

## Material Safety Data Sheet

Material Name: Enestra™ Optical Encapsulant XP 6010/US/Japan

Document: ENESOEXP6010

### \*\*\* Section 1 - Chemical Product and Company Identification \*\*\*

**Chemical Name** Enestra™ Optical Encapsulant XP 6010  
2 Part Molding Material

**Company Identification:** Promerus LLC  
9921 Brecksville Road  
Brecksville, OH 44141-3289  
United States of America

**Phone Number:** 216-447-5223  
**Emergency Phone Number:** 1-888-211-4441

### \*\*\* Section 2 - Composition / Information on Ingredients \*\*\*

CAS #	Component	Percent
Proprietary	Proprietary Monomer Solution	90-100
Proprietary	Proprietary Additives	0-8

#### Component Information/Information on Non-Hazardous Components

This product has been evaluated using criteria specified in 29CFR 1910.1200 (Hazard Communication Standard).

Japan: This Safety Data Sheet has been prepared in compliance with JIS Z7250.

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous and/or present at amounts below reportable limits. This composition represents all components of both separate parts of the 2 part molding system.

THE POLYMER RESULTING FROM THE REACTION OF THE 2-COMPONENT MATERIALS IS SOLELY FOR RESEARCH AND DEVELOPMENT USE. It is not known to be on the TSCA Inventory and cannot be distributed by itself or as part of another product in commerce. Its use is to be by or under the supervision of a technically qualified person. The physical, chemical and toxicological properties of this substance have not been fully determined.

INFORMATION IN THIS MSDS DESCRIBES HAZARDS OF COMPONENT A, COMPONENT B AND THE POLYMER FORMED FROM THE MIXTURES. IN THIS MSDS, "MATERIAL" REFERS TO COMPONENT A AND/OR COMPONENT B MATERIALS.

IT IS NOT ADVISABLE TO MIX LARGE AMOUNTS OF COMPONENTS A AND B AS THEY MAY GENERATE HEAT (DUE TO EXOTHERMIC REACTION).

### \*\*\* Section 3 - Hazards Identification \*\*\*

#### Emergency Overview

Product is a clear to light yellow liquid with a sweet olefinic odor. Combustible liquid.

This product may be irritating to the eyes, skin and respiratory system. Excessive inhalation of this material causes headache, dizziness, nausea and incoordination. A chemical in the proprietary monomer solution may form a polymer on the skin, eyes or in the lungs. In the event of direct contact with these tissues, seek medical attention.

#### Target Organs

Eyes, skin, and central nervous system.

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## Potential Health Effects: Eyes

Liquid or vapors may irritate the eyes. Symptoms include itching, burning, redness and tearing. A chemical in the proprietary monomer solution may form a polymer on the eyes. In the event of direct contact, seek medical attention.

## Potential Health Effects: Skin

This product may cause moderate irritation to the skin. A chemical in the proprietary monomer solution may form a polymer on the skin. In the event of direct contact, seek medical attention.

## Potential Health Effects: Ingestion

Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Small amounts of this product, if aspirated into the lungs, may cause mild to severe pulmonary injury.

## Potential Health Effects: Inhalation

This product may cause irritation to the respiratory system. Excessive inhalation of this material causes headache, dizziness, nausea and incoordination. A chemical in the proprietary monomer solution may form a polymer in the lungs. In the event of direct contact, seek medical attention.

## Medical Conditions Aggravated by Exposure

Chronic respiratory or skin conditions may temporarily worsen from exposure to this product.

**HMIS Ratings: Health: 2 Fire: 2 Physical Hazard: 0 Pers. Prot.: B**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

## \*\*\* Section 4 - First Aid Measures \*\*\*

### First Aid: Eyes

Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists get medical attention.

### First Aid: Skin

For skin contact, wash immediately with soap and water. If irritation persists, get medical attention.

### First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. Prevent aspiration of material into lungs.

### First Aid: Inhalation

If inhaled, immediately remove the affected person to fresh air. If the affected person is not breathing, apply artificial respiration. If symptoms persist, get medical attention.

### First Aid: Notes to Physician

This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affected person appropriately.

## \*\*\* Section 5 - Fire Fighting Measures \*\*\*

**Flash Point:** 91.1°C (196°F)

**Upper Flammable Limit (UFL):** Not available

**Auto Ignition:** Not available

**Method Used:** European Closed Cup method

**Lower Flammable Limit (LFL):** Not available

**Flammability Classification:** NFPA Class IIIA Combustible

### General Fire Hazards

This product is an NFPA Level IIIA Combustible liquid.

Hot vapor or mists may be susceptible to spontaneous combustion when mixed with air. Ignition temperatures decrease with increasing vapor volume and vapor/air contact time and are influenced by pressure changes. Therefore, ignition may occur below published ignition temperatures. Use of this product in processes involving elevated-temperatures, vacuum if subject to sudden ingress of air, sudden escape of vapor or mist, etc., must be thoroughly evaluated to assure safe operation. Exposing closed containers to heat may cause excessive pressure resulting in explosive rupture.

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## Hazardous Combustion Products

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

## Extinguishing Media

Dry chemical, foam, carbon dioxide. Use water to cool fire-exposed containers and to protect personnel.

## Fire Fighting Equipment/Instructions

Use self-contained breathing apparatus (SCBA) and full bunker turnout gear in a sustained fire. Wear protective clothing ensemble as defined in NFPA 1500 (1997, or as updated).

**NFPA Ratings: Health: 2 Fire: 2 Reactivity: 0**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

## \*\*\* Section 6 - Accidental Release Measures \*\*\*

### Containment Procedures

Stop the flow of material. Block any potential routes to water systems. Contain the discharged material.

### Clean-Up Procedures

Combustible liquid. Eliminate all ignition sources. Ventilate the area. If spill is large, be prepared to isolate the hazard area. Deny access to the spill area to persons who are not involved in the cleanup and/or who have not been properly trained in spill management of hazardous/flammable liquids. Absorb spill with inert material. Shovel material into appropriate container for disposal. Put material in suitable, covered, labeled containers. Ventilate the contaminated area.

## \*\*\* Section 7 - Handling and Storage \*\*\*

### Handling Procedures

Avoid contact with skin and eyes. Avoid prolonged or repeated skin contact with this material. Avoid breathing vapors or mists of this product. Use this product with adequate ventilation. Keep away from heat, sparks, flames and direct sunlight. DO NOT cut, puncture or weld on or near this container. Do not apply pressure to this container. Containers should be bonded and grounded during transfer of material. Wash thoroughly after handling. Store at a temperature below 0 °C (32 °F).

### Storage Procedures

Store at a temperature below 0 °C (32 °F). Store in a cool, dry, and well-ventilated area. Store in combustible storage area and away from heat and open flame. Avoid storing containers in direct sunlight as vapors may accumulate in the head space creating pressure. Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Keep container upright, when not in use, to prevent leakage. Open containers carefully and slowly. Emptied container may contain residual vapors or liquid which may ignite or explode. Do not reuse empty container without commercial cleaning or reconditioning.

## \*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\*

### Exposure Guidelines

#### A: General Product Information

Keep all exposures to a minimum.

#### B: Component Exposure Limits

ACGIH, OSHA and JSOH have not developed exposure limits for any of this product's components.

### Engineering Controls

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

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## PERSONAL PROTECTIVE EQUIPMENT

### Personal Protective Equipment: Eyes/Face

Wear chemical goggles; add face shield (if splashing is possible).

### Personal Protective Equipment: Skin

Use chemical resistant impervious gloves. Wear chemical resistant protective clothing.

### Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively prevent buildup of aerosols or mists, appropriate NIOSH approved respiratory protection must be provided. Use respiratory protection in accordance with your company's respiratory protection program, local regulations or OSHA regulations under 29 CFR 1910.134.

### Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

## \*\*\* Section 9 - Physical & Chemical Properties \*\*\*

<b>Appearance:</b>	Clear to light yellow	<b>Odor:</b>	Sweet olefinic
<b>Physical State:</b>	Liquid	<b>pH:</b>	Not available
<b>Vapor Pressure:</b>	1.05 @ 25°C	<b>Vapor Density:</b>	Not determined
<b>Boiling Point:</b>	190°C (374°F)	<b>Melting Point:</b>	Not determined
<b>Solubility (H2O):</b>	Negligible	<b>Specific Gravity:</b>	0.863 @ 20°C
<b>Particle Size:</b>	None	<b>Evaporation Rate:</b>	Not determined

## \*\*\* Section 10 - Chemical Stability & Reactivity Information \*\*\*

### Chemical Stability

This product may form explosive peroxides on long-term exposure to air.

### Chemical Stability: Conditions to Avoid

Keep away from heat, ignition sources and incompatible materials.

### Incompatibility

This product may react with oxidizing agents.

### Hazardous Decomposition

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

### Hazardous Polymerization

Polymerization will occur when the two parts of this product are combined. Components will not polymerize independently.

## \*\*\* Section 11 - Toxicological Information \*\*\*

### Acute and Chronic Toxicity

#### A: General Product Information

The following information is based on data results for one of the proprietary monomers found in this product.

Oral LD50 (rat): >2000 mg/kg

Skin Irritation (rabbit): Primary Irritation Index = 4.0 Moderate irritant

Eye Irritation (rabbit): Maximum Group Mean Score (MGMS) = 7.3 Minimal irritant

Negative in the following tests:

Ames Mutagenicity Test

Skin Sensitization (guinea pig)

Metaphase Analysis in CHL cells (in vitro)

The monomer was force-fed to rats at 1000 mg/kg/day for 28 days. The only significant effect was a reversible increase in activated partial thromboplastin time in males. Other observations were non- to minimally toxicologically significant.

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Based on the tests of structurally similar monomers, the following data are expected to apply:

Oral LD50 (rat): >2000 mg/kg

Oral 28-day repeat dose: NOEL 15 mg/kg/day; NOAEL 150 mg/kg/day

Skin Irritation (rabbit): Primary Irritation Index = 2.8-4.0 Moderate Irritant

Eye Irritation (rabbit): Maximum Group Mean Score = 7.3 Minimal Irritant

Acute Inhalation Toxicity: 3.61 mg/L Mean maximum attainable vapor concentration

Negative in the following tests:

Ames Mutagenicity Test

Skin Sensitization

## B: Component Analysis

### Proprietary Monomer Solution (Proprietary)

Based on the tests of structurally similar monomers, the following data are expected to apply:

Oral LD50 (rat): >2000 mg/kg

Oral 28-day repeat dose: NOEL 15 mg/kg/day; NOAEL 150 mg/kg/day

Skin Irritation (rabbit): Primary Irritation Index = 2.8-4.0 Moderate Irritant

Eye Irritation (rabbit): Maximum Group Mean Score = 7.3 Minimal Irritant

Acute Inhalation Toxicity: 3.61 mg/L Mean maximum attainable vapor concentration

Negative in the following tests:

Ames Mutagenicity Test

Skin Sensitization

Based on the tests of structurally similar monomers, the following data are expected to apply:

Oral LD50 (rat): >2000 mg/kg

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Skin Irritation (rabbit): Primary Irritation Index = 2.8-4.0 Moderate Irritant

Eye Irritation (rabbit): Maximum Group Mean Score = 7.3 Minimal Irritant

Acute Inhalation Toxicity: 3.61 mg/L Mean maximum attainable vapor concentration

Negative in the following tests:

Ames Mutagenicity Test

Skin Sensitization

## C: Component Analysis - LD50/LC50

No LD50/LC50's are available for this product's components.

### Carcinogenicity

#### A: General Product Information

No information available for the product.

#### B: Component Carcinogenicity

None of the components in Section 2 are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

#### Chronic Toxicity

Chronic overexposure may cause central nervous system depression.

## \* \* \* Section 12 - Ecological Information \* \* \*

### Ecotoxicity

#### A: General Product Information

Specific aquatic toxicity data for two of the proprietary monomers found in this product.

Acute fish toxicity (96Hr LC50): >0.015 mg/L (NOEC = 0.015 mg/L)

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Acute Daphnia Magna (48Hr EC50): >0.0081 mg/L (NOEC = 0.0081 mg/L)  
Algal growth inhibition: NOEC = 0.011 mg/L based on 1/2 LOQ  
Ready biodegradation test: Attained 16% degradation after 28 days.

Acute toxicity, Daphnia Magna (48 Hr EC50): >0.00459 mg/L (NOEC = 0.00459 mg/L)  
Ready biodegradation(CO2 Evolution Test): 42% degradation after 28 days  
Activate Sludge Respiration Inhibition Test (3 Hr EC50): >1000 mg/L (NOEC after 3 hours = 1000 mg/L)

## B: Component Analysis

### Proprietary Monomer Solution (Proprietary)

Acute fish toxicity (96Hr LC50): >0.015 mg/L (NOEC = 0.015 mg/L)  
Acute Daphnia Magna (48Hr EC50): >0.0081 mg/L (NOEC = 0.0081 mg/L)  
Algal growth inhibition: NOEC = 0.011 mg/L based on 1/2 LOQ  
Ready biodegradation test: Attained 16% degradation after 28 days.

Acute toxicity, Daphnia Magna (48 Hr EC50 ): >0.00459 mg/L (NOEC = 0.00459 mg/L)  
Ready biodegradation(CO2 Evolution Test): 42% degradation after 28 days  
Activate Sludge Respiration Inhibition Test (3 Hr EC50): >1000 mg/L (NOEC after 3 hours = 1000 mg/L)

## Environmental Fate

No additional information available.

## \*\*\* Section 13 - Disposal Considerations \*\*\*

### US EPA Waste Number & Descriptions

If discarded, this product is considered a RCRA ignitable waste, D001. Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

### Disposal Instructions

Dispose of waste by incineration, in accordance with local regulations and available facilities.  
Liquids cannot be disposed of in a landfill.

## \*\*\* Section 14 - Transportation Information \*\*\*

### US DOT Information

**Shipping Name:** Combustible liquid, n.o.s. (Contains: Proprietary Monomer Solution )  
**UN/NA #:** NA1993 **Hazard Class:** Combustible liquid **Packing Group:** III  
**Additional Info.:** Note: For domestic ground transportation for non-bulk shipments (less than 119 gallons (450L)), this product can be re-classified as Not Regulated.

### TDG Information

**Shipping Name:** This product is NOT REGULATED for transportation.

### ICAO Information

**Shipping Name:** This product is NOT REGULATED for transportation.

### IATA Information

**Shipping Name:** This product is NOT REGULATED for transportation.

### ADR Information

**Shipping Name:** This product is NOT REGULATED for transportation.

### RID Information

**Shipping Name:** This product is NOT REGULATED for transportation.

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## IMDG Information

**Shipping Name:** This product is NOT REGULATED for transportation.

## \*\*\* Section 15 - Regulatory Information \*\*\*

### Additional Regulatory Information

#### A: General Product Information

THIS MATERIAL IS SOLELY FOR RESEARCH AND DEVELOPMENT USE. It is not known to be on the TSCA or METI Inventories and cannot be distributed by itself or as part of another product in commerce. Its use is to be by or under the supervision of a technically qualified person. The physical, chemical and toxicological properties of this substance have not been fully determined.

#### B: Component Analysis - Inventory

Component	CAS #	TSCA	Canada	EU	METI
Proprietary Monomer Solution	Proprietary	Yes	NDSL	No	No

#### C: Japan List of Designated Chemical Substances

None of the components in this product are listed on the Japanese List of Hazardous Substances.

### US Federal Regulations

#### A: General Product Information

No additional information available.

#### B: U.S. EPA TSCA 12(b) Export Notification

This product contains a chemical or chemicals that require Export Notification.

#### C: Component Analysis

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

**SARA 311/312 - Acute Health:** Yes **Chronic Health:** No **Fire:** Yes **Pressure:** No **Reactive:** No

### State Regulations

#### A: General Product Information

Other state regulations may apply. Check individual state requirements.

#### B: Component Analysis - State

None of this product's components are listed on the state lists from CA, MA, MN, NJ, PA, or RI.

#### Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

## \*\*\* Section 16 - Other Information \*\*\*

### Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. It is your responsibility to develop appropriate work practice guidelines and employee instructional programs for your operation.

### Key/Legend

ACGIH: American Conference of Governmental Industrial Hygienists

A1: Confirmed human carcinogen

A2: Suspected human carcinogen

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A3: Animal carcinogen  
DSL: Canadian Domestic Substances List  
CAS No: Chemical Abstract Service Registry Number  
EEC: European Economic Community  
IARC: International Agency for Research on Cancer  
Group1: Carcinogenic to humans  
Group2A: Probably carcinogenic to humans  
Group2B: Possibly carcinogenic to humans  
Group3: Unclassifiable as a carcinogen to humans  
JSOH: Japan Society for Occupational Health  
LVE: Low Volume Exemption  
METI: Ministry of Environment, Trade, and Industry  
MSHA: Mine Safety and Health Administration  
NIOSH: National Institute for Occupational Safety and Health  
NDSL: Non-Domestic Substances List  
NTP: National Toxicology Program  
N/A: Not Applicable  
N/E: None Established  
OSHA: Occupational Safety and Health Administration  
PEL: Permissible Exposure Limit  
PNOC: Particulates Not Otherwise Classified  
RTK: Right To Know  
STEL: Short Term Exposure Limit (15 minute Time Weighted Average)  
TLV: Threshold Limit Value  
C: Ceiling limit  
S: Skin notation refers to the potential significant contribution to the overall exposure by the cutaneous route including mucous membranes and the eyes and by direct skin contact with the substance  
WEEL: Workplace Environmental Exposure Level  
WHMIS: Canadian Workplace Hazardous Materials Information System

End of Sheet ENESOEXP6010