1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name
TIANQIU Li-Mn Button Cell CR2025

Other means of identification

Synonyms
None

Recommended use of the chemical and restrictions on use

Recommended Use
Lithium Primary/Metal Batteries

Uses advised against
No information available

Details of the supplier of the safety data sheet

Supplier Name
GUANGZHOU TIANQIU ENTERPRISE CO., LTD.

Supplier Address
9/F TianQiu Building No.16-30, He Yi Rd., San Yuan Li Ave., GuangZhou China
GUANGZHOU
GUANDONG
510410
CN

Supplier Phone Number
Phone:8620-13825131170
Fax:8620-36323339
Contact Phone8615989631997

Supplier Email
idsale6@gztianqiu.com

Emergency telephone number

Company Emergency Phone Number
8620-13825131170

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

Acute toxicity - Oral
Category 4
Acute toxicity - Inhalation (Dusts/Mists)  Category 4
Skin corrosion/irritation  Category 2
Serious eye damage/eye irritation  Category 2A
Reproductive Toxicity  Category 1B

GHS Label elements, including precautionary statements

Emergency Overview

Signal word: Danger

Hazard Statements
Harmful if swallowed
Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
May damage fertility or the unborn child

This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture: the above hazards exist.

Appearance: Silver
Physical state: Solid
Odor: Odorless

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see supplemental first aid instructions on this label)

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not applicable

Unknown Toxicity
0.42 % of the mixture consists of ingredient(s) of unknown toxicity

Other information
Harmful to aquatic life with long lasting effects

Interactions with Other Chemicals
Use of alcoholic beverages may enhance toxic effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>7439-89-6</td>
<td>30 - 60</td>
<td>*</td>
</tr>
<tr>
<td>Manganese dioxide</td>
<td>1313-13-9</td>
<td>10 - 30</td>
<td>*</td>
</tr>
<tr>
<td>Propylene carbonate</td>
<td>108-32-7</td>
<td>1 - 5</td>
<td>*</td>
</tr>
<tr>
<td>Lithium</td>
<td>7439-93-2</td>
<td>1 - 5</td>
<td>*</td>
</tr>
<tr>
<td>Ethylene glycol dimethyl ether</td>
<td>110-71-4</td>
<td>1 - 5</td>
<td>*</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES

First aid measures

General Advice
First aid is upon rupture of sealed battery.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

Skin contact
Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen.

Ingestion
Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Self-protection of the first aider
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects
Burning sensation. Coughing and/or wheezing. Difficulty in breathing.

Indication of any immediate medical attention and special treatment needed

Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
No information available.

Physical/Chemical Reaction Properties
No data available.

Explosion Data
Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

Other Information
Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions
Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Pick up and transfer to properly labeled containers.
7. HANDLING AND STORAGE

Precautions for safe handling

Handling
In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Use personal protection equipment.

Conditions for safe storage, including any incompatibilities

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up.

Incompatible Products

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese dioxide</td>
<td>TWA: 0.02 mg/m³ Mn respirable fraction</td>
<td>(vacated) Ceiling: 5 mg/m³ Mn</td>
<td>IDLH: 500 mg/m³ Mn</td>
</tr>
<tr>
<td>1313-13-9</td>
<td>TWA: 0.1 mg/m³ Mn inhalable fraction</td>
<td>Ceiling: 5 mg/m³ Mn</td>
<td>TWA: 1 mg/m³ Mn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 3 mg/m³ Mn</td>
<td></td>
</tr>
</tbody>
</table>

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering Measures
Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin and body protection
Wear protective gloves and protective clothing. Long sleeved clothing. Impervious gloves.

Respiratory protection
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state
Solid
### Appearance
Silver

### Odor
Odorless

### Odor Threshold
No data available

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>No data available</td>
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</tr>
<tr>
<td>Melting / freezing point</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
<td>None</td>
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<tr>
<td>Specific Gravity</td>
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<td>None</td>
<td>known</td>
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<tr>
<td>Water Solubility</td>
<td>Negligible</td>
<td>None</td>
<td>known</td>
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<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Decomposition temperature</td>
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<td>known</td>
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<tr>
<td>Kinematic viscosity</td>
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<td>known</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
<td>None</td>
<td>known</td>
</tr>
</tbody>
</table>

### Softening Point
No data available

### VOC Content (%)
No data available

### Particle Size
No data available

### Particle Size Distribution
No data available

### 10. STABILITY AND REACTIVITY

#### Reactivity
No data available.

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**
None under normal processing.

**Conditions to avoid**
Excessive heat.

**Incompatible materials**

**Hazardous Decomposition Products**
None known based on information supplied.

### 11. TOXICOLOGICAL INFORMATION
Information on likely routes of exposure

**Product Information**

Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:

**Inhalation**

Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation. (based on components).

**Eye contact**

Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components).

**Skin contact**

Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components). Prolonged contact may cause redness and irritation.

**Ingestion**

Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. (based on components).

**Component Information**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron 7439-89-6</td>
<td>= 984 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Manganese dioxide 1313-13-9</td>
<td>= 9000 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Propylene carbonate 108-32-7</td>
<td>= 29000 mg/kg (Rat)</td>
<td>&gt; 20 mL/kg (Rabbit)</td>
<td>-</td>
</tr>
<tr>
<td>Ethylene glycol dimethyl ether 110-71-4</td>
<td>= 775 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Information on toxicological effects**

**Symptoms**

Erythema (skin redness). May cause redness and tearing of the eyes. Coughing and/or wheezing.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Sensitization**

No information available.

**Mutagenic Effects**

No information available.

**Carcinogenicity**

Contains no ingredient listed as a carcinogen.

**Reproductive toxicity**

Contains a known or suspected reproductive toxin.

**STOT - single exposure**

No information available.

**STOT - repeated exposure**

No information available.

**Chronic Toxicity**

Contains a known or suspected reproductive toxin. Possible risk of irreversible effects. May cause adverse effects on the bone marrow and blood-forming system.

**Target Organ Effects**

Aspiration Hazard
No information available.

Numerical measures of toxicity  Product Information
The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)
834.00 mg/kg
ATEmix (inhalation-gas)
14,400.00 ppm
ATEmix (inhalation-dust/mist)
4.80 mg/l
ATEmix (inhalation-vapor)
35.00 ATEmix

12. ECOLOGICAL INFORMATION

Ecotoxicity
Very toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Toxicity to Algae</th>
<th>Toxicity to Fish</th>
<th>Toxicity to Microorganisms</th>
<th>Daphnia Magna (Water Flea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron 7439-89-6</td>
<td>96h LC50: = 13.6 mg/L (Morone saxatilis)</td>
<td>96h LC50: &gt; 1000 mg/L (Cyprinus carpio) 96h LC50: = 5300 mg/L (Leuciscus idus)</td>
<td>EC50 &gt; 10000 mg/L 17 h</td>
<td>48h EC50: &gt; 500 mg/L</td>
</tr>
<tr>
<td>Propylene carbonate 108-32-7</td>
<td>72h EC50: &gt; 500 mg/L (Desmodesmus subspicatus)</td>
<td>96h LC50: &gt; 1000 mg/L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistance and Degradability
No information available.

Bioaccumulation

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese dioxide 1313-13-9</td>
<td>&lt;0</td>
</tr>
<tr>
<td>Propylene carbonate 108-32-7</td>
<td>0.48</td>
</tr>
</tbody>
</table>

Other adverse effects
No information available.
13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging

Dispose of contents/containers in accordance with local regulations.

California Hazardous Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Hazardous Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium</td>
<td>Corrosive</td>
</tr>
<tr>
<td>7439-93-2</td>
<td>Ignitable</td>
</tr>
<tr>
<td></td>
<td>Reactive</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

Note:

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)

Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

<table>
<thead>
<tr>
<th>DOT</th>
<th>Proper Shipping Name</th>
<th>NOT REGULATED</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hazard Class</td>
<td>NON-REGULATED</td>
</tr>
<tr>
<td></td>
<td>Emergency Response</td>
<td>N/A</td>
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<tr>
<td></td>
<td>Guide Number</td>
<td>138</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>TDG</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>MEX</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>ICAO</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>IATA</th>
<th>Proper Shipping Name</th>
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</thead>
<tbody>
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<td></td>
<td>Hazard Class</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>IMDG/IMO</th>
<th>Not regulated</th>
</tr>
</thead>
</table>

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15. REGULATORY INFORMATION

International Inventories

TSCA
Complies

DSL
All components are listed either on the DSL or NDSL.

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese dioxide - 1313-13-9</td>
<td>1313-13-9</td>
<td>10 - 30</td>
<td>1.0</td>
</tr>
<tr>
<td>Ethylene glycol dimethyl ether - 110-71-4</td>
<td>110-71-4</td>
<td>1 - 5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
Acute Health Hazard
Chronic Health Hazard
Fire Hazard
Sudden release of pressure hazard
Reactive Hazard

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
<th>Rhode Island</th>
<th>Illinois</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese dioxide 1313-13-9</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lithium</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**International Regulations**

**Mexico**

**National occupational exposure limits**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Carcinogen Status</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese dioxide</td>
<td></td>
<td>Mexico: TWA= 0.2 mg/m³</td>
</tr>
</tbody>
</table>

*Mexico - Occupational Exposure Limits - Carcinogens*

**Canada**

**WHMIS Hazard Class**

Non-controlled

---

**16. OTHER INFORMATION**

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Hazards</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td>X</td>
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</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>

**Prepared By**

Product Stewardship  
23 British American Blvd.  
Latham, NY 12110  
1-800-572-6501

**Issuing Date**  
16-Aug-2016

**Revision Date**  
16-Aug-2016

**Revision Note**  
No information available

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet