

# HOUSEHOLD AND PERSONAL PRODUCTS INDUSTRY

# Hanni

December 2008 [www.hanni.com](http://www.hanni.com)

## Hair Care Trends

Clean. Condition. Color.

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# A NOVEL, NATURAL HUMECTANT

**H**UMECTANTS are hygroscopic, they attract and retain moisture from the atmosphere. The most common ones are polyhydric alcohols with structures shown in Fig. 1.

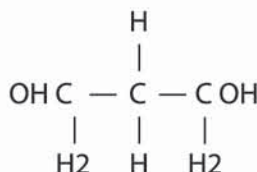
DuPont and Tate & Lyle formed a joint venture in 2004, DuPont Tate & Lyle Bio

Products, to create products from renewable resources such as corn. DuPont, with its headquarters in Wilmington, DE, developed the biotechnology expertise. Tate & Lyle, with headquarters in London, UK, uses natural raw materials such as corn, wheat and sugar, to produce functional products such as cereal sweeteners, starches, sugars and citric acid. A proprietary fermentation and purification process developed together by the two companies is used to produce petroleum-free 1,3 propanediol.

as a humectant derived from a sustainable and renewable corn sugar, rather than from a petro-

leum source. A skin moisturization study was conducted on 10 female volunteers comparing Zemea with propylene glycol and butylene glycol in an oil-in-water skin care emulsion with 5% glycol concentration. A Corneometer 825 PC (Courage &

**Fig. 2: Structure of Zemea**



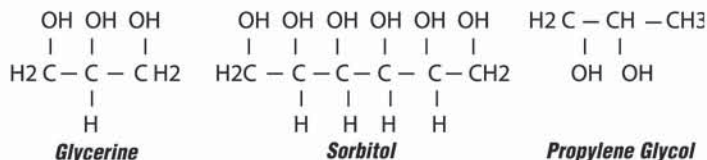
**1,3 Propanediol**

Khazaka) was used to measure skin moisturization. Over the four-hour time period, Zemea was more efficient than butylene glycol and propylene glycol in moisturizing the skin throughout the entire testing period.

Zemea is also claimed to be an emollient, feel modifier and solvent with no skin irritation or sensitization. In a human skin patch test with 207 subjects, Zemea and propylene glycol (USP) were tested at various pH levels and at concentrations of 25, 5 and 75%. At all levels, results for Zemea indicated no irritation or sensitization potential.

Zemea is guaranteed to contain no added preservatives, petroleum-based ingredients, or animal by-products. It has not been tested on animals. An emulsion illustrating its use follows.

**Fig. 1: Structure of Polyhydric Alcohols**



**Ingredients**

**%Wt.**

*Phase A*

Water	61.34
Tetrasodium EDTA	0.10
Zemea	5.00
Carbomer 980 (2%)	10.00

*Phase B*

Mineral oil	10.00
*Didecene	5.00
Glyceryl stearate	2.50

(and) PEG 100 stearate

Stearic acid	2.50
Cetearyl alcohol	0.50
Dimethicone	1.00

*Phase C*

Sodium hydroxide (20%)	1.06
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*Phase D*

Propylene glycol (and) diazodinyurea (and) methylparaben (and) propylparaben	1.00
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**Procedure:**

Stir constantly. Heat phase A and B to 75°C, then add B to A. Add phase C. Cool to 40°C and add D.

*\*According to the Personal Care Products Council's 2008 International Buyers Guide, there are no suppliers for this ingredient.*

In August, Ecocert approved Zemea as a raw material of natural origin for the cosmetics and personal care market. This is the first specialty glycol product to be approved by Ecocert. Cosmetic and personal care companies that are seeking Ecocert certification for their products now have an Ecocert-approved glycol to use in their formulations. Certification testing for GRAS and USP are currently underway. ●



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In the cosmetic industry, the brand name is Zemea for the INCI name propanediol. Its structure is shown in Fig. 2.

As can be seen from the structure above, propylene glycol is 1,2 propanediol. The properties are very similar and Zemea is being promoted