

# MATERIAL SAFETY DATA SHEET

**Product name:**

**Polyethylene Glycol 6000 Powder; Macrogol 6000**

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JOSUN INTERNATIONAL LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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## 1. IDENTIFICATION

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**Product name:** Polyethylene Glycol 6000 Powder; Macrogol 6000

**Recommended use of the chemical and restrictions on use**

**Identified uses:** For the Macrogol Product Line, a partial list of applications include pharmaceutical products, personal care products, automotive products, household products, packaging products, petroleum chemicals, plastics, inks, coatings, adhesives, chemical intermediates, rubber processing, lubricants, metalworking fluids, mold release agents, ceramics, and wood treating. Polyethylene Glycol Grades 300 – 8000 have clearances under FDA. It is the responsibility of the user of this product to read and understand all applicable FDA regulations in Title 21 of the Code of Federal regulations as well as any other applicable regulations. CAUTION! For food, feed, drug or cosmetic applications, NF (National Formulary), FCC (Food Chemical Codex) Grade are tested to meet NF and FCC standards for these applications. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

**COMPANY IDENTIFICATION**

JOSUN INTERNATIONAL LIMITED  
www.josunpharma.com

**Company Number: (+86) 0311-80766839**

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## 2. HAZARDS IDENTIFICATION

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**Hazard classification**

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.  
Combustible dust

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#### **Label elements**

Signal word: **WARNING!**

#### **Hazards**

May form combustible dust concentrations in air

#### **Precautionary statements**

##### **Prevention**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ ventilating/ lighting/ equipment.

Take precautionary measures against static discharge.

#### **Other hazards**

no data available

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### **3. COMPOSITION/INFORMATION ON INGREDIENTS**

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**Synonyms:** PEG 8000

This product is a substance.

<b>Component</b>	<b>CASRN</b>	<b>Concentration</b>
Polyethylene glycol	25322-68-3	> 99.0 %

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### **4. FIRST AID MEASURES**

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#### **Description of first aid measures**

**General advice:** If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Skin contact:** Wash off with plenty of water.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion:** No emergency medical treatment necessary.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**

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**Notes to physician:** Absorption may be promoted by damaged skin. J Pharm Sci. 1985 Oct;74(10):1062-6; Burns Incl Therm Inj 1982 Sep;9(1):49-52. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** Do not use direct water stream. May spread fire.

### **Special hazards arising from the substance or mixture**

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Do not permit dust to accumulate. When suspended in air dust can pose an explosion hazard. Minimize ignition sources. If dust layers are exposed to elevated temperatures, spontaneous combustion may occur. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, electrically bond and ground equipment and do not permit dust to accumulate. Dust can be ignited by static discharge.

### **Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Dust explosion hazard may result from forceful application of fire extinguishing agents. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Spilled material may cause a slipping hazard. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

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**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Keep away from heat, sparks and flame. No smoking, open flames or sources of ignition in handling and storage area. Electrically ground and bond all equipment. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

**Conditions for safe storage:** Store in original container. Use product promptly after opening. Avoid prolonged exposure to heat and air. Store in the following material(s): Stainless steel. Polypropylene. Polyethylene-lined container. Teflon. Glass-lined container. Plasite 3066 lined container. Plasite 3070 lined container. 316 stainless steel.

### **Storage stability**

**Shelf life:** Use within 36 Month

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### **Control parameters**

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Polyethylene glycol	US WEEL	TWA aerosol	10 mg/m <sup>3</sup>

### **Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

### **Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields).

#### **Skin protection**

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state	Powder
Color	Colorless
Odor	Mild
Odor Threshold	No test data available
pH	4.5 - 7.5 <i>ASTM E70</i> (5% aqueous solution)
Melting point/range	53 - 59 °C ( 127 - 138 °F) <i>Literature</i>
Freezing point	53 - 59 °C ( 127 - 138 °F) <i>Literature</i>
Boiling point (760 mmHg)	> 200 °C (> 392 °F) <i>Calculated</i> . Decomposes
Flash point	<b>closed cup</b> 246 °C ( 475 °F) <i>ASTM D 93</i> 0.01
Evaporation Rate (Butyl Acetate = 1)	<i>Estimated</i> .
Flammability (solid, gas)	May form combustible dust concentrations in air
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	< 0.01 mmHg at 20 °C (68 °F) <i>ASTM E1719</i>
Relative Vapor Density (air = 1)	>10 <i>Calculated</i> .
Relative Density (water = 1)	1.111 at 60 °C (140 °F) / 60 °C <i>Calculated</i> .
Water solubility	66 % at 20 °C (68 °F) <i>Measured</i>
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	110 - 158 cSt at 98.9 °C (210.0 °F) <i>ASTM D 445</i>
Explosive properties	no data available
Oxidizing properties Liquid	no data available
Density	1.0926 g/cm <sup>3</sup> at 60 °C (140 °F) <i>Literature</i>

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**Molecular weight** 3,600 - 4,400 g/mol *Literature*  
**Volatile Organic Compounds** 1 g/L *EPA Method No. 24*

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** no data available

**Chemical stability:** Thermally stable at typical use temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Avoid static discharge.

**Incompatible materials:** Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon dioxide. Alcohols. Ethers. Aldehydes. Carboxylic acids. Polymer fragments.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information on this product or its components appear in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Typical for this family of materials.

LD50, Rat, > 10,000 mg/kg Estimated.

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Prolonged/repeated exposure to damaged skin (as in burn patients) may result in absorption of toxic amounts.

Typical for this family of materials.

LD50, Rabbit, > 20,000 mg/kg

#### **Acute inhalation toxicity**

At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. For respiratory irritation and narcotic effects: No relevant data found.

Typical for this family of materials.

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LC50, Rat, 6 Hour, dust/mist, > 2.5 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**

Prolonged exposure not likely to cause significant skin irritation.  
May cause more severe response if skin is abraded (scratched or cut).

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.  
Corneal injury is unlikely.

**Sensitization**

For this family of materials:  
Did not cause allergic skin reactions when tested in humans.  
For this family of materials, sensitization studies done in guinea pigs have been negative.

For respiratory sensitization:  
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Recent findings of kidney failure and death in burn patients, as well as some studies using animal burn models, suggest that polyethylene glycol may have been a factor.  
The use of topical applications containing this material may not be appropriate in severely burned patients or individuals with impaired renal function.  
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Carcinogenicity**

Polyethylene glycols did not cause cancer in long-term animal studies.

**Teratogenicity**

Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**

In animal studies, did not interfere with reproduction.

**Mutagenicity**

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

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## **12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information on this product or its components appear in this section when such data is available.*

**Toxicity**

**Acute toxicity to fish**

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Material is practically non-toxic to aquatic organisms on an acute basis  
(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), 96 Hour, > 10,000 mg/l

**Acute toxicity to aquatic invertebrates**

LC50, Daphnia magna (Water flea), 48 Hour, > 10,000 mg/l

**Persistence and degradability**

**Biodegradability:** Biodegradation under aerobic static laboratory conditions is high  
(BOD20 or BOD28/ThOD > 40%).

**Chemical Oxygen Demand:** 1.86 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
10 d	3.000 %
20 d	52.000 %

**Bioaccumulative potential**

**Bioaccumulation:** No bioconcentration is expected because of the relatively high water solubility.

**Mobility in soil**

No data available.

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## 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. This material is a combustible powder and has the potential to form explosive dust air mixtures. Take precautions to guard against the formation of dust clouds during incineration.

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## 14. TRANSPORT INFORMATION

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**DOT**

Not regulated for transport



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**Classification for SEA transport (IMO-IMDG):**

**Transport in bulk  
according to Annex I or II  
of MARPOL 73/78 and the  
IBC or IGC Code**

Not regulated for transport  
Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## **15. REGULATORY INFORMATION**

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**OSHA Hazard Communication Standard**

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**

This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Pennsylvania Worker and Community Right-To-Know Act:**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

**United States TSCA Inventory (TSCA)**

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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## **16. OTHER INFORMATION**

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### **Product Literature**

Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure. Additional information on this and other products may be obtained by visiting our web page.

### **Hazard Rating System**

#### **NFPA**

<b>Health</b>	<b>Fire</b>	<b>Reactivity</b>
0	1	0

### **Revision**

Identification Number: 101234537 / A001 / Issue Date: 03/23/2015 / Version: 6.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

### **Legend**

TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

### **Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

JOSUN INTERNATIONAL LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.