Material Safety Data Sheet
Protanal® LF 10/60 LS Sodium Alginate

This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200 And Canadian Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Protanal® LF 10/60 LS Sodium Alginate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Sodium alginate: Algin (INCI name), alginic acid, sodium salt</td>
</tr>
<tr>
<td>Recommended use:</td>
<td>Pharmaceutical.</td>
</tr>
</tbody>
</table>

Manufacturer:
FMC Corporation
1735 Market Street
Philadelphia, PA 19103
(800) 526-3649
msdsinfo@fmc.com

Emergency telephone number
For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A. & Canada)
(703) 527-3887 (CHEMTREC - all other countries)
(207) 594-3200 (FMC Plant - Rockland, ME)
(303) 595-9048 (Medical - U.S. - Call Collect)

2. HAZARDS IDENTIFICATION

Emergency Overview
Dry or powdered ingredients are combustible. Dispersal of finely divided dust from products into air may form mixtures that are ignitable and explosive. Minimize airborne dust generation and eliminate sources of ignition. Powder becomes slippery when wet.

Appearance: dry powder
Physical state: solid
Odor: almost odorless

Eyes: May cause slight irritation.
Skin: Non-irritating to the skin.
Inhalation: May cause irritation of respiratory tract. Aspiration or inhalation of alginates could cause chemical pneumonitis.
Ingestion: Potential for aspiration if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium alginate</td>
<td>9005-38-3</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

Eye contact
Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.

Skin contact
Wash with water and soap as a precaution.

Inhalation
Remove person to fresh air. If signs/symptoms continue, get medical attention.

Ingestion
Never give anything by mouth to an unconscious person. Drink plenty of water. Get medical attention if symptoms occur.

Indication of immediate medical attention and special treatment needed, if necessary
Aspiration or inhalation of this product could cause chemical pneumonitis. Treatment is symptomatic and supportive.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical
Dry or powdered ingredients are combustible. Dispersal of finely divided dust from products into air may form mixtures that are ignitable and explosive. Minimize airborne dust generation and eliminate sources of ignition.

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.

NFPA
Health Hazard 0
Flammability 1
Stability 0
Special Hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Powder becomes slippery when wet. Avoid dust formation. Avoid breathing dust. For personal protection see section 8.

Methods for containment
Maintain good housekeeping practices to avoid accumulation of settled dust, especially on overhead surfaces

Methods for cleaning up
Sweep or vacuum up spillage and return to container. Washdown water is not recommended.

7. HANDLING AND STORAGE

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Storage
Keep tightly closed in a dry and cool place. To maintain product quality, do not store in heat or direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Occupational exposure controls
Engineering measures
Use with local exhaust ventilation.

Personal Protective Equipment

General Information
If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers.

Respiratory protection
In case of insufficient ventilation wear suitable respiratory equipment. Local nuisance dust standards apply.

Eye/face protection
Safety glasses

Skin and body protection
No special precautions required.

Hand protection
No special precautions required.

Hygiene measures
When using, do not eat, drink or smoke. Wear suitable gloves and eye/face protection. Wash hands before breaks and at the end of workday. Wash hands with water as a precaution. Regular cleaning of equipment, work area and clothing is recommended. Avoid breathing vapors, mist or gas.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>dry powder</td>
</tr>
<tr>
<td>Color</td>
<td>White to yellowish brown</td>
</tr>
<tr>
<td>Physical state</td>
<td>solid</td>
</tr>
<tr>
<td>Odor</td>
<td>almost odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>5.5 - 7.5 (1% solution)</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>not determined</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No information available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Slowly soluble, forming a viscous, colloidal solution</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Conditions to avoid

Materials to avoid
Strong oxidizing agents.

Hazardous decomposition products
None under normal use.

Hazardous polymerization
Hazardous polymerization does not occur.

Hazardous reactions
None under normal processing.
11. TOXICOLOGICAL INFORMATION

**Acute Toxicity**
Ingestion of large quantities may cause intestinal obstruction. Aspiration or inhalation could cause chemical pneumonitis.

Skin contact
Does not pose a potential of skin irritation and sensitization. Non-irritating (Rabbit).

Eye contact
Non-irritating (Rabbit).

Inhalation
May cause irritation of respiratory tract.

Ingestion
Low order of toxicity based on components. Ingestion may cause gastrointestinal discomfort including nausea, vomiting and diarrhea if large amounts are ingested.

**LD50 Oral**
> 5000 mg/kg (Rat)

**LC50 Inhalation**
> 4.72 mg/L (1-hr) (Rat)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium alginate</td>
<td>&gt; 5 g/kg (Rat)</td>
<td>&gt; 2,000 mg/kg (rabbit)</td>
<td>4.72 mg/L (1 h) (rat)</td>
</tr>
</tbody>
</table>

**Chronic Toxicity**

Carcinogenicity
Contains no ingredient listed as a carcinogen.

Sensitization
Did not cause sensitization on laboratory animals: guinea pig.

Mutagenicity
No information available.

Reproductive toxicity
No information available.

Developmental Toxicity
No information available.

Teratogenicity
No information available.

Target Organ Effects
None noted in chronic animal studies.

12. ECOLOGICAL INFORMATION

**Ecotoxicity**

Ecotoxicity effects
The environmental impact of this product has not been fully investigated. Not expected to have significant environmental effects.

**Environmental Fate**

Persistence and degradability
Product is biodegradable.

Bioaccumulation
No information available.

Mobility
No information available.

Other adverse effects
None known.

13. DISPOSAL CONSIDERATIONS

**Waste disposal methods**
This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

**Contaminated packaging**
Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION
Protanal® LF 10/60 LS Sodium Alginate

DOT not regulated
TDG not regulated
ICAO/IATA not regulated
IMDG/IMO not regulated

15. REGULATORY INFORMATION

### International Inventories

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TSCA Inventory (United States of America)</th>
<th>DSL (Canada)</th>
<th>EINECS/E LINCS (Europe)</th>
<th>ENCS (Japan)</th>
<th>IECSC (China)</th>
<th>KECL (Korea)</th>
<th>PICCS (Philippines)</th>
<th>AICS (Australia)</th>
<th>NZIoC (New Zealand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium alginate 9005-38-3</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### U.S. Federal Regulations

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**

- Acute Health Hazard: no
- Chronic Health Hazard: no
- Fire Hazard: no
- Sudden Release of Pressure Hazard: no
- Reactive Hazard: no

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

### International Regulations

**Mexico - Grade**
Minimum risk, Grade 0

**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

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Stability</th>
<th>Special precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revision Date: 2014-04-10

Reason for revision:
No information available.

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End of Material Safety Data Sheet