This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the Canada’s Workplace Hazardous Materials Information System (WHMIS) and, the EC Directive, 2001/58/EC.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Gelloid® LB 230 Locust Bean Gum
CHEMICAL FAMILY: Polysaccharides
SYNONYMS: Locust bean gum: carob gum
GENERAL USE: Foodstuff application

MANUFACTURER
FMC BioPolymer
1735 Market Street
Philadelphia, PA 19103
(800) 526-3649 (General Information)

FMC Europe NV
Avenue Mounier 83
1200 Brussels, Belgium
+32 2 / 775 8311 (General Information - Brussels)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:
- White to off-white powder, with a slight marine odor.
- Powder becomes slippery when wet.
- Accumulation of overhead settled dust may form explosive concentrations in air when disturbed and dispersed.

POTENTIAL HEALTH EFFECTS: No significant health hazard expected.
3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>Wt.%</th>
<th>EC No.</th>
<th>EC Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locust bean gum</td>
<td>9000-40-2</td>
<td>100</td>
<td>232-541-5</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**EYES:** Flush with plenty of water. Get medical attention if irritation occurs and persists.

**SKIN:** Wash with plenty of soap and water.

**INGESTION:** Drink plenty of water. Never give anything by mouth to an unconscious person. If any discomfort persists, obtain medical attention.

**INHALATION:** Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

**NOTES TO MEDICAL DOCTOR:** This product has low oral toxicity, and is expected to have low dermal and inhalation toxicity. It is non-irritating to the skin and eyes. Treatment is symptomatic and supportive.

5. FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:** Water, carbon dioxide.

**FIRE / EXPLOSION HAZARDS:** The accumulation of excessive dust on overhead structures may produce explosive concentrations when disturbed and dispersed by a small explosion that shakes down accumulated dust and causes, momentarily, a flammable concentration.

**FIRE FIGHTING PROCEDURES:** For fires involving this material, do not enter any enclosed or confined fire space without wearing full protective clothing and self-contained breathing apparatus (SCBA) approved for firefighting. This is necessary to protect against the hazards of heat, products of combustion and oxygen deficiency. Do not breathe smoke, gases or vapors generated.

**FLAMMABLE LIMITS:** Dust Cloud 440°C; Dust Layer 205°C
6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Avoid contact with strong oxidants. Maintain good housekeeping practices to minimize accumulation of settled dust, especially on overhead surfaces. Sweep up the spilled material and dispose of in accordance with the waste disposal method outlined in Section 13, "Disposal Considerations" below.

7. HANDLING AND STORAGE

HANDLING AND STORAGE: Use local exhaust or general dilution ventilation to control exposure to dust. In addition, synthetic work clothing capable of build up of static electricity should not be worn in the work areas. Any dust accumulation on employee work clothing should be removed by vacuuming. Always use safe lifting techniques when manually moving containers, especially when handling containers weighing more than 50 pounds (22.7 kg). To protect quality, store in a tight container in a dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Whenever airborne dust concentrations are high, appropriate protective eyewear, such as mono-goggles, should be worn to prevent eye contact.

RESPIRATORY: Whenever dust in the worker's breathing zone cannot be controlled with ventilation or other engineering means, workers should wear respirators or dust masks approved by NIOSH/MSHA, EU CEN or comparable certification organization to protect them against airborne dust.

PROTECTIVE CLOTHING: No special clothing is required.

GLOVES: No special gloves are required.

COMMENTS:

EXPOSURE LIMITS:
Particulates Not Otherwise Classified (PNOC):
ACGIH/TWA
10 mg/m³ (inhalable particulate)
3 mg/m³ (respirable particulate)
9. PHYSICAL AND CHEMICAL PROPERTIES

- **ODOR:** Slight marine odor
- **APPEARANCE:** White to off-white powder
- **AUTOIGNITION TEMPERATURE:** Not applicable
- **BOILING POINT:** Not applicable
- **COEFFICIENT OF OIL / WATER:** Not applicable
- **DENSITY / WEIGHT PER VOLUME:** Not applicable
- **EVAPORATION RATE:** Not applicable (Butyl Acetate = 1)
- **FLASH POINT:** Not applicable
- **MELTING POINT:** 260 °C (500 °F)
- **ODOR THRESHOLD:** Not applicable
- **PERCENT VOLATILE:** Not applicable
- **pH:** 6.0 to 8.0 (1%)
- **SOLUBILITY IN WATER:** 10% maximum
- **SPECIFIC GRAVITY:** \((H_2O = 1)\): Approximately 1.7 gram/cc
- **VAPOR DENSITY:** Not applicable (Air = 1)
- **VAPOR PRESSURE:** Not applicable

10. STABILITY AND REACTIVITY

- **CONDITIONS TO AVOID:** None known
- **STABILITY:** Stable
- **INCOMPATIBLE MATERIALS:** Strong oxidants and acids.
- **HAZARDOUS DECOMPOSITION PRODUCTS:** Burning may produce carbon monoxide and/or carbon dioxide.

11. TOXICOLOGICAL INFORMATION

- **EYE EFFECTS:** Non-irritating (rabbit)
- **SKIN EFFECTS:** Non-irritating (rabbit, PII = 0.4/8.0)
- **DERMAL LD\textsubscript{50}:** No data available for the product.
ORAL LD$_{50}$: 1,300 mg/kg (rat)

INHALATION LC$_{50}$: No data available for the product.

SENSITIZATION: No data available for the product.

ACUTE EFFECTS FROM OVEREXPOSURE: This product has low oral toxicity, and is expected to have low dermal and inhalation toxicity. It is non-irritating to the skin and eyes. No other significant acute effects from overexposure are expected.

CHRONIC EFFECTS FROM OVEREXPOSURE: No data available for the product. No significant chronic effects from overexposure are expected.

CARCINOGENICITY:
- NTP: Not listed
- IARC: Not listed
- OSHA: Not listed
- OTHER: (ACGIH) Not listed

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: No data available; however, this product is not expected to have significant environmental effects.

ECOTOXICOLOGICAL INFORMATION: No data available; however, this product is not expected to have significant ecotoxicological effects.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: No special disposal methods are suggested. It is the user's responsibility to comply with all applicable local, state, and federal laws, rules, regulations and standards.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

MARINE POLLUTANT: Not listed
ADDITIONAL INFORMATION: Not listed in Title 49 of the U.S. Code of Federal Regulations as a hazardous material.

ADDITIONAL INFORMATION: Stabilizer / emulsifier; water soluble, dry

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)
ADDITIONAL INFORMATION: Not applicable

ADR - EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD
ADDITIONAL INFORMATION: Not applicable

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)
ADDITIONAL INFORMATION: Not applicable

OTHER INFORMATION: Canada (TDG) : Not applicable

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)
SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Not applicable

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.: None
SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
This product does not contain any toxic chemicals subject to the reporting requirements of Section 313, Title III of the SARA (Superfund Amendments and Reauthorization Act) of 1986.

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):
Not listed

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):
Not listed

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):
Not a controlled product under the Canadian Workplace Hazardous Materials Information System (WHMIS).

Domestic Substance List: Listed

E NUMBERS:

E 410 (locust bean gum)

INTERNATIONAL LISTINGS

Locust bean gum
Australia (AICS): Listed
China: Listed
Korea: KE-04883
Philippines (PICCS): Listed

HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:

EC Symbols: (Not classified as hazardous)
EC Risk Phrases: (Not classified as hazardous)
EC Safety Phrases: (Not classified as hazardous)
16. OTHER INFORMATION

NFPA

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<table>
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<tbody>
<tr>
<td>Health</td>
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<tr>
<td>Flammability</td>
<td>1</td>
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<tr>
<td>Reactivity</td>
<td>0</td>
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<tr>
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</tbody>
</table>

No special requirements

NFPA = National Fire Protection Association

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:
This MSDS replaces Revision # New MSDS, dated March 01, 2002.
Section 1 (Product and Company Identification)
Section 2 (Hazards Identification)
Section 3 (Composition / Information on Ingredients)
Section 8 (Exposure Controls / Personal Protection)
Section 15 (Regulatory Information)
Section 16 (Other Information)

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