ATE US (oral) 1872 mg/kg body weight

Water (7732-18-5)
LD50 oral rat ≥ 90000 mg/kg
ATE US (oral) 90000 mg/kg body weight

Hydrochloric Acid, 37% w/w (7647-01-0)
LD50 oral rat 700 mg/kg
LD50 dermal rabbit 5010 mg/kg
ATE US (oral) 700 mg/kg body weight
ATE US (dermal) 5010 mg/kg body weight

Skin corrosion/irritation: Causes severe skin burns and eye damage.
Serious eye damage/irritation: Causes serious eye damage.
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

Hydrochloric Acid, 37% w/w (7647-01-0)
IARC group 3 - Not classifiable
Reproductive toxicity: Not classified
Specific target organ toxicity – single exposure: Not classified
Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met.
Symptoms/effects after eye contact: Causes serious eye damage.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - water: Harmful to aquatic life.

Ferric Chloride, 40% w/v
LC50 fish 1 <

Ferric Chloride, Hexahydrate (10025-77-1)
EC50 Daphnia 1 9.6 mg/l (EC50; 48 h; Daphnia magna)
LC50 fish 2 75.6 mg/l (LC50; 96 h; Gambusia affinis)

Hydrochloric Acid, 37% w/w (7647-01-0)
LC50 fish 1 282 mg/l (LC50; 96 h)
EC50 Daphnia 1 < 56 mg/l (EC50; 72 h)

12.2. Persistence and degradability

Ferric Chloride, 40% w/v
Persistence and degradability: Not established.
## Ferric Chloride, 40% w/v
### Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Substance</th>
<th>Persistence and degradability</th>
<th>Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Chloride, 40% w/v</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferric Chloride, Hexahydrate (10025-77-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td><strong>Water (7732-18-5)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Not established.</td>
<td></td>
</tr>
<tr>
<td><strong>Hydrochloric Acid, 37% w/w (7647-01-0)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Biodegradability: not applicable. No test data on mobility of the substance available.</td>
<td></td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

### 12.3. Bioaccumulative potential

- **Ferric Chloride, 40% w/v**
  - Bioaccumulative potential: Not established.
- **Ferric Chloride, Hexahydrate (10025-77-1)**
  - BCF fish 1: <= 100 (BCF)
- **Water (7732-18-5)**
  - Bioaccumulative potential: No bioaccumulation data available.

### 12.4. Mobility in soil

- **Hydrochloric Acid, 37% w/w (7647-01-0)**
  - Log Pow: 0.25 (QSAR)
  - Bioaccumulative potential: Low potential for bioaccumulation (Log Kow < 4).

### 12.5. Other adverse effects

- Effect on the global warming: No known effects from this product.
- GWPmix comment: No known effects from this product.
- Other information: Avoid release to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

- Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.
- Ecology - waste materials: Avoid release to the environment.

### SECTION 14: Transport information

- **Department of Transportation (DOT)**
  - In accordance with DOT
  - Transport document description: UN3264 Corrosive liquid, acidic, inorganic, n.o.s., 8, II
  - UN-No.(DOT): UN3264
  - Proper Shipping Name (DOT): Corrosive liquid, acidic, inorganic, n.o.s.
  - Transport hazard class(es) (DOT): 8 - Class 8 - Corrosive material 49 CFR 173.136
  - Packing group (DOT): II - Medium Danger
Ferric Chloride, 40% w/v
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Hazard labels (DOT) : 8 - Corrosive

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Symbols : G - Identifies PSN requiring a technical name
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T11 - 6 178.274(d)(2) Normal............. 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx) : 154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L
DOT Vessel Stowage Location : B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other : 40 - Stow “clear of living quarters”
Other information : No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

**Ferric Chloride, 40% w/v**

<table>
<thead>
<tr>
<th>SARA Section 311/312 Hazard Classes</th>
<th>Immediate (acute) health hazard</th>
</tr>
</thead>
</table>

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Chloride, Hexahydrate</td>
<td>10025-77-1</td>
<td>40%</td>
</tr>
<tr>
<td>Hydrochloric Acid, 37% w/w</td>
<td>7647-01-0</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Chloride, Hexahydrate (10025-77-1)</td>
<td>7647-01-0</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

SARA Section 311/312 Hazard Classes | Immediate (acute) health hazard
Ferric Chloride, 40% w/v
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Hydrochloric Acid, 37% w/w (7647-01-0)

<table>
<thead>
<tr>
<th>EPA TSCA Regulatory Flag</th>
<th>T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ (Reportable quantity, section 304 of EPA's List of Lists)</td>
<td>5000 lb</td>
</tr>
<tr>
<td>SARA Section 302 Threshold Planning Quantity (TPQ)</td>
<td>500 lb</td>
</tr>
<tr>
<td>SARA Section 311/312 Hazard Classes</td>
<td>Immediate (acute) health hazard</td>
</tr>
</tbody>
</table>

15.2. International regulations

CANADA
No additional information available

EU-Regulations
No additional information available

National regulations
No additional information available

15.3. US State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 06/14/2017
Other information : None.

Full text of H-phrases: see section 16:

<table>
<thead>
<tr>
<th>H302</th>
<th>Harmful if swallowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
<tr>
<td>H402</td>
<td>Harmful to aquatic life</td>
</tr>
</tbody>
</table>

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.

Hazard Rating
Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability : 0 Minimal Hazard - Materials that will not burn
Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection : H
H - Splash goggles, Gloves, Synthetic apron, Vapor respirator

SDS US LabChem
Ferric Chloride, 40% w/v
Safety Data Sheet

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.