Material Safety Data Sheet
Papain, Proteolytic Activity 46000-50000 nfu/mg

MSDS# 22890

Section 1 - Chemical Product and Company Identification

MSDS Name: Papain, Proteolytic Activity 46000-50000 nfu/mg
Catalog Numbers: AC416760000, AC416760100, AC416761000, AC416765000
Synonyms: None Known.

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticaal 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#: 9001-73-4
Chemical Name: Papain
%
: ca. 100%
EINECS#: 232-627-2

Hazard Symbols: XN
Risk Phrases: 36/37/38 42

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Warning! May cause severe allergic respiratory reaction. May cause allergic skin reaction. Causes eye, skin, and respiratory tract irritation. Target Organs: Respiratory system.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Ingestion: May cause irritation of the digestive tract.

Inhalation: Causes respiratory tract irritation. May cause allergic respiratory reaction.

Chronic: No information found.

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 if irritation develops or persists. Flush skin with plenty of soap and water.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Runoff from fire control or dilution water may cause pollution.

Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use agent most appropriate to extinguish fire.

Autoignition Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits: Not available

Explosion Limits: Not available

NFPA Rating: health: 2; flammability: 0; 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. Wash area with soap and water. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

Storage: Store in a cool, dry place. Keep from contact with oxidizing materials.

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>Papain</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Papain: None listed

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

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 minimize contact with skin.

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: Solid

Color: white to light brown
Odor: Not available
pH: Not available
Vapor Pressure: Negligible.
Vapor Density: Not available
Evaporation Rate: Negligible.
Viscosity: Not available
Boiling Point: Not available
Freezing/Melting Point: Not available
Decomposition Temperature: Not available
Solubility in water: Partly soluble in water.
Specific Gravity/Density: Not available.
Molecular Formula: Not applicable.
Molecular Weight: 0

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Incompatible materials, dust generation, excess heat, strong oxidants.

Incompatibilities with Other Materials: Not available

Hazardous Decomposition Products: Carbon monoxide in cases of incomplete combustion, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#: CAS# 9001-73-4: RU4950000
RTECS: 
LD50/LC50: Cass# 9001-73-4: Oral, mouse: LD50 = 12500 mg/kg; Oral, rat: LD50 = >4 gm/kg;

Carcinogenicity: Papain - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Not available

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: XN
Risk Phrases:
Risk Phrases:
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 42 May cause sensitization by inhalation.

Safety Phrases:
- S 22 Do not breathe dust.
- S 24 Avoid contact with skin.
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 36/37 Wear suitable protective clothing and gloves.

WGK (Water Danger/Protection)
- CAS# 9001-73-4: 0

Canada
- CAS# 9001-73-4 is listed on Canada's DSL List
- Canadian WHMIS Classifications: D2B
- 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# 9001-73-4 is not listed on Canada's Ingredient Disclosure List.

US Federal
- TSCA
  - CAS# 9001-73-4 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 9/02/1997
Revision #6 Date 7/20/2009

Reviewed 2012.10.04 13:47:04 -04'00'

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 however arising, even if the company has been advised of the possibility of such damages.

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