### 1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>KPL SureLINK™ Fluorescein (FITC) Labeling Kit</td>
<td>5610-0020, 82-00-01</td>
</tr>
</tbody>
</table>

#### Kit Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Part Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>KPL SureLINK™ Fluorescein (FITC)</td>
<td>5620-0020, 82-01-01</td>
</tr>
<tr>
<td>KPL Carbonate-Bicarbonate Buffer Capsules</td>
<td>5640-0007, 82-01-02</td>
</tr>
<tr>
<td>KPL N1, N1 - Dimethylformamide</td>
<td>5640-0008, 82-01-03</td>
</tr>
<tr>
<td>KPL Reaction Tubes</td>
<td>5640-0009, 82-01-05</td>
</tr>
<tr>
<td>KPL Spin-Pure Filters</td>
<td>5640-0001, 60-00-53</td>
</tr>
</tbody>
</table>

#### Recommended Use:
- Reagent

#### Contact Manufacturer:
- SeraCare Life Sciences
- 910 Clopper Road
- Gaithersburg, MD 20878

#### Phone:
- (508) 244-6400
- US Toll Free: (800) 676-1881

#### Fax:
- (508) 634-3394

#### Web:
- www.seracare.com

#### Email:
- customerservice@seracare.com

#### Emergency Telephone Numbers:

<table>
<thead>
<tr>
<th>Country</th>
<th>Contact Centre</th>
<th>Telephone</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUSTRALIA</td>
<td>POISONS INFORMATION CENTER</td>
<td>13 11 26</td>
<td>24 hours</td>
</tr>
<tr>
<td>CANADIAN TRANSPORT EMERGENCY CENTER</td>
<td></td>
<td>(1 ) 613 996 6666</td>
<td>24 hours/day, 7 days/week</td>
</tr>
<tr>
<td>UK</td>
<td>THE NATIONAL FOCUS</td>
<td>(44) 029 2041 6388</td>
<td>09:00-17:00 GMT</td>
</tr>
<tr>
<td>USA</td>
<td>NATIONAL RESPONSE CENTER</td>
<td>(1 ) 800 424 8802</td>
<td>24 hours/day, 7 days/week</td>
</tr>
</tbody>
</table>

#### CHEMTREC:
- CHEMTREC Customer Number:- CCN12505*
- For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident
- Call CHEMTREC Day or Night
- Within USA and Canada: 1-800-424-9300 CCN12505 or +1 703-527-3887 (collect calls accepted)
1. PRODUCT AND COMPANY IDENTIFICATION

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Hazardous Reagent
Not Available

Hazardous Reagent Product code
Not Available

Recommended Use: Reagent

Contact Manufacturer:
SeraCare Life Sciences
910 Clopper Road
Gaithersburg, MD 20878

Phone #:
(508) 244-6400
US Toll Free: (800) 676-1881

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Emergency Telephone Numbers:

AUSTRALIA – POISONS INFORMATION CENTER
Telephone: 13 11 26 - Hours: 24 hours

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2. HAZARD IDENTIFICATION

Hazard Type
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS): The product contains no substances which at their given concentration, are considered to be hazardous to health or the environment.

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Not Applicable:
The product contains no substances which at their given concentration, are considered to be hazardous to health or the environment as per; GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) Regulation (EC) No 1272/2008.
Hazard Statements: Not Applicable
Precautionary Statements: Not Applicable
Symbols and Indications of Danger: Not Applicable
Principle Route of Exposure: Not Applicable
Acute Effects: Eye: May cause redness and irritation
Acute Effects: Skin: May be absorbed. May cause dry skin / redness. May cause an allergic skin reaction.
Acute Effects: Inhalation: May cause irritation to the respiratory tract. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Acute Effects: Ingestion: May be harmful if swallowed.
Chronic Effects: Not Available
Additional Information: Not Available

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component      | CHEMICAL                              | % Weight | CAS #:
|----------------|---------------------------------------|----------|----------
| SureLINK™ FITC | Fluorescein 5-isothiocyanate          | 100%     | 3326-32-7 |
| GHS Classification: Not Applicable:

The product contains no substances which at their given concentration, are considered to be hazardous to health or the environment as per: GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) Regulation (EC) No 1272/2008

EC#: 2222-042-0

Substance Name: 2-((6-hydroxy-3-oxo-(3H)-xanthen-9-yl)-5-isothiocyanatobenzoic acid
Molecular Formula: C_{21}H_{11}NO_{5}S

This substance is not classified in the Annex I of Directive 67/548/EEC as such, but it may be included in one of the group entries.

4. FIRST AID MEASURES

General Advice: Wash contaminated clothing before reuse. Consult a physician if irritation persists.
Oral Exposure: Never give anything by mouth to an unconscious person. Rinse mouth. Refer for medical attention.
Inhalation Exposure: Remove subject to fresh air. If not breathing, give artificial respiration. Seek medical attention if necessary.
Skin Exposure: Flush skin with copious amounts of water. Consult a physician.
Eye Exposure: Flush eyes with copious amounts of water.

5. FIRE FIGHTING MEASURES

Extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray. Alcohol-resistant foam. Dry powder. Carbon dioxide.
Unusual Fire and Explosive Hazards: Not Available
Flash Point: Not Available
Auto ignition Temperature: Not Available
Flammability Statement: Not Available
Specific hazards arising from the chemical: Carbon oxides; Nitrogen Oxides; Sulphur Oxides

Protective equipment and precautions for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid contact with skin, eyes and clothing. Avoid dust formation. Avoid breaking vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Should not be released into the environment.

Method of Containment: Wear respiratory protection, eye protection, hand protection and body protection. Carefully sweep up, gather and remove. Avoid rising dust. Afterwards ventilate area and wash spill site.

Methods of Clean-up: Clean-up with copious amounts of water.

Other Information: Wear respiratory protection, eye protection, hand protection and body protection.

7. HANDLING AND STORAGE

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation in confined areas. Fine dust dispersed in air may ignite. Ensure adequate ventilation.

Storage: Desiccation required. Store at -20 °C. Protect material from long-term exposure to light; maybe exposed to light for short periods of time. Keep in properly labelled containers.

8. EXPOSURE CONTROL

Respiratory Protection: For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye Protection: Safety glasses with side-shields. Use equipment for eye protection tested and approved under appropriate government standards.

Skin Protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact Material: Nitrile rubber; Minimum layer thickness: 0.11 mm Break through time: 480 min.; Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method:EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Ingestion  
Do not eat, drink, or smoke while handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid</td>
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<tr>
<td>Physical State</td>
<td>Solid</td>
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<tr>
<td>Odor</td>
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<tr>
<td>Odor Threshold</td>
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<tr>
<td>pH</td>
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<tr>
<td>Boiling Point</td>
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<tr>
<td>Evaporation Rate</td>
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<td>Vapor Density</td>
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<td>Vapor Pressure</td>
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<tr>
<td>Relative Density</td>
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<tr>
<td>Auto-Ignition Temperature</td>
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<tr>
<td>Water Solubility</td>
<td>Dilutable</td>
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<td>Flammability</td>
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<td>Flash Point</td>
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<td>Viscosity</td>
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<td>Oxidizing Properties</td>
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<tr>
<td>Explosive Properties</td>
<td>Not Available</td>
</tr>
<tr>
<td>Additional Parameters</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under recommended storage conditions.
Conditions to avoid: Heat; Exposure to Moisture
Incompatibility Materials to Avoid: Alcohols, Strong Bases, Amines, Acids, Strong Oxidizing agents
Hazardous Decomposition Products: Not Available
Hazardous Polymerization: Will not occur
Possibility of hazardous reactions: Not under normal processing

11. TOXICOLOGY MEASURES

Acute Toxicity
The toxicological risks are minor due to the low concentration of hazardous ingredients. The following toxicological information is for the hazardous ingredient in pure form.

LD50 Oral: Not Available
LD50 Dermal: Not Available
LC50 Inhalation: Not Available
**Chronic Toxicity**

- Carcinogenicity: Not Available
- Irritation: Not Available
- Corrosivity: Not Available
- Sensitization: Not Available
- Neurological Effects: Not Available
- Mutagenic Effects: Not Available
- Reproductive Effects: Not Available
- Developmental Effects: Not Available
- Target Organ Effects: Not Available
- Other adverse effects: Not Available

**12. ECOLOGICAL MEASURES**

- Ecotoxicity: Not Available
- Persistence/Degradability: Not Available
- Mobility in Environmental Media: Not Available
- Bioaccumulation/Accumulation: Not Available

**13. DISPOSAL MEASURES**

- Waste Disposal Method: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
- Contaminated Packaging: Dispose of as unused product.
- US EPA Waste Number: Not Available

**14. TRANSPORTATION MEASURES**

- DOT: Not dangerous goods
- IATA: Not dangerous goods
- ADR (road)/ RID (rail): Not Available
- IMDG (sea): Not dangerous goods
- General Transport Regulations: Not dangerous goods

**15. REGULATORY MEASURES**

*This product is a mixture that may contain one or more hazardous chemicals. The hazardous ingredients listed are only those as required by 29 CFR 1910.1200 (OSHA HCS).*
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains no chemical or chemicals which are subject to the reporting requirements of the Act and Title 40n of the Code of Federal Regulations, Part 372.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (See 40 CFR 61)
Not Available

State Regulations

California Proposition 65:
This product contains the following Proposition 65 chemicals
None listed

State Right to Know Act

Chemical Name: Fluorescein 5-isothiocyanate
Massachusetts: Not Listed
New Jersey: Not Listed
Pennsylvania: Not Listed
New York: Not Listed
Rhode Island: Not Listed

International Inventories

Chemical Name: Fluorescein 5-isothiocyanate
TSCA: Listed
DSL: Listed
NDSL: Not Listed
EINECS: Listed
CHINA: Listed
KECL: Not Listed
JAPAN: Listed
AICS: Listed

EU Regulations
Annex I Index#: Not Applicable
Classification
EC#: 222-042-0
CAS#: 3326-32-7
Substance Name: 2-(6-hydroxy-3-oxo-(3H)-xanthen-9-yl)-5-isothiocyanatobenzoic acid
Molecular Formula: C_{21}H_{11}NO_{5}S
This substance is not classified in the Annex I of Directive 67/548/EEC as such, but it may be included in one of the group entries.

Precautionary Statements: None

Symbols and Indications of Danger: None

Specific Concentration Limits: Not Applicable

Export and Import
- This substance is not listed in the Annex I of Regulation (EC) No 649/2012.

European Priority List
- This substance is not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 on the evaluation and control of the risks of existing substances.).

16. OTHER INFORMATION

The above information is believed to be accurate, complete and current but does not purport to be all inclusive and shall be used as a guide. SeraCare Life Sciences makes no representation or warranties with respect to the product described herein, including but not limited to any implied warranties of merchantability or fitness for a particular use. SeraCare assumes no liability or responsibility and authorizes no other person to assume any additional liability or responsibility as a result of the use of this product or the information contained in the Safety Data Sheet.
1. PRODUCT AND COMPANY IDENTIFICATION

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<tr>
<td>KPL Carbonate-bicarbonate Buffer Capsules</td>
<td>5640-0007, 82-01-02</td>
</tr>
</tbody>
</table>

Hazardous Reagent

Product Description listed above

Hazardous Reagent Product code

Catalog No. listed above

Recommended Use:

Reference Reagent

Contact Manufacturer:

SeraCare Life Sciences
910 Clopper Road
Gaithersburg, MD 20878

Phone #:
(508) 244-6400
US Toll Free: (800) 676-1881

Fax #:
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Web:
www.seracare.com

Email:
customerservice@seracare.com

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Telephone: (44) 029 2041 6388 - Hours: 09:00-17:00 GMT

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Within USA and Canada: 1-800-424-9300 CCN12505 or
+1 703-527-3887 (collect calls accepted)

2. HAZARD IDENTIFICATION

Hazard Type

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS): The product contains substances which at their given concentration, are considered to be hazardous to health or the environment.

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

GHS Classification

Eye irritation (Category 2A), H319
Hazard Statements: H319: Causes serious eye irritation.
Precautionary Statements: P264: Wash skin thoroughly after handling.
P280: Wear eye protection/ face protection.
P280: Wear protective gloves
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313: If eye irritation persists: Get medical advice/ attention.

Symbols and Indications of Danger: GHS07 Warning

Principle Route of Exposure: Not Applicable
Acute Effects: Eye May cause redness and irritation
Acute Effects: Skin: May be absorbed. Dry skin; Redness
Acute Effects: Inhalation: May cause irritation to the respiratory tract.
Acute Effects: Ingestion: May be harmful if swallowed.
Chronic Effects: Not Available
Additional Information: Not Available

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component                        | CHEMICAL          | % Weight | CAS #:
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>KPL Carbonate-bicarbonate Buffer Capsules</td>
<td>Proprietary Component</td>
<td>30 – 36%</td>
<td>Proprietary (Trade Secret Per 29 CFR 1910.1200i 1)</td>
</tr>
</tbody>
</table>
| GHS Classification: Eye Irritation. 2A; | H319: Causes serious eye irritation.

4. FIRST AID MEASURES

General Advice Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact Wash off with soap and plenty of water. Consult a physician.
In case of eye contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling.

Indication of any immediate medical attention and special treatment needed

No data available

5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Carbon oxides; sodium oxides

Advice for firefighters

Wear self-contained breathing apparatus for fire-fighting if necessary.

Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Should not be released into the environment.

Method of Containment:

Wear respiratory protection, eye protection, hand protection and body protection. Carefully sweep up, gather and remove. Avoid rising dust. Afterwards ventilate area and wash spill site.

Methods of Clean-up:

Clean-up with copious amounts of water.

Other Information:

Wear respiratory protection, eye protection, hand protection and body protection

7. HANDLING AND STORAGE

Handling:

Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation in confined areas. Fine dust dispersed in air may ignite. Take precautionary measures against static discharges. Remove all sources of ignition. Ensure adequate ventilation.

Storage:

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat. Keep in properly labelled containers.

8. EXPOSURE CONTROL

Control parameters

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Personal protective equipment

Eye / face: safety glasses with side shields

Skin protection: handle gloves

Body protection: Impervious clothing. The type of protective equipment must be selected according to concentration and amount of the dangerous substance at the work place.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Solid

Physical State:

Form: Solid
10. STABILITY AND REACTIVITY

Chemical Stability: Stable under recommended storage conditions.
Incompatibility Materials to Avoid: Strong Acids
Hazardous Decomposition Products: Not Available
Hazardous Polymerization: Not Available

11. TOXICOLOGY MEASURES

Acute Toxicity
The toxicological risks are minor due to the low concentration of hazardous ingredients. The following toxicological information is for the hazardous ingredient in pure form.

LD50 Oral: Not Available
LD50 Dermal: Not Available
LC50 Inhalation: Not Available

Chronic Toxicity
Carcinogenicity: Not Available
Irritation: Not Available
Corrosivity: Not Available
Sensitization: Not Available
Neurological Effects: Not Available
12. ECOLOGICAL MEASURES

Ecotoxicity: Not Available
Persistence/Degradability: Not Available
Mobility in Environmental Media: Not Available
Bioaccumulation/ Accumulation: Not Available

13. DISPOSAL MEASURES

Waste Disposal Method: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated Packaging: Dispose of as unused product.
US EPA Waste Number: Not Available

14. TRANSPORTATION MEASURES

DOT: Not dangerous goods
IATA: Not dangerous goods
ADR (road)/ RID (rail): Not Available
IMDG (sea): Not dangerous goods
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15. REGULATORY MEASURES

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Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (See 40 CFR 61)
Not Available
State Regulations

California Proposition 65:
This product contains the following Proposition 65 chemicals
Not Listed

State Right to Know Act
Chemical Name: ProprietaryComponent (Trade Secret per 29 CFR1910.1200 i 1)
Massachusetts: Not Listed
New Jersey: Listed
Pennsylvania: Listed
New York: Not Available
Rhode Island: Not Available

International Inventories
Chemical Name: ProprietaryComponent (Trade Secret per 29 CFR1910.1200 i 1)
TSCA: Not Available
DSL: Not Available
NDSL: Not Available
EINECS: Not Available
CHINA: Not Available
KECL: Not Available
JAPAN: Not Available
AICS: Not Available

EU Regulations
Annex I Index#: Not Available
Classification / Hazard Statements:
H319: Causes serious eye irritation
Precautionary Statements:
P264: Wash skin thoroughly after handling.
P280: Wear eye protection/ face protection. Wear protective gloves
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313: If eye irritation persists: Get medical advice/ attention.
Symbols and Indications of Danger: GHS07: Warning

Specific Concentration Limits: Not Available
Export and Import: Not Available
European Priority List: Not Available

16. OTHER INFORMATION

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<tbody>
<tr>
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<td>5640-0008 (82-01-03)</td>
</tr>
</tbody>
</table>

Hazardous Reagent
Product Description listed above
Catalog No. listed above

Recommended Use: Reference Reagent

Contact Manufacturer:
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Within USA and Canada: 1-800-424-9300 CCN12505 or
+1 703-527-3887 (collect calls accepted)
2. HAZARD IDENTIFICATION

Hazard Type
Health Hazard

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

GHS Classification
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Eye irritation (Category 2A), H319
Reproductive toxicity (Category 1B), H360

Hazard Statements:
H226 Flammable liquid and vapour.
H312 + H332 Harmful in contact with skin or if inhaled
H319 Causes serious eye irritation.
H360 May damage fertility or the unborn child.

Precautionary Statements:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P35 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P50 Dispose of contents/ container to an approved waste disposal plant.
Hazards not otherwise classified or not covered by GHS: Rapidly absorbed through skin.

Symbols and Indications of Danger:
- GHS02
- GHS07
- GHS08
- Danger

Principle Route of Exposure: The substance can be absorbed into the body by inhalation and through the skin.

Acute Effects: Eye
May cause redness and irritation

Acute Effects: Skin:
May be absorbed

Acute Effects: Inhalation:
Abdominal pain; Diarrhea; Nausea. Vomiting; Facial flushing.

Inhalation Risk:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

Short-Term Exposure
The substance is irritating to the eyes. The substance may cause effects on the liver, resulting in jaundice.

Long-Term Exposure
The substance may have effects on the liver, resulting in impaired functions. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

Ingestion:
Do not eat, drink, smoke when using this product.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CHEMICAL</th>
<th>% Weight</th>
<th>CAS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1, N1, - Dimethylformamide (DMF)</td>
<td>C3H7NO</td>
<td>100%</td>
<td>68-12-2</td>
</tr>
</tbody>
</table>

Classification
- EC-No: 200-679-5
- Index-No.: 616-001-00-X
- Flam. Liq. 3;
- Acute Tox. 4;
- Eye Irrit. 2A;
- Repr. 1B;
- H226, H312 + H332, H319, H360

4. FIRST AID MEASURES

General Advice: Wash contaminated clothing before reuse. Seek medical attention if necessary.

Ingestion First Aid: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Inhalation Exposure: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Skin Exposure: Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
Eye Exposure: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

5. FIRE FIGHTING MEASURES

Extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unusual Fire and Explosive Hazards: Not Available

Flash Point: Closed cup: 58°C

Auto ignition Temperature: Not Available

Flammability Statement: Not Available

Specific hazards arising from the chemical: Not available

Protective equipment and precautions for firefighters: Wear self-contained breathing apparatus for firefighting if necessary: keep drums, etc., cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Method of Containment and Clean-up Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13)

7. HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

Storage: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Handle and store under inert gas. Storage class (TRGS 510): Flammable liquids

8. EXPOSURE CONTROL

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye Protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin Protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

- Full contact
- Material: butyl-rubber
- Minimum layer thickness: 0.3 mm
- Break through time: 480 min
- Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

- Material: Nature latex/chloroprene
- Minimum layer thickness: 0.6 mm
- Break through time: 65 min
- Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Ingestion: Do not eat, drink, or smoke during handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Form liquid: , clear;
Color: Colorless

Physical State: Liquid

Odor: Amine-like

Odor Threshold: Not Available

pH: 6.0 – 7.0

Boiling Point: 153°C

Melting Point: - 61°C

Evaporation Rate: Not Available

Vapor Density: 2.52 (air = 1)

Vapor Pressure: 3.60 hPa (2.70 mmHg) at 20°C (68°F)
5.16 hPa (3.87 mmHg) at 25°C (77°F)

Relative Density: 0.944 g/mL

Auto-Ignition Temperature: Not available

Water Solubility: Completely miscible

Flash Point: 58°C – closed cup

Viscosity: Not Available

Oxidizing Properties: Not Available

Explosive Properties: Not Available
10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under recommended storage conditions.
Conditions to avoid: Avoid excess heat, sources of ignition and direct sunlight.
Incompatibility Materials to Avoid: Strong Oxidizing agents
Hazardous Decomposition Products: Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Hazardous Polymerization: Not Available
 Possibility of hazardous reactions: Not Available

11. TOXICOLOGY MEASURES

Acute Toxicity
The toxicological risks are minor due to the low concentration of hazardous ingredients. The following toxicological information is for the hazardous ingredient in pure form.
LD50 Oral: Rat - 2,800 mg/kg
LD50 Dermal: Rabbit - 1,500 mg/kg
LC50 Inhalation: 4 h - 9 - 15 mg/L

Chronic Toxicity
Carcinogenicity: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
Irritation: An eye and skin irritant
Corrosivity: No Data Available
Sensitization: No Data Available
Neurological Effects: No Data Available
Mutagenic Effects: No Data Available
Reproductive Effects: May cause congenital malformation in the fetus
Developmental Effects: No Data Available
Target Organ Effects: Eyes, Skin, and Respiratory Tract, Liver and Kidneys
Other adverse effects: RTECS: LQ2100000
Warning: intolerance for alcohol can occur up to 4 days after N,N-dimethylformamide exposure. N,N-dimethylformamide is considered to be a potent liver toxin., Vomiting, Diarrhea, Abdominal pain. The chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL MEASURES

Ecotoxicity: Toxicity to Fish
LC50 - Oncorhynchus mykiss (rainbow trout) - 9,000 - 13,000 mg/l - 96 h
LC50 - Lepomis macrochirus (Bluegill) - 6,700 - 7,500 mg/l - 96 h
LC50 - Pimephales promelas (fathead minnow) - 10,400 - 10,800 mg/l - 96 h
LC50 - Oncorhynchus mykiss (rainbow trout) - 9,800 mg/l - 96 h
LC50 - Lepomis macrochirus (Bluegill) - 6,300 mg/l - 96 h
LC50 - Pimephales promelas (fathead minnow) - 10,600 mg/l - 96 h

Ecotoxicity: Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 9,600 - 13,100 mg/l - 48 h
EC50 - Daphnia magna (Water flea) - 15,700 mg/l - 48 h

Ecotoxicity: Algae
LC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 96 h

Persistence/Degradability: > 90% Readily biodegradable
Mobility in Environmental Media: Not Data Available
Bioaccumulation/Accumulation: No Data Available

13. DISPOSAL MEASURES

Waste Disposal Method: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated Packaging: Dispose of in compliance with the respective national and local regulations.

US EPA Waste Number: Not Available

14. TRANSPORTATION MEASURES

DOT:
UN number: 2265, Class: 3
Packing group: III
Proper shipping name: N,N-Dimethylformamide
Reportable Quantity (RQ): 100 lbs

IATA:
UN number: 2265, Class: 3
Packing group: III
Proper shipping name: N,N-Dimethylformamide

ADR (road)/ RID (rail): Not Available

IMDG (sea):
UN number: 2265, Class: 3
Packing group: III
Proper shipping name: N,N-Dimethylformamide

General Transport Regulations
Data for 100% Dimethylformamide: UN-Number: 2265
Shipping name: N,N-Dimethylformamide
Hazard Identification Number: 30
Class: 3 (Flammable Liquids) Packing Group: III (low danger)
Danger Label: 3

15. REGULATORY MEASURES

This product is a mixture that may contain one or more hazardous chemicals. The hazardous ingredients listed are only those as required by 29 CFR 1910.1200 (OSHA HCS).

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains no chemical or chemicals which are subject to the reporting requirements of the Act and Title 40n of the Code of Federal Regulations, Part 372.
Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (See 40 CFR 61)
This product contains N,N-DIMETHYLFORMAMIDE which are subject to the reporting requirements of the Clean Air Act

State Regulations

California Proposition 65:
This product contains the following Proposition 65 chemicals: N,N-Dimethylformamide. Type of Toxicity: Cancer. CAS no. 68-12-2. Listed: 27 Oct 2017

State Right to Know Act
Chemical Name N,N,-Dimethylformamide

Massachusetts: Listed
New Jersey: Listed
Pennsylvania: Listed
New York: Listed
Rhode Island: Listed

International Inventories
Chemical Name N,N,-Dimethylformamide
TSCAL: Listed
DSL: Listed
NDSL: Not Listed
EINECS: Listed
CHINA: Listed
KECL: Listed
JAPAN: Listed
AICS: Listed

EU Regulations
Annex I Index#: 616-001-00-X
Classification: Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Eye irritation (Category 2A), H319
Reproductive toxicity (Category 1B), H360

REACH (EU) 1907/2006
This Product contains N,N-Dimethylformamide (conc. > 1%); CAS # 68-12-2, included in the Candidate List of Substances of Very High Concern (SVHC)
Flam. Liq. 3; Acute Tox. 4; Eye Irrit. 2A; Repr. 1B; H226, H312 + H332, H319, H360
90 - 100 %

H312 Harmful in contact with skin.
H312 + H332 Harmful in contact with skin or if inhaled
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H360 May damage fertility or the unborn child.

Hazard Statements:
H226 Flammable liquid and vapor.
H312 + H332 Harmful in contact with skin or if inhaled
H319 Causes serious eye irritation.
H360 May damage fertility or the unborn child

Precautionary Statements:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P35 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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Hazards not otherwise classified or not covered by GHS: Rapidly absorbed through skin.

**Symbols and Indications of Danger:**

- GHS02
- GHS07
- GHS08
- Danger

**Specific Concentration Limits:**

Not Applicable

## 16. OTHER INFORMATION

The above information is believed to be accurate, complete and current but does not purport to be all inclusive and shall be used as a guide. SeraCare Life Sciences makes no representation or warranties with respect to the product described herein, including but not limited to any implied warranties or merchantability or fitness for a particular use. SeraCare assumes no liability or responsibility and authorizes no other person to assume any additional liability or responsibility as a result of the use of this product or the information contained in the Safety Data Sheet.