

Memorandum

April 18, 2007

To: Jordan Essentials Representatives

Re: Propylene Glycol

Propylene glycol (along with other glycols and glycerol) has many uses; it is used as a humectant, emollient, emulsifier, solvent, moisturizer, lubricant and surfactant in cosmetic formulations. Propylene glycol (PG) is a tasteless, odorless, and colorless oily liquid that is produced by fermentation of yeast and carbohydrates. It is commonly used in a variety of consumer products; including cosmetics, personal care items, pharmaceuticals, and some food products.

There have been claims made that PG is an inappropriate ingredient for cosmetics and foods because it can also be used in products (such as antifreeze and brake and hydraulic fluids), which one would not want to consume. Such observations are well intended but ultimately not very informative. It is ethylene glycol (EG), for example, which is a more common ingredient in antifreeze and which is, in fact, highly toxic. The American Society for the Prevention of Cruelty to Animals (ASPCA) actually recommends the use of PG-based antifreeze because it is safer than EG should pets accidentally ingest it. Like EG, PG affects the body's chemistry by increasing the amount of acid. PG is metabolized into lactic acid, which occurs naturally as muscles are exercised, while EG is metabolized into oxalic acid, which is toxic.

Material Safety Data Sheet (MSDS) on PG warns users to avoid skin contact because systemically (in the body) it can cause liver abnormalities and kidney damage. It is important to realize that the MSDS sheets are talking about 100% concentrations of a substance. Even water and salt have frightening comments regarding their safety according to the MSDS. But in most products, especially in "leave on" applications like lotions and cosmetics, PG is only used in small percentages. The MSDS for the PG used by Jordan Essentials contains no indications of carcinogenicity or chronic exposure effects. The concentrated form of the ingredient can, however, cause temporary reddening, stinging or swelling when it comes in contact with the eyes or skin. This indication does not mean that a product formulated with the ingredient will have irritating properties. In fact, studies showed "PG seems to exhibit very low sensitization potential, and the risk for sensitization to PG on skin seems to be very low."¹ Furthermore, toxicity studies indicate "a lack of genotoxic, developmental and reproductive hazards."²

PG is considered a safe and appropriate ingredient not just for cosmetic products, but also for ingested products like food and pharmaceuticals. It is on the US Food and Drug Administration's (FDA) list as an ingredient that is Generally Recognized As Safe (GRAS) and is recognized by the World Health Organization as safe for use. The final report on the safety assessment of PG and its derivatives published in the National Library of Medicine by the National Institute of Health concludes that, PG derivatives "are safe as used (concentrations no greater than 10%) in cosmetic formulations."³

Based upon the conclusions published by the FDA and the Cosmetic Ingredient Review (CIR)^{4,5} as well as the extensive research and long history of safe usage, Jordan Essentials finds at this time that PG is safe as a cosmetic ingredient in concentrations no greater than 10%. Jordan Essentials continues to monitor the safety and quality of their products in order to ensure the highest standards of excellence.

Jordan Essentials is a resource dedicated to bringing the latest and most important information on personal care products to everyday people. This information is not intended to diagnose, treat and cure or prevent disease. Always consult with your professional health care provider for individual health and use concerns.

¹ “Skin-sensitizing and irritant properties of propylene glycol.” *Contact Dermatitis* 53(5):247-59 Nov 2005.

² “New toxicity data for the propylene glycol ethers – a commitment to public health and safety.” *Toxicol Lett* 156(1):181-8 Mar 2005.

³ “Final report on the safety assessment of PEG-25 propylene glycol stearate, PEG-75 propylene glycol stearate, PEG-120 propylene glycol stearate, PEG-10 propylene glycol, PEG-8 propylene glycol cocoate, and PEG-55 propylene glycol oleate.” *Int J Toxicol* 20 Suppl 4:13-26 2001.

⁴ “Final report on the safety assessment of PPG-11 and PPG-15 stearyl ethers.” *Int J Toxicol* 20 Suppl 4:53-9 2001.

⁵ “Safety of ingredients used in cosmetics.” *J AM Acad Dermatol* 52(1):125-32 Jan 2005.

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