品鸿生物科技
Pinhon Biotechnology

TECHNICAL DATA SHEET

PINHONBIO® Bemotrizinol (BEMT)

Bemotrizinol is a photostable, oil-soluble organic UV filter that absorbs in both the UVA and UVB regions. It is used in the oil phase of sunscreen emulsions and anhydrous sun-care products.

INCI name	Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine
CAS number / EC number	187393-00-6 / 425-950-7
Molecular formula / molar mass	$C_{38}H_{49}N_3O_5$ / 627.81 g/mol

Product specifications

Test	Specification
Assay by HPLC	≥98% bemotrizinol
Related substances by HPLC	Any individual impurity ≤0.5% Total impurities ≤2.0%
Identification	Infrared and ultraviolet absorption. See the lot COA for method details.
UV–Vis absorbance at 341 nm	≥0.790 for a 10 mg/L solution in propan-2-ol, measured in a 1 cm cell.
Appearance and odor	Light yellow to yellow powder with a characteristic odor.
Melting range	81–86 °C
Water content	≤0.5%

Elemental and microbiological limits

Element	Maximum	Microbiological test	Acceptance criterion
Arsenic (As)	1.0 mg/kg	Total plate count	≤1,000 CFU/g
Lead (Pb)	2.0 mg/kg	Yeasts and molds	≤100 CFU/g
Mercury (Hg)	1.0 mg/kg	Diarrheagenic E. coli	Not detected in 25 g
Cadmium (Cd)	1.0 mg/kg	Salmonella spp.	Not detected in 25 g

Packaging, storage and shelf life

Pack sizes 1 kg in an aluminum foil pouch. The 10 kg and 25 kg sizes are packed in two food-grade polyethylene bags inside a fiber drum.

Storage Store in a cool, dry place, protected from strong light and heat. Shelf life is 3 years under these conditions.

Formulating with bemotrizinol

For sunscreen creams and lotions, dissolve BEMT in the oil phase before emulsification. For anhydrous oils and balms, screen the intended emollient blend for solubility at the lowest expected storage temperature. Other oil-soluble UV filters can change how much BEMT the blend will hold.

Selecting an emollient

The following published values for bemotrizinol in individual emollients can help select oils for bench trials. They were measured on a commercial reference grade at 25 °C. Verify solubility in the actual oil blend at the intended loading.

Emollient (INCI)	Published solubility at 25 °C (wt%)
C12-15 Alkyl Benzoate	12.0
Dibutyl Adipate	10.0
Dicaprylyl Carbonate	8.8
Caprylic/Capric Triglyceride	5.0

Reference: BASF, Tinosorb® S Technical Information (2018), p. 4.

Bench procedure

1. Calculate the oil-phase loading. For example, 2 g of BEMT in 20 g of total oil phase, including the BEMT, is a 10% loading in that phase. Compare this figure with the solubility of the intended blend. This example illustrates the calculation only.

2. Prepare the oil phase. Charge the liquid emollients first. Add BEMT gradually under mixing, using controlled heating compatible with the other ingredients. Check a sample for undissolved particles before adding the oil phase to an emulsion.

3. Check after cooling. Allow the oil sample and the finished formulation to cool. Inspect for crystals at room temperature and after cold storage or temperature cycling. A microscope can reveal crystals before they are visible to the eye. If crystals appear, adjust the solvent blend or oil-phase loading and repeat the trial.

Finished-product evaluation

Measure SPF and UVA protection on the final formulation. The 341 nm absorbance specification on page 1 applies to a dilute laboratory solution. Confirm the permitted use level and labeling for the intended sales market before setting a commercial formula.

Technical contact

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