MICROCARE® DB

preservative formulated for all

personal care applications

General Description

Microcare DB is a blend of an organic acid with benzyl alcohol which can be used for the gentle preservation of all personal care products. It is equally effective against a broad range of bacteria, moulds and yeasts and is particularly useful for Ecocert applications.

Chemical Identification

Active ingredients:	Benzyl alcohol Dehydroacetic acid
INCI name:	Benzyl alcohol *(and)* Dehydroacetic acid

Typical Chemical and Physical Characteristics

Appearance:	Yellow liquid
Odour:	Mild
Specific gravity (20°C):	1,06g/cm^3
pH (20°C):	ca. 4
Solubility:	Fully miscible in water
Shelf life:	12 months from date of manufacture when stored between 20-25°C in original unopened containers

Note: *These figures do not constitute a specification*

Preservative Properties

The preservative activity of **Microcare DB** is maximised at pHs below 6 where the organic acids exert their preserving activity in the undissociated state. Dehydroacetic acids act in a complementary nature by suppressing the growth and spore germination of yeasts and moulds whist benzyl alcohol acts as a broad spectrum bactericide.

Recommended Use Levels

Microcare DB is recommended for inclusion in both leave on and rinse off applications in the range 0,2 to 1,0% and should be dispersed with mixing as early as possible in the formulation process. It is most effective when incorporated during the cooling down phase of the manufacturing process to prevent vaporisation of benzyl alcohol. A pH greater than 6 during the manufacturing process does not cause any degradation of the actives, but for adequate protection the pH of the final product should be adjusted to 6 or less.

Because of the large variation in the composition of cosmetic products it is important that the preserving effectiveness is evaluated in the final formulation using appropriate microbial challenge tests.

Technical Support

Thor personal care laboratories are fully equipped to provide complete microbiological, analytical and in vitro toxicology support for all product applications.

Application Areas

Microcare DB may be used in a wide range of personal care applications including:

- Shampoos
- Hair conditioners
- Styling gels
- Liquid soaps
- Bath gels
- Moisturising creams
- Body creams and milks
- Suntan lotions
- Decorative cosmetics

Regulatory Aspects

Component ingredients of **Microcare DB** are accepted as safe for use in cosmetic products in Europe, USA, and Japan.

Regulatory Status

Benzyl alcohol is listed on annex VI of the European Cosmetics Directive (76/768/EEC) and its use as a preservative is permitted up to a maximum concentration of 1,0%. It is approved for use in Japan as a solvent without limitations or restrictions but is not listed as a preservative.

For applications with eye contact the upper limit is set at 0,2%. As a component of fragrances and flavours it has GRAS status and is EPA registered. Brazil allows this ingredient up to 1,0%.

Dehydroacetic acid is approved in the USA up to 0,7%.

In Europe it is approved up to 0,6% (as acid) but is prohibited in aerosol dispensers (sprays). Brazil follows exactly the same limits and restrictions as in the EU. Therefore maximum allowed use level of **Microcare DB** in Europe or Brazil is 1,15% of the product as is.

In Japan, Dehydroacetic acid and Dehydroacetate are allowed up to 0,5% as total in all applications.

Toxicology

Although undiluted benzyl alcohol is irritating to the skin and eyes and the vapour irritating to the eyes, nose and throat, there have been no documented reports of irreversible skin or eye damage following exposure.

The dermal flux for benzyl alcohol across human skin in vitro was reported at 0,073 mg/cm^2/hr, indicating a low rate of dermal uptake. The percentage of the applied dose that penetrated through human skin in vitro in 6 hrs was 1,42% for adult skin and 0,73% for full term infant skin.

Benzyl alcohol was shown to have a low degree of cytotoxicity when tested in vitro by the 3T3 Neutral Red Uptake Assay (3T3NRU). It is not classified as a dermal contact sensitiser and it is not known to have any adverse effects on human reproduction. It is non-genotoxic and non-carcinogenic.

Further Information

For further information please contact your local Thor personal care representative.

MICROCARE®

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