Material Safety Data Sheet
DL-Lysine monohydrochloride

MSDS# 43661

Section 1 - Chemical Product and Company Identification

MSDS Name: DL-Lysine monohydrochloride
Catalog Numbers: AC413370000, AC413370250, AC413371000, ACE1176833, ACE1176841
Synonyms: None known.

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticaalaaan 3a
2440 Geel, Belgium

Company Identification: (USA)
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

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

Section 2 - Composition, Information on Ingredients

CAS#: 70-53-1
Chemical Name: DL-Lysine monohydrochloride
%: 99
EINECS#: 200-739-0

Hazard Symbols: None listed
Risk Phrases: None listed

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Caution! The toxicological properties of this material have not been fully investigated. May cause eye, skin, and respiratory tract irritation. Target Organs: None known.

Potential Health Effects

Eye: May cause eye irritation.
Skin: May cause skin irritation. May be harmful if absorbed through the skin.
Ingestion: May cause irritation of the digestive tract. May be harmful if swallowed.
Inhalation: May cause respiratory tract irritation. May be harmful if inhaled.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation develops, get medical aid.
Skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
Ingestion: Do not induce vomiting. Get medical aid if irritation or symptoms occur.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If
breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

Notes to
Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition Temperature: Not available
Flash Point: Not available
Explosion Limits: Not available
Explosion Limits: Not available
NFPA Rating: health: 1; flammability: 1; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

Storage: Store in a cool, dry place. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL-Lysine monohydrochloride</td>
<td>None listed</td>
<td>None listed</td>
<td>None listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: DL-Lysine monohydrochloride: None listed

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Personal Protective Equipment

Eyes: 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.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Crystalline powder
Color: white to light yellow
Odor: Not available
pH: Not available
Vapor Pressure: Not available
Vapor Density: Not available
Evaporation Rate: Not available
Viscosity: Not available
Boiling Point: Not available
Freezing/Melting Point: 267 deg C (512.60°F)
Decomposition Temperature: Not available
Solubility in water: Not available.
Specific Gravity/Density: Not available.
Molecular Formula: C6H14N2O2.HCl
Molecular Weight: 182.65

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, dust generation, temperatures above 150°C.
Incompatibilities with Other Materials: Not available
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#: CAS# 70-53-1: None listed
LD50/LC50: RTECS: Not available.
Carcinogenicity: DL-Lysine monohydrochloride - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other: The toxicological properties have not been fully investigated.

Section 12 - Ecological Information

Other: Do not empty into drains.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Not regulated as a hazardous material
Hazard Class:
UN Number:
Packing Group:
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available
Risk Phrases:
Safety Phrases:
S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)
CAS# 70-53-1: 0

Canada
CAS# 70-53-1 is listed on Canada's DSL List
Canadian WHMIS Classifications: Not available
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. CAS# 70-53-1 is not listed on Canada's Ingredient Disclosure List.

US Federal

TSCA
CAS# 70-53-1 is listed on the TSCA Inventory.

Section 16 - Other Information
MSDS Creation Date: 9/02/1997
Revision #5 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

---------------------------------------------------------------