1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Protanal® LF 10/60 Sodium Alginate

Synonyms: Sodium alginate: Algin (INCI name), alginic acid, sodium salt

Chemical Family: Polysaccharides

Recommended use: Pharmaceutical

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

Emergency telephone number:
(207) 594-3200 (FMC Plant - Rockland, ME)
(303) 595-9048 (Medical - U.S. - Call Collect)

For leak, fire, spill, or accident emergencies, call:
(800) 494-9300 (CHEMTREC - U.S.A. & Canada)
(703) 527-3887 (CHEMTREC - all other countries)

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: free flowing powder

Physical state: solid

Odor: almost odorless 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.

Chronic effects: None known.
3. COMPOSITION/INFORMATION ON INGREDIENTS

Non-Hazardous

<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

<table>
<thead>
<tr>
<th>Handling</th>
<th>Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust. Ensure adequate ventilation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>Keep tightly closed in a dry and cool place. To maintain product quality, do not store in heat or direct sunlight.</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>General Information</th>
<th>If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory protection</td>
<td>In case of insufficient ventilation wear suitable respiratory equipment. Local nuisance dust standards apply.</td>
</tr>
<tr>
<td>Eye/face protection</td>
<td>Safety glasses</td>
</tr>
<tr>
<td>Skin and body protection</td>
<td>No special precautions required.</td>
</tr>
<tr>
<td>Hand protection</td>
<td>No special precautions required.</td>
</tr>
</tbody>
</table>

#### 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.
## 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>free flowing 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 odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>6.0 - 8.0 (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>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>&gt; 200 °C / &gt; 392 °F</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

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Heat. Humid air. Dust formation.</td>
</tr>
<tr>
<td>Materials to avoid</td>
<td>Strong oxidizing agents.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>None under normal use.</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

**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)

**Chronic Toxicity**

<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>

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

**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

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>-</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>0</td>
<td>1</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

NFPA/HMIS Ratings Legend
Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0

Revision Date: 2013-01-04
Reason for revision: No information available.

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End of Material Safety Data Sheet