SECTION 1: PRODUCT IDENTIFICATION

PRODUCT NAME: ALPHA LIPOIC ACID, USP
PRODUCT CODE: 2535
SUPPLIER:
MEDISCA Inc.
Tel.: 1.800.932.1039 | Fax.: 1.855.850.5855
661 Route 3, Unit C, Plattsburgh, NY, 12901
3955 W. Mesa Vista Ave., Unit A-10, Las Vegas, NV, 89118
6641 N. Belt Line Road, Suite 130, Irving, TX, 75063
MEDISCA Pharmaceutique Inc.
Tel.: 1.800.665.6334 | Fax.: 514.338.1693
4509 Rue Dobrin, St. Laurent, QC, H4R 2L8
21300 Gordon Way, Unit 153/158, Richmond, BC V6W 1M2
MEDISCA Australia PTY LTD
Tel.: 1.300.786.392 | Fax.: 61.2.9700.9047
Unit 7, Heritage Business Park
5-9 Ricketty Street, Mascot, NSW 2020
MEDISCA UK Limited
Tel.: 0800.029.4641
33 St. James’s Square, London, United Kingdom SW1Y 4JS

EMERGENCY PHONE:
CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300
NSW Poisons Information Centre: 131 126
National Chemical Emergency Centre 44(0)1235239670

USSES:
Antioxidant

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION: Acute Toxicity - Oral (Category 4)

PICTOGRAM:

SIGNAL WORD: Warning

HAZARD STATEMENT(S):
Harmful if swallowed.
Repeated exposure may cause skin dryness or cracking.

PRECAUTIONARY STATEMENT(S):
Prevention: Wash thoroughly after handling
Do not eat, drink or smoke when using this product.
Response: IF SWALLOWED: Immediately call a poison center or medical professional; Rinse mouth.
Storage: Not applicable
Disposal: Dispose of contents and/or container in accordance with local regulations.

HMIS CLASSIFICATION:
Health Hazard: 1
Flammability: 0
SAFETY DATA SHEET

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| CHEMICAL NAME | 1, 2-Dithiolane-3-pentanoic acid; 1,2-dithiolane-3-valeric acid |
| BOTANICAL NAME | Not applicable |
| SYNONYM | Thiocic acid; DL-alpha-Lipoic acid |
| CHEMICAL FORMULA | CaH14O2S2 |
| CAS NUMBER | 1077-28-7 |
| ALTERNATE CAS NUMBER | Not applicable |
| MOLECULAR WEIGHT | 206.329 |
| COMPOSITION | There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as health hazards and hence require reporting in this section. Chemical family: Dithiol. |

SECTION 4: FIRST-AID MEASURES

- **IN CASE OF EYE CONTACT**: Flush with copious amounts of water for 15 minutes, separating eyelids with fingers. If irritation persists seek medical aid.
- **IN CASE OF SKIN CONTACT**: Wash with soap & water for 15 minutes. If irritation persists seek medical aid.
- **IF SWALLOWED**: Call a physician. Wash out mouth with water. Do not induce vomiting without medical advice.
- **IF INHALED**: Not expected to present a significant hazard under anticipated conditions of normal use.
- **SYMPTOMS AND EFFECTS**: Not expected to present a significant hazard under anticipated conditions of normal use.

SECTION 5: FIREFIGHTING MEASURES

- **SPECIFIC HAZARDS ARISING FROM THE CHEMICAL** | Not applicable |
- **FLAMMABLE PROPERTIES** | May be combustible at high temperature |
- **HAZARDOUS COMBUSTION PRODUCTS** | Under fire conditions, hazardous fumes will be present. |
- **SUITEABLE & UNSUITABLE EXTINGUISHING MEDIA** | Small fire: dry chemical, CO2 or water spray. Large fire: dry chemical, CO2, alcohol resistant foam or water spray. Do not get water inside containers. |
- **PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS** | Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. |

SECTION 6: ACCIDENTAL RELEASE MEASURES

- **PERSONAL PRECAUTIONS** | Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. |
On land, sweep or shovel into suitable containers. Minimize generation of dust.

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Shut off all sources of ignition. Evacuate the area. If necessary, employ water fog to disperse the vapors. Absorb the matter with compatible vermiculite or other absorbing material. Place in a suitable container and retain for disposal. Ventilate and clean the affected area. Do not flush into sewerage system or to drains.

See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

Do not inhale. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Wash thoroughly after handling. Store away from incompatible materials, in a well-ventilated area. Eliminate all sources of ignition. Store in accordance with local regulations. Do not store in unlabeled containers. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Use appropriate containment to avoid environmental contamination.

Store in original container, tightly sealed, protected from direct sunlight and moisture. Preserve in well-closed containers. Protect from light.

Consult local authorities for provincial or state exposure limits. Particulates not otherwise regulated, respirable fraction: 5 mg/m³

Consult local authorities for provincial or state exposure limits. Particulates not otherwise regulated, respirable fraction: 5 mg/m³

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by WHMIS or OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Skin: Wear appropriate gloves to prevent skin exposure. Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow WHMIS or OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Thermal Hazards: For products representing a thermal hazard, appropriate Personal Protective Equipment should be used.

Adequate mechanical ventilation. Fumehood, eye wash station, and safety shower.
### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State</strong></td>
<td>Solid</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Slightly yellow crystalline powder. Is almost odorless.</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>Very slightly soluble in water, very soluble in dimethyl formamide, freely soluble in methanol.</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Almost odorless</td>
</tr>
<tr>
<td><strong>Flammability</strong></td>
<td>May be combustible at high temperature</td>
</tr>
<tr>
<td><strong>Auto-Ignition Temperature</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Boiling Point</strong></td>
<td>(160-165)°C, (320-329)°F</td>
</tr>
<tr>
<td><strong>Decomposition Temperature</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Explosive Limit</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Log P (OCTANOL-WATER)</strong></td>
<td>3.4</td>
</tr>
<tr>
<td><strong>Lower Flammable/Explosive Limit(S)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Melting/Freezing Point</strong></td>
<td>(60-62)°C, (140-143.6)°F</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Oxidizing Property</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Relative Density (Water = 1)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Specific Gravity</strong></td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Upper Flammable/Explosive Limit(S)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapor Density (Air = 1)</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>0.1265 kPa (25°C)</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Not available</td>
</tr>
</tbody>
</table>

The physical data presented above are typical values and should not be construed as a specification.

### SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reactivity</strong></td>
<td>Not established</td>
</tr>
<tr>
<td><strong>Chemical Stability</strong></td>
<td>Stable under recommended storage conditions</td>
</tr>
<tr>
<td><strong>Incompatible Materials</strong></td>
<td>Strong oxidizing agents</td>
</tr>
<tr>
<td><strong>Hazardous Decomposition Products</strong></td>
<td>Toxic fumes of carbon monoxide, carbon dioxide, sulfur oxides and other gases may occur</td>
</tr>
<tr>
<td><strong>Hazardous Polymerization</strong></td>
<td>Will not occur</td>
</tr>
<tr>
<td><strong>Possibility of Hazardous Reaction</strong></td>
<td>Not established</td>
</tr>
<tr>
<td><strong>Conditions to Avoid</strong></td>
<td>Moisture, sunlight and extreme temperatures</td>
</tr>
</tbody>
</table>

### SECTION 11: TOXICOLOGICAL INFORMATION
SAFETY DATA SHEET

ACUTE TOXICITY
Oral: Rat: LD50: (mg/kg): 1130
Dermal: Rabbit LD50: (mg/kg): Not available
Inhalation: Rat: LC50: (mg/L/4hr): Not available

SKIN CORROSION/IRRITATION
Due to lack of data the classification is not possible.

SERIOUS EYE DAMAGE/EYE IRRITATION
Due to lack of data the classification is not possible.

RESPIRATORY SENSITIZATION
Due to lack of data the classification is not possible.

SKIN SENSITIZATION
Due to lack of data the classification is not possible.

GERM CELL MUTAGENICITY
Due to lack of data the classification is not possible.

CARCINOGENICITY
OSHA
ALPHA LIPOIC ACID is not listed.

NTP
ALPHA LIPOIC ACID is not listed.

IARC
ALPHA LIPOIC ACID is not listed.

California
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

ADDITIONAL CARCINOGENICITY INFORMATION
Based on available data, the classification criteria are not met.
Result: Not carcinogenic. Species: Rat; Test Duration: 2 years

REPRODUCTIVE TOXICITY
Based on available data, the classification criteria are not met.
This material has not caused birth defects in animal studies.

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE
Based on available data, the classification criteria are not met.

SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE
Based on available data, the classification criteria are not met.

ASPIRATION HAZARDS
Not expected to present a significant hazard under anticipated conditions of normal use.

SIGNS AND SYMPTOMS OF EXPOSURE
Symptoms related to the physical, chemical, and toxicological characteristics

Delayed and immediate effects of exposure
Anemia. Thrombocytopenia. Decrease in blood sugar levels.

Medical conditions aggravated by exposure
Hypoglycemia.

POTENTIAL HEALTH EFFECTS
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: May be harmful if absorbed through skin. May cause skin irritation
Eyes: May cause eye irritation.

SECTION 12: ECOLOGICAL INFORMATION

TOXICITY
EC50: 48 Hr: Crustacea: (mg/L): Not available
LC50: 96 Hr: Fish: (mg/L): Not available
EC50: 72 or 96 Hr: Algae (or other aqua plants): (mg/L): Not available

PERSISTENCE AND DEGRADABILITY
Not available

BIOACCUMULATIVE POTENTIAL
LogPow: 3.4

MOBILITY IN SOIL
Water Solubility: 127mg/L (25°C)
Henry's Law Constant: 1.64E-08 atm-m³/mole (25°C)
OTHER ADVERSE EFFECTS

This product is not intended to be released into the environment

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Dispose of in accordance with federal / local laws and regulations. Avoid release into the environment.

SECTION 14: TRANSPORT INFORMATION

UN PROPER SHIPPING NAME

Not dangerous good

UN NUMBER

Not applicable

CLASS

Not applicable

PACKING GROUP

Not applicable

AUSTRALIA

HAZCHEM

Not Applicable

EU

TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE

Not listed

ENVIRONMENTAL HAZARDS

Not available

SPECIAL SHIPPING INFORMATION

Not applicable

SECTION 15: REGULATORY INFORMATION

UNITED STATES REGULATIONS

<table>
<thead>
<tr>
<th>Chemical Name &amp; CAS</th>
<th>CERCLA 40 CFR Part 302.4</th>
<th>SARA (Title III) 40 CFR Part 372.85</th>
<th>EPA 40 CFR Part 355 Appendix A</th>
<th>Appendix B</th>
<th>Pennsylvania</th>
<th>Right-to-know</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>California Prop 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPHA LIPOIC ACID 1077-28-7</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
</tr>
</tbody>
</table>

N/L = Not Listed; X = Listed

AUSTRALIAN REGULATIONS

<table>
<thead>
<tr>
<th>Chemical Name &amp; CAS</th>
<th>Poisons and Therapeutic Goods Regulation</th>
<th>Therapeutic Goods Act</th>
<th>Code of Practices - Illicit Drug Precursors</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPHA LIPOIC ACID 1077-28-7</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
</tr>
</tbody>
</table>

N/L = Not Listed

EU REGULATIONS
### SAFETY DATA SHEET

#### Chemical Name & CAS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPHA LIPOIC ACID 1077-28-7</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
<td>N/L</td>
</tr>
</tbody>
</table>

N/L = Not Listed; X = Listed

Any EU regulation not listed above is not applicable to this product.

### SECTION 16: OTHER INFORMATION

#### REFERENCES

Available upon request

#### ABBREVIATIONS AND ACRONYMS

- **ACGIH** - American Conference of Governmental Industrial Hygienists
- **AIHA WEEL** - American Industrial Hygiene Association Workplace Environment Exposure Levels
- **CAESAR** - Computer Assisted Evaluation of industrial chemical Substances According to Regulations
- **CAS** - Chemical Abstract Service
- **CERCLA** - Comprehensive Environmental Response, Compensation, and Liability Act
- **EC50** - Effective Concentration, 50%
- **EPA** - Environmental Protection Agency
- **GHS** - Global Harmonized System
- **HMIS** - Hazardous Materials Information System
- **HSE** - Health and Safety Executive
- **HSIS** - Hazardous Substances Information System
- **IARC** - International Agency for Research on Cancer
- **IDLH** - Immediately Dangerous to Life or Health
- **IRFMN** - Ready Biodegradability Model
- **ISS** - Instituto Superiore Sanità
- **LC50** - Lethal Concentration, 50%
- **LD50** - Lethal Dose, 50%
- **MSHA** - Mine Safety and Health Administration
- **NIOSH** - National Institute for Occupational Safety and Health
- **NTP** - National Toxicology Program
- **OSHA PEL** - Occupational Safety & Health Administration Permissible Exposure Limits
- **QSAR** - Quantitative Structure-activity relationship
- **REL** - Recommended Exposure Limit
- **SARA** - Superfund Amendments and Reauthorization Act
- **STEL** - Short Term Exposure Limit
- **TLV** - Threshold Limit Value
- **TWA** - Time Weighted Average
- **WHMIS** - Workplace Hazardous Materials Information System

#### LAST REVISION

07/2019

#### SUPERSEDES

03/2016

For a list of changes to the SDS since the last version, please communicate with MEDISCA at www.medisca.com

#### DISCLAIMER

This document was created in accordance with OSHA, Safe Work Australia and WHMIS regulations. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. MEDISCA® shall not be held liable for any damage resulting from handling or from contact with the above product. Recipients of the product must take responsibility for observing existing laws and regulations.

#### SUPPLEMENTARY INFORMATION

For all country specific requirements not outlined on this Safety Data Sheet, please request Supplementary Page to this Safety Data Sheet.