

MPDIOL Glycol

INCI Name: Methyl Propanediol

Introduction

MPDIOL glycol is a colorless, low viscosity liquid with a unique molecular structure: a low Molecular weight-branched aliphatic diol with two primary hydroxyls. MPDIOL glycol is water soluble at room temperature and it also has low volatility and a high flashpoint. As an isomer of 1,3-butyleneglycol, MPDIOL glycol offers similar performance characteristics.

MPDIOL glycol is an excellent solvent and humectant. In many formulations, MPDIOL glycol is a direct replacement for propylene glycol or 1,3-butyleneglycol. MPDIOL glycol can be used as a neutralizer, emollient, emulsifier and humectant, as well as a fragrance enhancer and carrier solvent. MPDIOL glycol has a broad solvency that helps enhance fragrances, while giving clear homogeneous solutions.

Applications

- Skin and facial washes, creams, and lotions
- Sunscreens and self tanners
- Shampoo, conditioners, relaxants, and dyes
- Foundations
- Mascara
- Eyeliners
- Lipsticks
- Deodorants
- Fragrance applications

*Typical Analysis

Assay, wt.% min.....	98.0
2-methyl-1,3-pentanediol, wt.% max.....	2.0
Color, APHA max.....	20
Water, wt.% max.....	0.10
Carbonyl (as CHO), ppm. max.....	500
Iron, wt. ppm. max.....	0.5

*for current specifications, call 1-888-777-0232.

Benefits

MPDIOL glycol brings distinctive advantages to personal care, cosmetic and household fragrance formulations. Its properties provide a formulating edge that can solve problems or enhance your formulation, often without any reformulation. In comparison to conventional glycols, MPDIOL glycol provides a variety of benefits in product formulations, such as humectancy, making it the product of choice in a variety of applications.

Broad Solvency. MPDIOL glycol is an excellent solubilizer that enhances clarity while providing improved consistency and homogeneity.

Fragrance Enhancement. MPDIOL glycol has the ability to enhance and fix fragrances when used as a carrier solvent, leading to its increased use in fragranced products.

Skin Feel and Hydroscopicity. MPDIOL glycol provides a smooth, non-tacky feel as well as moisturizing benefits comparable to other glycols. When used in conjunction with glycerin, formulations containing MPDIOL glycol show a synergistic effect maintaining a high level of hydration, while benefiting from MPDIOL glycol's improved skin feel.

Frequently Asked Questions

Is MPDIOL glycol safe?

Lyondell Chemical Company has subjected MPDIOL glycol to extensive testing as summarized below and find it acceptable for use in a variety of personal care applications. It is not approved for ingestion. The following information sheets are available for your review by contacting your Lyondell representative or customer service at 1-888-777-0232.

- *MPDIOL* Glycol Environmental Aspects Report
- Clinical Dermal Studies Conducted with *MPDIOL* Glycol
- *MPDIOL* Glycol Skin Hydration Test
- *MPDIOL* Glycol Skin Feel Test

MPDIOL glycol is acceptable for use in topically applied wash-off and leave-on products and may also be used in products intended for use around the eyes and mouth. Presently, *MPDIOL* glycol has been used in fragrances, sunscreens, self tanning lotions, cosmetics, hair care and face care products to name a few.

What kind of clinical evaluations have been performed with MPDIOL glycol?

As part of our review of standard product safety research, *MPDIOL* glycol has been tested clinically on bare skin from neat application to concentration levels of 50%. *MPDIOL* glycol performed similarly to other glycols tested under the same conditions. Studies using actual product formulations have shown that *MPDIOL* glycol is safe in cosmetics in concentrations up to at least 50%. Typically, it is used in concentrations less than 10%.

Toxicology and Regulatory Overview

MPDIOL glycol is of low toxicity as determined by oral and dermal routes of exposure. It has low skin and eye irritation potential and is not a dermal sensitizer. Studies in humans confirm that *MPDIOL* glycol has low potential to cause irritation or sensitization following topical application. Based on studies in bacteria and mammalian cells, *MPDIOL* glycol is not a genetic toxicant. The weight of evidence indicates that *MPDIOL* glycol showed no reproductive or developmental effects in animal studies even at repeated, high-level oral exposures. Although *MPDIOL* glycol has not been tested for carcinogenicity, the available data and consideration of structure activity relationships suggests that it would be unlikely to present a carcinogenic hazard.

Biodegradation

MPDIOL glycol is inherently biodegradable. The ultimate biodegradation products are carbon dioxide and water since it contains only carbon, hydrogen and oxygen. For more detailed Information on toxicology and regulatory matters, please call customer service at 1-888-777-0232.

Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended use and can be used safely and legally.

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This product(s) may not be used in:

- (i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I medical devices, without prior notification to Seller for each specific product and application; or
- (ii) the manufacture of any of the following, without prior written approval by Seller for each specific product and application: U.S. FDA Class II Medical Devices; Health Canada Class II or Class III Medical Devices; European Union Class II Medical Devices; film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices; packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration; tobacco related products and applications, electronic cigarettes and similar devices, and pressure pipe or fittings that are considered a part or component of a nuclear reactor. Additionally, the product(s) may not be used in: (i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices; (ii) applications involving permanent implantation into the body; (iii) life-sustaining medical applications; and (iv) lead, asbestos or MTBE related applications. All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

Users should review the applicable Safety Data Sheet before handling the product.

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