



Hest G-18-0 Anti-Microbial Moisturizing Ester



GLOBAL SEVEN

Hest G-18-O Anti-Microbial Moisturizing Ester

Hest G-18-O

- Water soluble, alcohol soluble ester
- Warming effect greater than glycerine
- Anti-microbial activity against a wide range of microorganisms
- Reduce or eliminate conventional preservatives including parabens & formaldehyde donors
- Delivers long lasting anti-microbial protection
- Reduces tack and drag of other ingredients such as carbomer
- Rich feel on application adds cushion & play-time without greasiness
- Smooth light emollient after feel similar to silicone
- Adds preservative protection to formulations
- Ideal for hard to preserve formulations such as sunscreens, sensitive skin and preservative free
- Non-Irritating, Moisturizing
- Ideal solvent for water insoluble materials, e.g. Salicylic Acid
- Patent pending technology

DESCRIPTION

Global Seven Hest G-18-O is an emollient ester with a combination of truly unique properties. It is produced by esterification of ethylhexanoic acid with glycereth-18. This results in a material that has the benefits of glycerin and glyceryl ethoxylates without the negatives like slow absorption, greasiness, tack or drag. Hest G-18-O is non-irritating and is soluble in water as well as alcohol. Its heat of solution is exothermic delivering a warming effect 2-3 times that of glycerine when applied to moist skin. Hest G-18-O is an effective anti-microbial agent with activity against a wide range of

microorganisms. In addition Hest G-18-O can eliminate tackiness and drag of other ingredients such as glycerin or gums, resins and thickeners such as carbomer. Although it is a slow spreading ester it is readily absorbed. The result in formulations is added cushion and play-time on initial application, smooth non-draggy rubout and a light emollient after-feel without tack or greasiness similar to that of silicone. It is also an ideal solvent for water insoluble materials such Salicylic Acid. Hest G-18-O improves product performance, delivers unique feel and consistency, increases formulation versatility, enhances aesthetics and reduces development cycle time.

PROPERTIES

Safety

Dermal irritation of Hest G-18-O was evaluated using undiluted (neat) material under occlusive conditions and ocular irritation was evaluated using a 20% solution in water. In both cases Hest G-18-O was found to be non-irritating.

Solvent Properties

Hest-G-18-O is an ideal solvent for water insoluble materials. For example concentrations as high as 20% or higher of Salicylic Acid are soluble in Hest G-18-O giving stable solutions at room temperature.

Anti-microbial Properties

Hest G-18-O was evaluated for anti-microbial activity at various concentrations to determine its

Minimum Inhibitory Concentration (MIC) using methodology of the United States Pharmacopoeia, National Formulary, 1995. The data below demonstrate the anti-microbial effectiveness of Hest G-18-O.

The results demonstrate that at concentrations of 1-2% or less Hest G-18-O is an effective anti-microbial agent with activity against a wide range of microorganisms including gram positive bacteria, gram negative bacteria, yeast and mold. The exact use level needed in a finished product formulation may vary with application. Hest G-18-O anti-microbial efficacy is similar to that of glyceryl caprylate but unlike glyceryl caprylate Hest G-18-O is water soluble.

Since it is water soluble it is easier to formulate with. It can be added to the water phase before or after emulsification without disrupting the HLB of the oil phase eliminating the need to rebalance the oil phase or emulsification system.

Finished products using Hest G-18-O have greater resistance to microbial challenge, require lower levels of preservatives to pass challenge testing while delivering moisturization and long lasting anti-microbial protection to consumers. Furthermore, since it is soluble in alcohol and water it can be added to clear hydroalcoholic or hydrogel systems delivering a silky, soft after-feel, without tack or drag while maintaining product clarity.

Minimum Inhibitory Concentration (MIC) Determinations for Hest G-18-O

Organism	Concentration of Hest G-18-O, %*				
	0.15	0.3	0.6	1.5	3
Gram Positive Bacteria: S. aureus, B. subtilis	+	50%	-	-	-
Gram Negative Bacteria: E. coli, P. aeruginosa	+	50%	-	-	-
Yeast & Mold: A. niger, P. notatum, C. albicans	+	+	+	-	-

*Dilutions of Hest G-18-O were obtained by adding an appropriate amount of Hest G-18-O directly into the test media to yield the concentrations listed.

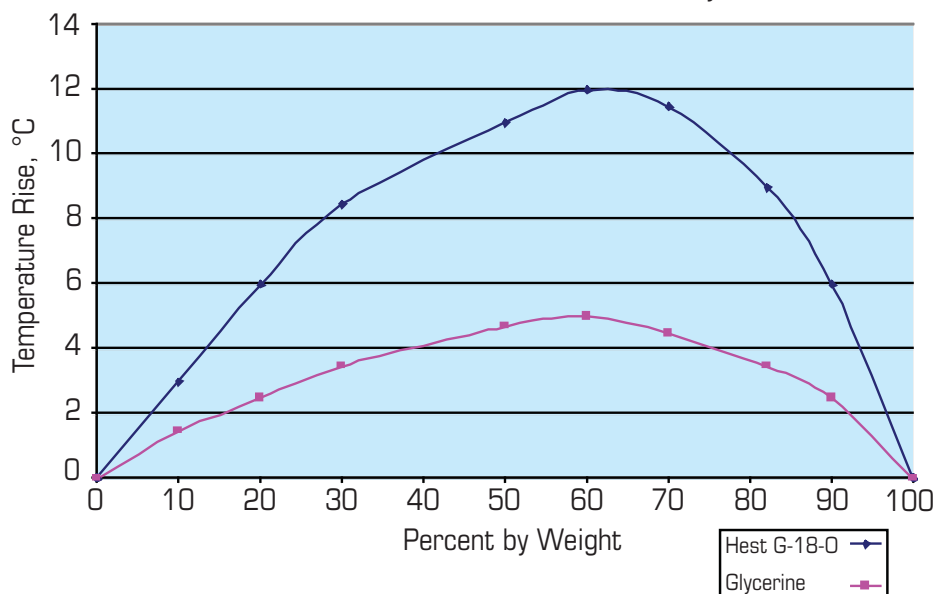


Warming Properties

When Hest G-18-O is dissolved in water at ambient temperature, there is a rise in temperature. This rise in temperature is about 2-3 times more than that obtained with the same weight of glycerine or propylene glycol. The temperature rise reaches a maximum of about 12°C when about 60% by weight of Hest G-18-O is used. This compares to a maximum of only about 5°C for glycerine or propylene glycol.

The maximum amount of heat (though not the greatest rise in temperature) is obtained when the Hest G-18-O is dissolved in a large excess of water. If the Hest G-18-O, glycerine or propylene glycol is not anhydrous, some of its heat of solution will already have been dissipated. Correspondingly, smaller amounts of heat will be produced by further dilution.

Heat of Solution Hest G-18-O vs Glycerine



APPLICATION

This technology enables the formulator to create products with unique attributes. Hest G-18-O is an ideal choice for use in sensitive skin applications since it is totally non-irritating. Because Hest G-18-O is an effective anti-microbial it can reduce or eliminate the need for conventional preservatives including parabens and formaldehyde donors. In leave on products it also provides long lasting anti-microbial protection along with moisturization to consumers. It is an ideal choice for use in formulations that may be difficult to preserve such as sunscreens, sensitive skin products and preservative free products. Since it is water soluble it can be added to the water phase before emulsification or post-added to the water phase of oil in water emulsions. Therefore the aesthetics of prototypes can be easily adjusted to any feel desired without impacting the oil phase or requiring the emulsification system to be rebalanced. This means a reduction in development and scale-up cycle time. Hest G-18-O is also an ideal solvent for water insoluble materials. For example, Salicylic Acid is readily soluble in Hest G-18-O at room temperature. This means that Salicylic Acid, which is less irritating than other hydroxy acids can be used in exfoliation applications without the need for skin damaging solvents like ethyl alcohol resulting in reduced irritation, improved aesthetics, and increased performance. Use levels vary with application but are generally from 0.5-10%. Where used as the sole emollient concentrations of 5-10% or more may be appropriate. Where used in combination with other emollients then concentrations of 1-5% or less may be appropriate.

REGULATORY

Hest G-18-O: INCI Name: Glycereth-18 Ethylhexanoate (and) Glycereth-18
 CAS #: 827307-68-6, 31694-55-0
 EINECS #: Polymer Excluded



GLOBAL SEVEN

6 Park Drive • P.O. Box 367 • Franklin, NJ 07416

Phone: 973-209-7474 • Fax: 973-209-6108

www.globalseven.com

Global Seven, Inc. believes the information contained in this literature to be reliable, but it is only representative information. No warranty is given or implied as to accuracy, suitability for particular applications or the results to be obtained. No recommendation should be construed as inducement to infringe patents.