



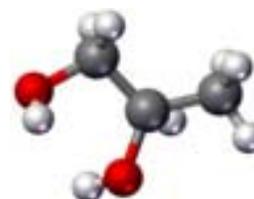
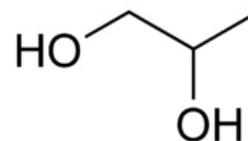
PROPYLENE GLYCOL (PPG)

Chemical Formula: $C_3H_8O_2$

CAS Registry Number: 57-55-6

Molecular Weight: 76.09

PRODUCT INFORMATION



- (.+.-)-1,2-Propanediol
- (.+.-)-Propylene glycol
- (RS)-1,2-Propanediol
- 1,2-(RS)-Propanediol
- 1,2-DIHYDROXYPROPANE
- 1,2-PROPANDIOL
- 1,2-Propanediol
- 1,2-Propylene glycol
- 1,2-PROPYLENEGLYCOL
- 1000PG
- 2,3-Propanediol
- 2: PN: US20050147610 SEQID: 2 claimed protein
- 2-Hydroxypropanol
- Adeka PG
- Adeka Propylene Glycol PG-P
- DL-1,2-Propanediol
- dl-Propylene glycol
- Dowfrost
- Immunoglobulin G1, anti-(human interleukin 18 (human heavy chain constant domain)
- Isopropylene glycol
- Methyl ethylene glycol
- Methylethyl glycol
- Methylethylene glycol
- MONO PROPYLENE GLYCOL
- Monopropylene glycol
- NSC 69860
- PG 12
- PG-T
- PG-T (glycol)
- POLYESTER OF 1,2-PROPANEDIOL
- ProGlyc 55

=====

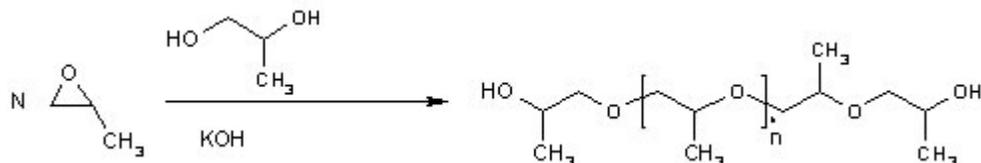
NOTICE: THE INFORMATION BELOW IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES. IN NO EVENT SHALL SAMCHEM PRASANDHA BE LIABLE FOR ANY CLAIMS, LOSSES, OR DAMAGES OF ANY THIRD PARTY OR LOST PROFITS OR ANY SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES, HOWSOEVER ARISING, EVEN IF SAMCHEM PRASANDHA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

=====

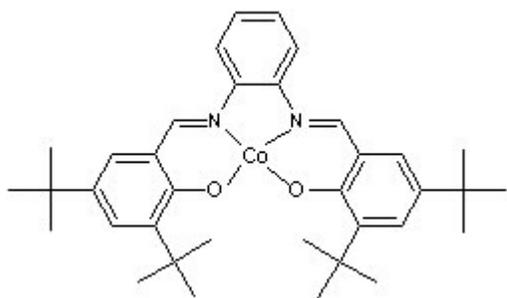


Polymerization

Polypropylene glycol is produced by anionic ring-opening polymerization of propylene oxide. The initiator is an alcohol and the catalyst a base, usually potassium hydroxide. When the initiator is ethylene glycol or water the polymer is linear. With a multifunctional initiator like glycerine, pentaerythritol or sorbitol the polymer branches out.



Conventional polymerization of propylene oxide results in an atactic polymer. The isotactic polymer can be produced from optically active propylene oxide, but at a high cost. A salen cobalt catalyst has recently been reported to provide isotactic polymerization of the racemic propylene oxide.



Cobalt Catalyst for isotactic polypropylene oxide

Physical and Chemical Properties

Appearance: Clear oily liquid.

Odor: Odorless.

Solubility: Miscible in water.

Specific Gravity: 1.0361 @ 20°C/4°C

pH: No information found.

% Volatiles by volume @ 21°C (70°F): No information found.

Boiling Point: 188.2°C (370°F)

Melting Point: -59°C (-74°F)

Vapor Density (Air=1): 2.6

Vapor Pressure (mm Hg): 0.129 @ 25°C (77°F)

Evaporation Rate (BuAc=1): 0.01

Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition. Aldehydes or lactic, pyruvic or



acetic acids may also be formed.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizing agents.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

Hazards Identification

Emergency Overview

CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.

Health Rating: 2 - Moderate (Life)

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation:

No adverse health effects via inhalation.

Ingestion:

Relatively non-toxic. Ingestion of sizable amount (over 100ml) may cause some gastrointestinal upset and temporary central nervous system depression. Effects appear more severe in individuals with kidney problems.

Skin Contact:

Mild irritant and defatting agent, especially on prolonged contact.

Eye Contact:

May cause transitory stinging and tearing.

Chronic Exposure:

Lactic acidosis, stupor and seizures have been reported following chronic ingestion.

Aggravation of Pre-existing Conditions:

Kidney disorders.

First Aid Measures

Inhalation:

Remove to fresh air. Not expected to require first aid measures.

Ingestion:

Not expected to require first aid measures. Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Contact:

Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Contact:



In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Call a physician if irritation persists.

Note to Physician:

In case of ingestion, monitor for acidosis and central nervous system changes. Exposed persons with previous kidney dysfunction may require special treatment.

Fire Fighting Measures

Fire:

Flash point: 99°C (210°F) CC

Autoignition temperature: 371°C (700°F)

Flammable limits in air % by volume:

l_{el}: 2.6; u_{el}: 12.5

Material can support combustion.

Explosion:

Containers may explode in heat or fire.

Fire Extinguishing Media:

Dry chemical, foam, water or carbon dioxide.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Move exposed containers from fire area, if it can be done without risk. Use water to keep fire-exposed containers cool.

Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!

Handling and Storage

Protect container from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture, and incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Exposure Controls/Personal Protection

Airborne Exposure Limits:

AIHA Workplace Environmental Exposure Level (WEEL): TWA = 10mg/m³.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the



contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a half-face respirator with an organic vapor cartridge and particulate filter (NIOSH type P95 or R95 filter) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece respirator with an organic vapor cartridge and particulate filter (NIOSH P100 or R100 filter) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. Please note that N series filters are not recommended for this material. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

Ecological Information

Environmental Fate:

When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to leach into groundwater. When released into water, this material is expected to readily biodegrade. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days.

Environmental Toxicity:

No information found.

Other Information

NFPA Ratings: Health: 0 Flammability: 1 Reactivity: 0

Label Hazard Warning:

CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.

Label Precautions:

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Label First Aid:

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Call a physician if irritation develops or persists.
