***** MATERIAL SAFETY DATA SHEET *****

N-ACETYL-L-GLUTAMIC ACID, 99%

***** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION *****

MSDS Name: N-ACETYL-L-GLUTAMIC ACID, 99%
Catalog Numbers: 22703-0000, 22703-0250, 22703-1000
Synonyms:
Company Identification (Europe): Acros Organics BVBA
Janssen Pharmaceuticalalaan 3a
2440 Geel, Belgium
Company Identification (USA): Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410
For information in North America, call: 800-ACHOS-01
For information in Europe, call: 0032(0) 14575211
For emergencies in the US, call CHEMTREC: 800-424-9300
For emergencies in Europe, call: 0032(0) 14575299

***** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS *****

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>%</th>
<th>EINECS#</th>
<th>Haz Symbols</th>
<th>Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1188-37-0</td>
<td>N-ACETYL-L-GLUTAMIC ACID, 99%</td>
<td>99%</td>
<td>214-708-4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hazard Symbols: None Listed.
Risk Phrases: None Listed.

***** SECTION 3 - HAZARDS IDENTIFICATION *****

EMERGENCY OVERVIEW

Not available.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: May cause irritation of the digestive tract. The toxicological properties of this substance have not been fully investigated.

Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

Chronic: Not available.

***** SECTION 4 - FIRST AID MEASURES *****

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Get medical aid. Wash mouth out with water.

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.

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: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

***** 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.

***** SECTION 7 - HANDLING and STORAGE *****

Handling: Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes.

Storage: Store in a cool, dry place. Store in a tightly closed container. Keep refrigerated. (Store below 4°C/39°F.)
**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use adequate ventilation to keep airborne concentrations low.

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:
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Crystalline powder
Color: white - fine
Odor: Not available.
PH: Not available.
Vapor Pressure: Not available.
Viscosity: Not available.
Boiling Point: Not available.
Freezing/Melting Point: 199.00 - 201.00 deg C
Autoignition Temperature: Not available.
Flash Point: Not available.
Explosion Limits, lower: Not available.
Explosion Limits, upper: Not available.
Decomposition Temperature: Not available.
Solubility in water: 2.7g/100ml (20 c)
Specific Gravity/Density: C7H11NO5
Molecular Weight: 189.17

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials.

Incompatibilities with Other Materials:
Strong oxidizing agents.

Hazardous Decomposition Products:
Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS:
CAS# 1188-37-0: L29725000
LD50/LC50:
CAS# 1188-37-0: Oral, mouse; LD50 = 6838 mg/kg; Oral, rat; LD50 = >7 gm/kg.
Carcinogenicity:
N-ACETYL-L-GLUTAMIC ACID, 99% -
Not listed by ACGIH, IARC, NIOSH, WTP, or OSHA.
See actual entry in RTECS for complete information.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

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

**** SECTION 14 - TRANSPORT INFORMATION ****

IATA
No information available.
IMO
No information available.
RID/ADR
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.
Risk Phrases:
S 24/25 Avoid contact with skin and eyes.
WGK (Water Danger/Protection)
CAS# 1188-37-0: 1
United Kingdom Occupational Exposure Limits
United Kingdom Maximum Exposure Limits
Canada

CAS# 1188-37-0 is listed on Canada's NDSL List.

CAS# 1188-37-0 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

US FEDERAL

TSCA

CAS# 1188-37-0 is listed on the TSCA inventory.

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 7/16/1996 Revision #0 Date: Original.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability 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 way 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, however arising, even if the company has been advised of the possibility of such damages.

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