1. PRODUCT AND COMPANY IDENTIFICATION

Product Name             L(+)-Arabinose
Cat No.                  AC104980000; AC104980250; AC104981000
Synonyms                No information available.
Recommended Use         Laboratory chemicals

Company                  Acros Organics
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name   One Reagent Lane
Acros Organics
Fair Lawn, NJ 07410

Emergency Telephone Number
For information in the US, call: 800-ACROS-01
For information in Europe, call: +32 14 57 52 11
Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300
CHEMTREC Phone Number, Europe: 703-527-3887

2. HAZARDS IDENTIFICATION

CAUTION!

Emergency Overview
May cause eye, skin, and respiratory tract irritation. The toxicological properties have not been fully investigated.

Appearance White
Physical State Powder
Odor No information available

Target Organs No information available.

Potential Health Effects

Acute Effects
Principle Routes of Exposure
Eyes
May cause irritation
Skin
May cause irritation. May be harmful in contact with skin.
Inhalation
May cause irritation. May be harmful if inhaled.
Ingestion
May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects
None known.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Haz/Non-haz</th>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L-Arabinopyranose</td>
<td>87-72-9</td>
<td>&gt; 99</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

Ingestion
Do not induce vomiting. Obtain medical attention.

Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point
Method
No information available.

Autoignition Temperature
No information available.

Explosion Limits
Upper
No data available
Lower
No data available

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

Unsuitable Extinguishing Media
No information available.

Hazardous Combustion Products
No information available.

Sensitivity to mechanical impact
No information available.

Sensitivity to static discharge
No information available.

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors.
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**
Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.

**Environmental Precautions**
Should not be released into the environment.

**Methods for Containment and Clean Up**
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. HANDLING AND STORAGE

**Handling**
Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Avoid dust formation.

**Storage**
Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Measures**
Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

**Exposure Guidelines**
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**NIOSH IDLH:** *Immediately Dangerous to Life or Health*

**Personal Protective Equipment**

<table>
<thead>
<tr>
<th>Eye/face Protection</th>
<th>Skin and body protection</th>
<th>Respiratory Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.</td>
<td>Wear appropriate protective gloves and clothing to prevent skin exposure.</td>
<td>Follow the 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.</td>
</tr>
</tbody>
</table>

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available.</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>155 - 160°C / 311 - 320°F</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No information available.</td>
</tr>
<tr>
<td>Decomposition temperature °C</td>
<td>No information available.</td>
</tr>
</tbody>
</table>
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>No information available.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No information available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>soluble</td>
</tr>
<tr>
<td>log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>150.13</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C5H10O5</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>Incompatible products. Excess heat. Avoid dust formation.</td>
</tr>
<tr>
<td>Incompatible Materials</td>
<td>Strong oxidizing agents</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Carbon monoxide (CO), Carbon dioxide (CO₂)</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Hazardous polymerization does not occur.</td>
</tr>
<tr>
<td>Hazardous Reactions</td>
<td>None under normal processing.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>Product Information: No acute toxicity information is available for this product</td>
</tr>
<tr>
<td></td>
<td>Component Information: No information available.</td>
</tr>
<tr>
<td>Irritation</td>
<td>No information available.</td>
</tr>
<tr>
<td>Toxicologically Synergistic Products</td>
<td>No information available.</td>
</tr>
<tr>
<td>Chronic Toxicity</td>
<td>There are no known carcinogenic chemicals in this product</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td></td>
</tr>
<tr>
<td>Sensitization</td>
<td>No information available.</td>
</tr>
<tr>
<td>Mutagenic Effects</td>
<td>No information available.</td>
</tr>
<tr>
<td>Reproductive Effects</td>
<td>No information available.</td>
</tr>
<tr>
<td>Developmental Effects</td>
<td>No information available.</td>
</tr>
<tr>
<td>Teratogenicity</td>
<td>No information available.</td>
</tr>
<tr>
<td>Other Adverse Effects</td>
<td>The toxicological properties have not been fully investigated.</td>
</tr>
</tbody>
</table>
Endocrine Disruptor Information  No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity
Do not empty into drains

Persistence and Degradability  No information available

Bioaccumulation/ Accumulation  No information available

Mobility  No information available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods  Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT  Not regulated

TDG  Not regulated

IATA  Not regulated

IMDG/IMO  Not regulated

15. REGULATORY INFORMATION

All of the components in the product are on the following Inventory lists:

<table>
<thead>
<tr>
<th>International Inventories</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-Arabinopyranose</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>201-767-6</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>KE-01896</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)  Not applicable

SARA 313
Not applicable

SARA 311/312 Hazardous Categorization
- Acute Health Hazard  No
- Chronic Health Hazard  No
- Fire Hazard  No
- Sudden Release of Pressure Hazard  No
- Reactive Hazard  No

Clean Water Act
Not applicable

Clean Air Act
Not applicable

OSHA
Not applicable

CERCLA
Not Applicable

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

State Right-to-Know
Not applicable

U.S. Department of Transportation
- Reportable Quantity (RQ):  N
- DOT Marine Pollutant:  N
- DOT Severe Marine Pollutant:  N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade  No information available
Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
Non-controlled

16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929

Creation Date
21-Sep-2009

Print Date
21-Sep-2009

Revision Summary
“***”, and red text indicates revision

Disclaimer
The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of MSDS