



Naturally Fortifying Enhancement Systems

NEW FOR 2007

Enhansys[®] ECO-4B
ECO-Friendly Fortifying Enhancement System
For Personal Care Products
EPA Inert List 4B Minimal Risk Ingredients

Overview

Enhansys[®] newest line of tailored personal care systems are based on **EPA Inert List 4B Minimal Risk Ingredients** that economically fortify your formulations naturally and at the same time help you to achieve a number of challenging formulation goals. These naturally-derived, Patent-Pending proprietary systems give you an alternative approach to protecting your formulations from manufacturing to the shelf, while at the same time enhancing formulation performance...eco-nomically.

Enhansys[®] is a versatile and cost effective approach for fortifying and enhancing Personal Care product formulations. Use **Enhansys[®]** for the formulation performance functionalities of conditioning, moisturization, thickening, stabilizing and pH control, in place of traditional ingredients-*and find that traditional preservatives are not needed.* **Enhansys[®]** fortified formulations are self-preserving systems that enable a high level of protection against in-package biodegradation resulting from manufacturing contamination, process water, raw materials and/or environment. **Enhansys[®]** systems are clear liquids that function at low concentration and are fully compatible with nonionic, anionic, and cationic surfactants, emulsifiers and proteins.

Enhansys[®] ECO-4B is a patent-pending, cost effective fortifying system based on **EPA Inert List 4B minimal risk ingredients** that have been tested extensively in Food industry and to meet Personal Care regulatory standards.

- EPA Inert List 4B-Minimal Risk Inert Ingredients:

Caprylic acid (Octanoic acid) is an effective **vegetable fatty acid used has a surfactant-cleansing agent.**

Lactic acid is an effective **Skin-Conditioning Agent, Humectant and Exfoliant.**

Benzoic Acid is useful in pH control

- Most economical alternative system to conventional preservatives
- National Formulary and Food Chemicals Codex Ingredients
- Eco-friendly, Green Seal and Blue/Green Type Toxicology Profile
- Naturally-Derived
- Convenient easy to use Liquid

Typical Properties

Physical form..... Water White, Liquid
 pH..... 2.0 – 3.0
 Storage..... Store between 0°C(32°F) and 32°C(90°F)

Typical Use Levels/pH

0.3% - 2.0%
 pH≤7, optimal range 3 – 6.5

Handling Information

Refer to the Material Safety Data Sheet (MSDS) available from Mason Chemical Company for information on the safe use, handling and disposal of this product.

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Enhansys™ ECO-4B

Self Preserving Properties of Enhansys ECO-4B in Different Personal Care Formulations

Formulations	Formulations Physical Stability @ RT				
	Initial	1 week on Shelf	2 weeks on Shelf	1 Month on Shelf	3 Months on Shelf
Anionic Shampoo/ No Preservative	Stable	Unstable	Unstable	Unstable	Unstable
Anionic Shampoo/ 1.5% Enhansys ECO-4B	Stable	Stable	Stable	Stable	Stable
Cationic Conditioner/ No Preservative	Stable	Unstable	Unstable	Unstable	Unstable
Cationic Conditioner/ 1.0% Enhansys ECO-4B	Stable	Stable	Stable	Stable	Stable

Anionic Shampoo and Cationic Conditioner were both contaminated with *P. aeruginosa*, *S. aureus*, *E. coli*, *A. niger*, and *C. albicans*

Unstable – Means Formulation had Bio-Fouling, Spoilage or Color Change

Stable – Means Formulation had no Bio-Fouling, Spoilage or Color Change

Features	Benefits
EPA Inert List 4B Ingredients	Minimal Risk Ingredients based on EPA review, Excellent Toxicology Profile
Economical System	Most cost-effective system on the market
Naturally-Derived, Vegetable Based	Eco-Friendly, Green Seal and Blue/Green Type Toxicology Profile
National Formulary(NF)/ Food Chemicals Codex (FCC)	Ingredients meet or exceed specifications
Clear Amber Liquid	Ease of Use, Manufacturing Ease
GRAS Ingredients	Consumer Appeal, Safer Alternative
Fortifying	Self Preserving Formulations, Storage and Shelf-Life Stability, Inhibits Biodegradation
No Odor	Excellent for Low or No odor formulations
No Animal Testing	No Special Labeling
No Conventional Preservatives Such as Parabens, Formaldehyde Donors, Isothiazolinones	Easier to Navigate Global Regulations

INCI Name:

Caprylic acid (Octanoic acid), CAS# 124-07-2, EINECS# 204-677-5

Lactic acid, CAS# 50-21-5, EINECS# 200-018-0

Benzoic acid, CAS# 65-85-0, EINECS# 200-618-2

Refer to Material Safety Data Sheet for Handling and Safety Information and Toxicology Summary.

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