

SAFETY DATA SHEET - SDS

Product : PEG 400

May 5, 2014

1. IDENTIFICATION OF SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product	PEG 400
Internal identification code	--
Relevant recommended uses	Industrial uses.
Company	Everchem Specialty Chemicals
Address	1400 N. Providence Road, Ste 302 Media, PA 19063
Phone number	(484) 234-5030
Fax	(484) 234-5037
Emergency Phone number	For Chemical Emergency – Spill, Leak, Fire, Exposure or Accident Call CHEMTREC Day or Night USA + Canada = 1-800-424-9300/703-527-3887

2. HAZARDS IDENTIFICATION

Classification No classification is assigned according to OSHA HCS 2012.

Label Elements

- **Hazard Pictograms** Not applicable.
- **Signal Word** Not applicable.
- **Hazard Statements** Not applicable.
- **Precautionary Statements** Not applicable.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Brand or Generic Chemical Name	Polyethyleneglycol 400
Product Type	Substance.
Synonyms	Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-; Polyethylene glycol 400; Polyoxyethylene 400; PEG-8 (INCI Name).
CAS Number	25322-68-3.
EINECS/NLP number	500-038-2.
Impurities which contribute to the classification of the substance	There are no impurities which contribute to the classification of the substance.

4. FIRST-AID MEASURES

Procedure in Case of:

- **Ingestion** Seek prompt medical attention.
Do not induce vomiting.
Vomiting should only be induced by medical personnel.
If vomiting occurs, keep the head lower than chest to avoid aspiration into the lungs.
Never give anything by mouth to an unconscious or convulsing person.
- **Inhalation** Seek prompt medical attention.
Remove victim to fresh air.
If breathing is difficult, give oxygen.
If not breathing, give artificial respiration.
- **Skin contact** Remove contaminated clothing and shoes. Wash affected areas with plenty of running water, preferably under a shower.
Seek prompt medical attention.
- **Eye contact** Immediately flush with plenty of running water for at least 15 minutes, keeping eyelids open.
Remove contact lenses if easy to do.
Seek prompt medical attention.

Most important symptoms/effects, acute and delayed

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Ingestion - Low toxicity. In large amounts may cause nausea, vomiting and diarrhea.
Inhalation - Due to your low vapor pressure, is unlikely to cause inhalation problems at room temperature. Vapors from the liquid at high temperatures or mist of the product, in high concentrations, may cause irritation of the respiratory system.
Skin - It is unlikely that exposure to small amounts for short periods, may have any irritant or toxic effect. It can be absorbed through the skin and cause mild irritation.
Eyes- May cause mild irritation.

Information for doctor

There is not known any specific antidote.
Direct the treatment in accordance with the symptoms and clinical conditions of the patient.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

In case of fire, use:
Alcohol resistant foam.
Water spray.
Carbon dioxide (CO2).
Dry chemical powder.

Specific Hazards

Product is not flammable.
In case of combustion it may generate carbon monoxide, besides CO2.

Protective measures for fire-fighters

Water jets should not be used directly on igniting products because it may disperse the material and intensify the fire.
Self-contained breathing apparatus and protective clothing are required.
Cool the intact fire-exposed containers with water spray and remove them.

NFPA Rating

- Health 1
- Flammability 1
- Instability 0
- Special

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Isolate and signalize area.
Keep heat and/or ignition sources away.
Use personal protection equipment as indicated in Section 8, in order to avoid contact with spilled product.

Environmental Precautions

Prevent product from entering into soil and waterways.
Notify the competent authorities if the product has run into drainage systems or watercourse or has contaminated the ground or vegetation.

Methods and materials for containment and cleaning up

Stop if possible.
Contain and dike spilled product with earth or sand.
Eliminate ignition or heat sources.
Transfer to proper container.
Collect remnants with an appropriate absorbent material.
Wash the contaminated surface with water, which should be collected for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Use in a well-ventilated area.
Avoid inhalation and contact with eyes, skin or clothing through proper protection.
Emergency eyewashes and showers shall be located in accessible locations.
Wash hands and face thoroughly after handling.
Wash contaminated clothing before reuse.

Conditions for safe storage

Store in a covered and well-ventilated area, away from sunlight and sources of heat or open flames.
Ensure that the storage location has adequate moisture, pressure and temperature.
Keep containers tightly closed when not in use.
This product is hygroscopic.
Tanks should be kept in dry inert gas atmosphere.

Incompatibilities

Avoid contact with:
Acids.
Strong oxidizing agents.
Combustible materials.

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Packaging Material

Recommended:
Stainless steel.
Aluminum.
Tetrafluoroethylene.
XLPE (crosslinking polyethylene).
ABS (acrylonitrile, butadiene and styrene polymer).
Acrylic resin.
Unsuitable:
Polyvinyl chloride (PVC).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

- **TLV-TWA (ACGIH)**
1,4-Dioxane: 20 ppm; 72 mg/m³ [Skin][A3].
Ethylene oxide: 1 ppm; 1.8 mg/m³ [A2].
Skin - Danger of cutaneous absorption.
A2 - Suspected Human Carcinogen
A3 - Confirmed animal carcinogen with unknown relevance to humans.
- **PEL-TWA (OSHA)**
1,4-Dioxane: 100 ppm; 360 mg/m³ [Skin].
Ethylene oxide: 1 ppm.
Skin - Danger of cutaneous absorption.
- **TLV-STEL (ACGIH)**
Ethylene glycol: 100 mg/m³.
(H) - Aerosol only.
Ceiling (C) - The concentration that shall not be exceeded during any part of the working exposure.
A4 - Not classifiable as a Human Carcinogen.
- **LT(NR15)**
Ethylene oxide: 39 ppm; 70 mg/m³.
- **Odor Threshold**
Not available.
- **IDLH**
1,4-Dioxane: 500 ppm.
Ethylene oxide: 800 ppm.
- **Biological Exposure Indices (ACGIH)**
Not established.

Engineering Control Measures In closed environments, this product should be handled keeping proper exhaust (general diluter or local exhauster).

Individual Protection Measures

- **Eye Protection**
Side shields or wide vision safety goggles.
- **Skin Protection**
PVC apron.
It is recommended to adopt safety boots/shoes.
- **Hand Protection**
Gloves made of:
Rubber.
PVC (Polyvinyl chloride).
- **Breathing equipment**
In case of emergency or contact with high concentrations of the product, wear an air supplied mask or self contained breathing apparatus.
It is recommended to wear face mask with organic vapors cartridge in case of exposure to vapors/aerosols.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Liquid.
Viscous.
Colorless.

Odour and Odour threshold Odorless.

pH 5.0 - 7.0 (5% sol., 25 °C).

Melting point/Freezing point 4 - 6 °C.

Initial Boiling Point and Boiling Range > 148 °C @1.013 hPa.

Flash point > 200 °C (open cup).

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits Not available.

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Vapour pressure	< 0.35 mmHg (20 °C).
Vapour density (air = 1)	14 (calculated).
Relative density (water=1)	1130 kg/m ³ (25 °C).
Apparent density	Not applicable.
Solubility	Completely soluble in water.
Partition Coefficient n-octanol/water	Log Kow: -2.30.
Auto-ignition temperature	260 °C.
Decomposition temperature	Not available.
Viscosity	6.8 - 8.0 cSt (98/99 °C).

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use and storage.
Reactivity	No hazardous reactivity is expected.
Possibility of Hazardous Reactions	Not polymerize.
Conditions to avoid	High temperatures, ignition sources and prolonged exposure to the air.
Incompatible materials	Avoid contact with: Acids. Strong oxidizing agents. Combustible materials.
Hazardous decomposition products	In case of combustion it may generate carbon monoxide, besides CO ₂ .
Considerations on the use of the product	Not applicable.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

- Oral LD50, rat: 30200 mg/kg.
- Inhalation Not available.
- Dermal LD50, rabbit: > 20000 mg/kg.

Skin corrosion/irritation In patch tests carried out on 200 healthy volunteers no skin reactions were seen.

Serious eye damage/eye irritation Mild irritation (500 mg/24h, rabbit).

Respiratory or skin sensitization Not available.

Germ cell mutagenicity Negative.
50 pph, hamster; 25 mmol/L, 3h, hamster (+S9); 3 mmol/L - 7 mmol/L, 16h, hamster; 100 g/L, other microorganisms.

Carcinogenicity No tumorigenic effect was produced in mice after intravaginal contact for 1 year. TDLo: 416 mg/kg.

Reproductive toxicity No effect was produced in pregnant rabbits (6 - 18 days) after ingestion. TDLo: 130 mg/kg.

Specific target organ toxicity - Single exposure Not available.

Specific target organ toxicity - Repeated exposure Toxicological reports have suggested an acceptable daily intake of PEG for human estimated up to 10 mg/kg or 0.7 g/70-kg human/day. For low molecular weight PEGs, this acceptable dose could, in theory, give rise to a systemic (absorbed) dose of approximately 400 mg/day.
No effect at doses of 2% in diet. Higher doses showed nonspecific effects on growth and cloudy swellings in the liver.

Aspiration hazard Not available.

12. ECOLOGICAL INFORMATION

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Ecotoxicity	LC50, 24h, Carassius auratus: > 5000 mg/L. LC50, 96h, Carassius auratus: > 20000 mg/L. LC50, 96h, Lepomis macrochirus: 1700 mg/L. EC50, bacteria: > 1000 mg/L.
Persistence and Degradability	Biodegradable. 56.2% by BOD MITI test.
Bioaccumulative Potential	It is not expected to bioaccumulate in the environment. Log Kow: -2.30.
Mobility in soil	It is expected to have high mobility in soil. Log Koc: -1.532.
Other Adverse Effects	Water hazard class 1: Slightly hazardous to water.

13. DISPOSAL CONSIDERATIONS

Recommended methods of disposal

- **Product**

The preferred options for disposal include reuse, recycling, co-processing, finding a use for a by-product, incineration or other thermal destruction process at licensed facilities. All procedures must follow specific operation standards in order to reduce health, safety and environmental risks. Perform co-processing, incineration or other thermal destruction process at facilities capable of minimizing or reducing air pollution emissions. The disposal must comply with federal, state, and local laws and regulations in accordance with the environmental agencies.
- **Product Remains**

Same method as indicated for product.
- **Packaging**

Do not cut or pierce the packaging, nor do hot work near them.
Do not remove labels until the product has been fully removed and the packaging cleaned. The preferred options for disposal include reuse, recycling or reclamation at licensed facilities. All procedures must follow specific operation standards in order to reduce health, safety and environmental risks. The disposal must comply with local legislation and in accordance with standards from local environmental agencies.

14. TRANSPORT INFORMATION

Land Transport ANTT	Product not classified as hazardous in accordance with Resolution 420/2004 - Transport Ministry.
• UN number	N/A
• Proper Shipping Name	Not classified.
• Hazard Class	Not classified.
• Hazard Number	Not classified.
• Packaging Group	Not classified.
Maritime Transport IMDG	Product not classified as hazardous in accordance with IMDG Code - 2012 Edition - IMO (International Maritime Organization).
• UN number	N/A
• Proper Shipping Name	Not classified.
• IMDG Class	Not classified.
• Packaging Group	Not classified.
• EmS	Not classified.
Air Transport ICAO-TI and IATA-DGR	Product not classified as hazardous in accordance with Dangerous Goods Regulations - 55th Edition - IATA (International Air Transport Association).
• UN number	N/A
• Proper Shipping Name	Not classified.
• ICAO/IATA Class	Not classified.
• Label	Not classified.
• Packaging Group	Not classified.

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Land Transportation ADR/RID (cross-border)	Product not classified as hazardous in accordance with Dangerous Goods by Road - Applicable from 1st January 2011 - Unece (United Nations Economic Commission for Europe).
• UN number	N/A
• Proper Shipping Name	Not classified.
• ADR/RID class	Not classified.
• Packaging Group	Not classified.
• Danger code (Kemler)	Not classified.
• Restriction Code	Not classified.
Land Transportation U.S DOT	Product not classified as hazardous in accordance with U.S. DOT (United States Department of Transportation) - 49 CFR 172.101.
Packaging Type	Bulk and Non-bulk
Proper Shipping Name	Not classified.
Hazard Class or Division	Not classified.
ID Number	Not classified.
Packaging Group	Not classified.
Remarks	Not classified.

15. REGULATORY INFORMATION

Applicable standards	Resolution 420 / 2004 – Transport Ministry. IMDG Code - 2012 Edition - IMO (International Maritime Organization). Dangerous Goods Regulations - 55th Edition - IATA (International Air Transport Association). Dangerous Goods by Road (ADR) – Available from January 1st, 2011 – Unece (United Nations Economic Commission for Europe). U.S.A Department of Transportation – DOT – 49 CFR 172.101.
OSHA Hazard Communication Standard	This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
SARA Title III - Sections 311 / 312 (40 CFR 370 Subparts B and C)	Immediate (Acute) Health Hazard: No. Delayed (Chronic) Health Hazard: No. Fire Hazard: No. Sudden Release of Pressure Hazard: No. Reactive Hazard: No.
SARA Title III - Section 313 (40 CFR 372.65)	This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.
SARA Title III - Section 302 (40 CFR 355 Appendix A)	Ethylene oxide (CAS 75-21-8): 10 ppm TPQ 1,000 lb.
CERCLA (40 CFR 302.4) / SARA 304	1,4-Dioxane (CAS 123-91-1): 10 ppm RQ 100 lb. Ethylene oxide (CAS 75-21-8): 10 ppm RQ 10 lb. Ethylene glycol (CAS 107-21-1): 0.2 % RQ 5,000 lb. Reportable Quantity (RQ) of this product is 1 000 000 pounds based upon Ethylene oxide which yielded the lowest resultant RQ according to the following formula: CERCLA ingredient RQ / % of that ingredient in the product.
New Jersey Hazardous Substance List	1,4-Dioxane (CAS 123-91-1): Substance# 0789 (Special Health Hazard Code: CA – Carcinogen; F3 – Flammable 3rd degree). Ethylene oxide (CAS 75-21-8): Substance# 0882 (Special Health Hazard Code: CA – Carcinogen; MU – Mutagen; TE – Teratogen; F4 – Flammable 4th degree; R3 – Reactive 3rd degree). Ethylene glycol (CAS 107-21-1): Substance# 0878.
California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act)	WARNING! This product contains a chemical known to the State of California to cause cancer. - 1,4-Dioxane. - Ethylene oxide. WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. - Ethylene oxide.
Pennsylvania Hazardous Substance List	1,4-Dioxane (CAS 123-91-1) and Ethylene oxide (CAS 75-21-8): Listed also as an environmental hazard and as a special hazardous substance. 1,2-ethanediol (CAS 107-21-1): Listed as an environmental hazard. Ethanol, 2,2 -oxybis- (CAS 111-46-6): Listed.

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Inventory Status

United States & Puerto Rico – Toxic Substances Control Act (TSCA) Inventory: Yes
Canada – Domestic Substances List (DSL): Yes
Canada – Non-Domestic Substances List (NDSL): No
Europe – European Inventory of Existing Commercial Chemical Substances (EINECS): No
Europe – European List of Notified Chemical Substances (ELINCS): No
Australia – Australian Inventory of Chemical Substances (AICS): Yes
Philippines – Philippine Inventory of Chemicals and Chemical Substances (PICCS): Yes
Japan – Inventory of Existing and New Chemical Substances (ENCS): Yes
Korea – Existing Chemicals List (ECL): Yes
China – Inventory of Existing Chemical Substances in China (IECSC): Yes
New Zealand – New Zealand Inventory: Yes
*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

16. OTHER INFORMATION

Remarks

Not applicable.

Sources

2013 TLVs and BEIs – Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices – ACGIH
2013 Guide to Occupational Exposure Values – ACGIH.
European Chemicals Bureau - <http://ecb.jrc.it>
eChemPortal - The Global Portal to Information on Chemical Substances.
LOLI - ChemADVISOR's Regulatory Database.
European Chemicals Agency - <http://echa.europa.eu/>.
OECD - Ecological Categorization Results from the Canadian Domestic Substance List.
Toxnet - Toxicology Data Network.

Abbreviations and acronyms

ACGIH: American Conference of Governmental Industrial Hygienists (USA).
ADR: European agreement concerning the international carriage of dangerous goods by road.
CAS: Chemical Abstracts Service (American Chemical Society - EUA).
EC50: Average concentration for 50% of maximum response.
LC: Lethal Concentration - substance concentration in the environment that leads to death after a certain period of exposure.
LC50: Lethal concentration for 50% of the test animals.
BOD: Biochemical Oxygen Demand.
LD50: Lethal Dose for 50% of the test animals.
LDLo: Lethal Dose Low - minimal amount of a chemical lethal to animals in testing.
EINECS: European Inventory of Existing Commercial Chemical Substances.
GHS: Globally Harmonized System of Classification and Labelling of Chemicals.
IARC: International Agency for Research on Cancer.
IATA: International Air Transport Association.
IATA-DGR: Dangerous Goods by Regulations by the IATA
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the ICAO.
IMDG: International Maritime Code for Dangerous Goods.
IDLH - Immediately Dangerous To Life or Health Concentrations.
Kow: Octanol/water partition coefficient.
LT (NR 15): Exposure limits of the standard number 15 - Unhealthy Operations and Activities from the Ministry of Labour and Employment of Brazil.
LOAEL: Lowest Adverse Effect Level
LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database
NLP: No Longer Polymers.
NIOSH: National Institute for Occupational Safety and Health.
NOAEL: No Observed Adverse Effect Level
NTP: National Toxicology Program.
OSHA: Occupational Safety and Health Administration (EUA).
PEL-TWA: Exposure Limit Allowed – time-weighted average.
RID: Regulations concerning the international transport of dangerous goods by rail.
TLV-STEL: Tolerance Limit - short period of time (15 minutes, maximum).
TLV-TWA: Tolerance Limit – time weighted average.
WGK: Wassergefährdungsklasse (Germany) - Water Hazard Class.

This Safety Data Sheet was authored according to our current knowledge and experience, however cannot imply guarantee of any nature. Considering the variety of factors that can affect their process or application, the information on this sheet does not exempt the processors from the responsibility of executing their own tests and experiments.