THOR

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 to amber liquid
Odour:	Mild
Density: (20°C):	1,04-1,08 g/cm^3
pH (20°C):	ca. 4
Miscibility:	Miscible in water, glycols and alcohols at max recommended level
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 acid acts in a complementary manner 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 must 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 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%. It is approved for use in Japan as a solvent without limitations or restrictions but is not listed as a preservative.

For the US, as a component of fragrances and flavours, it has GRAS status, is EP registered and it is safe up to 5%, except up to 10% in hair dyes, but insufficient data to support safety where inhalation is primary route of exposure (aerosol).

In Europe, **dehydroacetic acid** is approved up to 0,6% (as acid) but is prohibited in aerosol dispensers (sprays).

In Japan, dehydroacetic acid and dehydroacetate are allowed up to 0,5% as total in all applications. Dehydroacetic acid is also allowed in the USA up to 0,7%.

Microcare DB is thus allowed in Europe up to 1,1%, in the USA up to 5,7% and in Japan up to 6,2%.

Toxicology

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

The penetration of benzyl alcohol in ethanol through human skin in vitro was, after 24 hours, from 19,8 +/- 2,9% to 29,2 +/-3% according to doses applied (0,9µg – 10,6 mg/cm^2). 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.

Dehydroacetic acid was found practically non-irritating, non-sensitising, non-photosensitising, and non-phototoxic in numerous clinical tests. On the basis of the available animal and clinical data, it is concluded that dehydroacetic acid is safe as a cosmetic ingredient in the present practices of use and concentration.

Microcare DB displayed no potential for dermal irritation following in vitro testing with human reconstructed epidermis under the conditions employed and at the highest recommended user level in formulation.

Further Information

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

MICROCARE®

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