Propylene glycol ethyl ether (PGEE) and Propylene glycol ethyl ether acetate (PGEEA) [Ethyl PROXITOL and Ethyl PROXITOL acetate]

Product Stewardship Summary

(CAS number PGEE US:52125-53-8; EU:1569-02-4)
(CAS number PGEEA US:98516-30-4; EU:54839-24-6)

Chemical Formula for PGEE and PGEEA

PGEE- C₅H₁₂O₂
PGEEA- C₇H₁₄O₃

What is PGEE and PGEEA?

PGEE and PGEEA are both glycol ether based on Propylene oxide and ethanol. They are solvents having a bi-functional nature (ether-alcohol and the respective acetate). They are both a clear liquid with a sweetish odour.

The Shell Chemicals range of Propylene oxide-based glycol ethers are sold under the trade name PROXITOL.

How is PGEE and PGEEA Used?

It is used as an intermediate and in formulations in industrial, professional or consumer applications. Mainly in surface coatings and printing inks and paints, cleaners, agrochemical or de-icing/anti-icing formulations.

Health, Safety and Environmental Considerations

PGEE and PGEEA are flammable liquids with flashpoints of 104°F/40°C and 127°F/53°C. PGEE and PGEEA are an isomer mix, of which the main component is 1-Ethoxypropanol-2 (typically 98% or more) and its acetate.

If large quantities are ingested or high vapour concentrations inhaled, PGEE and PGEEA may cause central nervous system depression including headaches, nausea, dizziness, drowsiness, and coma. To a certain extent, PGEE can cause slight irritation of the skin and respiratory tract, but these effects do not trigger classification according to GHS criteria. However, PGEE has been shown to cause serious eye irritation. Shell PROXITOLs are not classified as carcinogens or mutagens, are not expected to cause cancer in humans, nor do they impair fertility or damage the developing foetus.

Some countries have determined an occupational exposure limit for PGEE and these can be found in the Safety Datasheet for that county. The derived no effect levels for acute inhalation exposure
are 211 mg/m³ for workers who are expected to be protected by adequate personal protection equipment and 300 mg/m³ for consumers.

PGEE and PGEEA show low toxicity towards aquatic organisms. They are completely miscible with water, biodegradable and not expected to bio-accumulate.

Storing and Transporting PGEE and PGEEA

PGEE and PGEEA are transported by tank truck, rail car and vessel, primarily in bulk quantities, but also as packed product. Due to its flammability, they are classified as hazardous for transport under transport regulations.

Glycol ethers should be stored at ambient temperatures away from sources of ignition and substances with oxidising or corrosive properties. PROXITOLs are stabilised with a certain amount of inhibitor to prevent the formation of peroxides.

Risk Characterization Summary

Risks associated with exposure to these products have been evaluated for the following “chain-of-commerce” activities: manufacture, storage, product transfer, transportation, and customers/markets. They are manufactured, stored and transported to customers in closed systems. Depending on the customer, end uses may vary from use as an intermediate for the manufacture other chemicals, as commercial products or as formulated consumer products. Proper equipment design and handling procedures maintain low risk from exposure to the product where the product is used as a chemical intermediate. Exposures may be higher in commercial and consumer applications. To minimize risk, additional controls, such as special handling procedures and protective packaging are implemented.

This product stewardship summary is intended to give general information about PGEE and PGEEA. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the chemical’s applicable Safety Data Sheet, which should be consulted before use of the chemical. This product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.

Disclaimer

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