Material Safety Data Sheet
Carbowax PEG 400

MSDS# 19121

Section 1 - Chemical Product and Company Identification

MSDS Name: Carbowax PEG 400
Catalog Numbers: P167-1
Synonyms: Poly(oxy-1,2-ethanediyl), alpha-hydro-omega-hydroxy-; Polyethylene glycol; Poly(ethylene oxide); Poly(oxyethylene) glycol; Ethylene oxide, homopolymer.

Company Identification:
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
For information in the US, call: 201-796-7100
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#: 25322-68-3
Chemical Name: Polyethylene glycol
%: 100
EINECS#: unlisted

Hazard Symbols: None listed
Risk Phrases: None listed

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Caution! This is expected to be a low hazard for usual industrial handling. Good laboratory procedures are recommended when handling this compound. May cause eye, skin, and respiratory tract irritation. Target Organs: None.

Potential Health Effects
Eye: May cause mild eye irritation.
Skin: May cause skin irritation.
Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation: May cause respiratory tract irritation.
Chronic: Prolonged exposure may cause eye irritation.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation develops, get medical aid.
Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.
Ingestion: Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Wash mouth out with water. Get medical aid if irritation or symptoms occur.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

Notes to Physician:

Section 5 - Fire Fighting Measures
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media:

Autoignition Temperature: Not available.
Flash Point: 176 deg C (348.80 deg F)
Explosion Limits:
Lower: Not available
Upper: Not available
NFPA Rating: health: 0; flammability: 1; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Keep container tightly closed.
Storage: No special precautions indicated. Store at room temperature.

Section 8 - Exposure Controls, Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
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<tbody>
<tr>
<td>Polyethylene glycol</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
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</table>

OSHA Vacated PELs: Polyethylene glycol: None listed

Engineering Controls:

Good general ventilation should be sufficient to control airborne levels.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Glove protection is not normally required.

Clothing: Protective garments not normally required.

Respirators: Respirator protection is not normally required.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Color: clear
Odor: mild odor
pH: 4.5-7.5 (5% soln)
Vapor Pressure: Not available
Vapor Density: Not available
Evaporation Rate: 0.01 (Butyl acetate=1)
Viscosity: 6.8-8.0 cS@99C
Boiling Point: Not available
Freezing/Melting Point: 8 deg C (46.40°F)
Decomposition Temperature: Not available
Solubility in water: Soluble
Specific Gravity/Density: 1.128 @ 25°C
Molecular Formula: C2H4OnH2O
Molecular Weight: 380-420

Section 10 - Stability and Reactivity

Chemical Stability: Stable.

Conditions to Avoid: No specific conditions to avoid noted.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

CAS# 25322-68-3: TQ3500000 TQ3520000 TQ3560000 TQ3580000 TQ3600000 TQ3610000 TQ3620000 TQ3630000 TQ3650000 TQ3675000 TQ3700000 TQ3800000 TQ3850000

RTECS#: TQ4025000 TQ4026000 TQ4027000 TQ4028000 TQ4030000 TQ4040000 TQ4041000 TQ4050000 TQ4070000 TQ4100000 TQ4105000 TQ4110000 TQ4950000 TQ5090000 TR1579850 ZD2465300

RTECS: CAS# 25322-68-3: Draize test, rabbit, eye: 500 mg/24H Mild;
Draize test, rabbit, eye: 100 uL Mild;
Draize test, rabbit, eye: 500 mg Mild;
Draize test, rabbit, eye: 500 mg Mild;
Draize test, rabbit, eye: 500 mg Mild;
Draize test, rabbit, eye: 500 mg/24H Mild;
Draize test, rabbit, eye: 500 mg/24H Mild;
Draize test, rabbit, eye: 500 mg Mild;
Draize test, rabbit, eye: 500 mg/24H Mild;
Oral, mouse: LD50 = 34 gm/kg;
Oral, mouse: LD50 = 31 gm/kg;
Oral, mouse: LD50 = 28915 mg/kg;

LD50/LC50: Oral, mouse: LD50 = 36 gm/kg;
Oral, rabbit: LD50 = 17300 mg/kg;
Oral, rabbit: LD50 = 76 gm/kg;
Oral, rabbit: LD50 = 14 gm/kg;
Oral, rabbit: LD50 = 17300 mg/kg;
Oral, rabbit: LD50 = 26800 mg/kg;
Oral, rabbit: LD50 = 19 gm/kg;
Oral, rabbit: LD50 = 28900 mg/kg;
Oral, rabbit: LD50 = 76 gm/kg;
Oral, rat: LD50 = 28 gm/kg;
Oral, rat: LD50 = 31640 mg/kg;
Oral, rat: LD50 = 27500 mg/kg;
Oral, rat: LD50 = 22 gm/kg;
Oral, rat: LD50 = 30200 mg/kg;
Oral, rat: LD50 = 600 mg/kg;
Oral, rat: LD50 = 30 gm/kg;
Oral, rat: LD50 = 32 gm/kg;
Oral, rat: LD50 = 1054

Carcinogenicity: Polyethylene glycol - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other:

Standard Draize Test: Administration onto the skin (rabbit) = 500 mg/24H (Mild). Standard Draize Test: Administration into the eye (rabbit) = 500 mg/24H (Mild).

Section 12 - Ecological Information

Ecotoxicity: Fish: Goldfish: LC50 = >5000 mg/L; 24 Hr.; Unspecified
Bacteria: Phytobacterium phosphoreum: EC50 =100,000 mg/L; 15 minutes; Microtox test
Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Not regulated as a hazardous material
Hazard Class:
UN Number:
Packing Group:
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols: Not available
Risk Phrases:
Safety Phrases:

WGK (Water Danger/Protection)
CAS# 25322-68-3: 1

Canada
CAS# 25322-68-3 is listed on Canada's DSL List
Canadian WHMIS Classifications: Not controlled.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.
CAS# 25322-68-3 is not listed on Canada's Ingredient Disclosure List.

US Federal
TSCA
CAS# 25322-68-3 is listed on the TSCA Inventory.

Section 16 - Other Information
MSDS Creation Date: 7/01/1999
Revision #9 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

REVIEWED
DATE: August 21, 2012

[Signature]