Ester India



PRODUCT DATA SHEET

EsoDant SB

SODIUM BENZOATE & POTASSIUM SORBATE

(INCI: AQUA, SODIUM BENZOATE, POTASSIUM SORBATE)

EsoDant - SB

Product Code FP 056 | Synonym : Sodium Benzoate / Potassium Sorbate blend | INCI : Aqua, Sodium Benzoate, Potassium Sorbate

Description :

EsoDant - SB is a ready-to-use aqueous blend of the two organic-acid preservatives most widely accepted in natural and 'free-from' cosmetics: sodium benzoate and potassium sorbate. In an acidic formulation the salts convert to benzoic and sorbic acid, which act in a complementary way - benzoate mainly against yeasts and bacteria, sorbate mainly against moulds and yeasts - to protect the product against microbial spoilage. Both actives are food-grade, globally approved and permitted under the COSMOS, ECOCERT, NATRUE, BDIH and Soil Association standards, making EsoDant - SB the preservative of choice for paraben-free, formaldehyde-free and isothiazolinone-free formulations at pH 4 - 6.

Features and Benefits

EsoDant - SB demonstrates the following features and benefits in personal care products:

- Two food-grade actives in one clear, water-miscible liquid - no dissolving of powders
- Accepted by the major natural and organic cosmetic standards
- Free from parabens, formaldehyde donors, isothiazolinones and halogen-organics
- Broad activity against yeasts and moulds, with bacterial control at pH 4 - 5
- Readily biodegradable, non-bioaccumulating actives with an excellent safety record
- Cold-processable; temperature stable to 80 °C
- Globally approved for leave-on and rinse-off products
- Low cost-in-use at 0.2 - 1.0 %

Application / Use

EsoDant - SB is easily incorporated into acidic water-based and emulsified personal care and home care products, such as:

- Shampoos, conditioners and body washes
- Creams, lotions and emulsions (pH ≤ 5.5)
- Toners, micellar waters and facial mists
- Wet wipes and baby wipes
- Sun care and after-sun products
- Natural and organic-certified cosmetics
- Fruit- and plant-extract based products
- Acidic home care liquids and fabric softeners

Ester India

Physical properties and Product Specifications

Appearance	Yellow to brownish clear liquid
Odour	Mild, characteristic
pH as is	8.0 - 10.5
Density at 20°C	1.166 - 1.185 g/cm³
Solids content	47.0 - 49.0 % w/w
Water solubility	Miscible in all proportions
Refractive index at 20°C	1.436 - 1.441
Freezing point	Approx. -5°C - protect from frost

Chemical Identification

CTFA / INCI Name	CAS Number	EINECS Number
Active Ingredients		
Sodium Benzoate	532-32-1	208-534-8
Potassium Sorbate	24634-61-5	246-376-1
Inert Ingredients		
Water	7732-18-5	231-791-2

Ingredient Information

Active Ingredients	
Sodium Benzoate	28.5 - 31.5 %
Potassium Sorbate	14.3 - 15.7 %
Inert Ingredients	
Water	52 - 57 %

EsoDant - SB is an aqueous solution of the active ingredients sodium benzoate and potassium sorbate. Each batch is produced to exact specifications and a certificate of analysis is provided with each order. The above is presented as typical composition and does not constitute specifications.

Formulating Considerations

Benzoate and sorbate preserve only as the undissociated acids, so the performance of EsoDant - SB is governed by the pH of the finished product more than by the dose. Follow the guidance below and confirm efficacy by challenge testing.

Typical Use Levels - EsoDant - SB is typically used at 0.2 - 1.0 % by weight in the final formulation. At 1.0 % the finished product contains approximately 0.3 % sodium benzoate (0.27 % as benzoic acid) and 0.16 % potassium sorbate (0.12 % as sorbic acid), inside the European limits for leave-on products. Dose towards the upper end for products near the top of the pH window, with a high water activity or a high load of plant extracts. Ester India can supply samples and technical support to determine the optimum level.

Addition to the Formulation - EsoDant - SB is alkaline as supplied (pH 8.0 - 10.5) and fully water-miscible. Add it to the water phase, or at any stage with good agitation, and adjust the pH of the finished product to the target value afterwards. Do not add it to a concentrated acid or acidic pre-mix: below about pH 4 in a concentrated system the free acids can precipitate and cause haze. In clear products with high electrolyte levels, check clarity after the final pH adjustment.

Effect of Temperature - EsoDant - SB can be added cold and is stable in formulations processed up to 80 °C. For systems that exceed 80 °C, add during the cooling stage.

Effect of pH - This is the critical parameter. Benzoic acid (pKa 4.2) and sorbic acid (pKa 4.8) are active only as the undissociated acids: at pH 4.5 - 5.0 the system is at its most effective, at pH 5.5 activity is already reduced, and above pH 6 it is largely lost. Formulate at pH 4.0 - 5.5 and keep the pH stable over shelf life. For products that must sit above pH 5.5, pair EsoDant - SB with a pH-independent preservative such as EsoDant - PE or EsoDant - 9010, or with an ethylhexylglycerin / caprylyl glycol booster (EsoDant - SC10).

Compatibility - Compatible with anionic and nonionic surfactants, glycols, humectants and most natural ingredients. Chelating agents (EDTA, phytate, gluconate) and glycols improve performance against Gram-negative bacteria and are recommended in leave-on products. Strong cationic systems and high levels of ethoxylated solubilisers can reduce the available acid; confirm by challenge testing.

Spectrum of Activity

Sorbic acid is most effective against moulds and yeasts; benzoic acid adds activity against yeasts and, at the lower end of the pH window, bacteria. Together they cover the fungal half of the USP <51> and EP 5.1.3 panel well, and the bacterial half at pH 4 - 5 or with a chelator and glycol present:

- Aspergillus brasiliensis
- Candida albicans
- Staphylococcus aureus
- Escherichia coli
- Pseudomonas aeruginosa (pH ≤ 5, with chelator)
- Lactic acid bacteria and spoilage yeasts

Regulatory Status

EsoDant - SB is globally approved for leave-on and rinse-off products, subject to the following limits on the actives (expressed as the free acids):

Europe

- Benzoic acid and its salts: Annex V, entry 1 of Regulation (EC) No 1223/2009 - 2.5 % rinse-off, 1.7 % oral care, 0.5 % other products
- Sorbic acid and its salts: Annex V, entry 4 - 0.6 %
- Maximum recommended EsoDant - SB use level: 1.0 % leave-on, 2.0 % rinse-off
- Both actives are accepted by COSMOS, ECOCERT, NATRUE, BDIH and the Soil Association

Americas Approved for use - both actives are FDA GRAS food additives

Asia

- Japan, China and ASEAN: benzoic acid and salts 0.5 % (2.5 % rinse-off); sorbic acid and salts 0.6 %; India (IS 4707 Part 2) as Europe

Regulations are subject to revision. Confirm the status of each component against current local regulation before placing a finished product on the market.

Handling, Storage, and Disposal Store in a cool, dry place away from heat, frost and direct sunlight, in tightly closed original containers; the solution freezes at about -5°C and sorbate discolours on prolonged exposure to light and air. Shelf life 12 months from the date of manufacture when stored as directed. Available in 25 kg and 200 kg HDPE drums.

Health and Safety EsoDant - SB is classified as an eye irritant; wear eye protection when handling the concentrate. Please refer to the Safety Data Sheet (SDS).

Recommended Use Levels

Application	Product pH	EsoDant - SB in the finished product
Shampoo, body wash, liquid soap	4.5 - 5.5	0.5 - 1.0 %
Creams, lotions and emulsions	4.5 - 5.5	0.5 - 1.0 %
Toners, micellar waters, facial mists	4.0 - 5.0	0.3 - 0.8 %
Wet wipes	4.5 - 5.5	0.5 - 1.0 %
Sun care, after-sun	4.5 - 5.5	0.5 - 1.0 %
Acidic home care liquids, fabric softeners	4.0 - 5.5	0.3 - 1.0 %

Recommended use levels are guideline starting points only, valid within the stated pH range. It is the responsibility of the customer to establish stability and preservative efficacy in the final formulation by challenge testing to USP <51> or EP 5.1.3, and to confirm that the resulting benzoic and sorbic acid concentrations comply with local regulation.

No express or implied warranties are provided for these products, including any warranties fitness for a specific purpose. Nothing in this document should be interpreted as encouraging the infringement of any existing or future patents. Ester India and its affiliates shall not be held liable for any incidental, consequential, or other damages arising from alleged negligence, breach of warranty, strict liability, or any other legal theory related to the use or handling of these products. The maximum liability of Ester India for any claim related to the manufacture, use, or sale of the products is limited to the original purchase price paid by the buyer. Ester India does not accept responsibility for the information provided in this document or for any results obtained from its use. All information is supplied without warranty, and customers use the products at their own risk. Customers are advised to perform their own testing under actual conditions before commercial application.

Ester India

128/29-30 GIDC, Nandesari,
Vadodara - 391340, INDIA.

office@esterindia.com
www.esterindia.com

+91 98980 01188
+91 98988 72338