



ELSURFAC – BAC80™ (Behentrimonium Chloride (BTAC))

Technical Datasheet

1. Technical Datasheet

Property	Specification
Physical Properties	
Appearance	White to off-white or pale yellow flakes, pellets, or beads with a characteristic, alcohol-like, or fishy odor.
Physical Form	Flakes
Odor	Characteristic alcohol-like or fishy odor.
Molecular Weight	404.16 g/mol
Density / Specific Gravity	0.8 to 1.0 g/cm ³ @ 20°C
Viscosity	Not applicable (solid).
pH (aqueous solution)	5.0 - 8.0 (in 2% or 10% solution).
Assay / Purity	79-85% Behentrimonium Chloride. The remainder is typically a solvent like Isopropyl Alcohol or Ethyl Alcohol.
HLB Comparison	Behentrimonium chloride (C22) has a longer alkyl chain than cetrimonium chloride (C16), which provides more lubricity and conditioning.
Authoritative Data	
CAS Number	17301-53-0
Molecular Formula	C ₆ H ₅ CH ₂ N(CH ₃) ₂ RCI
Description	BTAC 80% is a cationic surfactant with strong antimicrobial activity, used in personal care, fabric softeners, and industrial cleaning. It reduces static, softens hair and fabric, and inhibits bacterial growth.
Known Applications	Hair Conditioners, Fabric Softeners, Industrial Applications
Density	~0.95 g/cm ³
Chemical Properties	
Ionic Nature	Cationic (positively charged).
Incompatibilities	Incompatible with strong oxidizing agents, strong acids, and strong bases. As a cationic surfactant, it is incompatible with anionic surfactants.
Hazardous Reactions / Decomposition Products	Under fire conditions, may produce toxic fumes, carbon oxides (CO, CO ₂), and nitrogen oxides (NO _x).
Thermal Properties	

Property	Specification
Melting Point	60 - 90 °C (194 °F). The range is due to differences in purity and solvent.
Boiling Point	> 82 °C. Decomposes before boiling.
Flash Point	> 70 °C
Autoignition Temperature	Not applicable.
Thermal Stability	Stable under normal conditions. Avoid heat and direct sunlight.
Solubility	
Solubility in Water	Poorly soluble in cold water; dispersible or soluble in hot water (above 85°C).
Solubility in Ethanol	Soluble.
Solubility in Oil	Soluble in hot oil.
Solubility in Isopropanol	Soluble.

2. Processing Methods

Lightweight Leave-In Hair Conditioner

A simple, lightweight leave-in conditioner to add moisture and shine without weighing hair down. To prepare, the heated phase ingredients are combined and heated. Just-boiled water is added and the mixture is blended thoroughly until the Behentrimonium Chloride is fully incorporated. The cool-down phase ingredients are then added and mixed.

Key Ingredients	Indicative Dosage (% w/w)
Behentrimonium Chloride	1.0%
Cetearyl Alcohol	1.0%
Panthenol	1.0%
Distilled Water	94.0%
Hydrolyzed Rice Protein	2.0%
Fragrance	0.5%
Preservative (e.g., Liquid Germall Plus)	0.5%



Basic Rinse-Out Hair Conditioner

A foundational recipe for a creamy, rinse-out hair conditioner.

Key Ingredients	Indicative Dosage (% w/w)
Distilled Water	to 100%
Behentrimonium Chloride	3 - 6%
Fatty Thickener (e.g., Cetyl Alcohol)	2 - 5%
Emollients (e.g., plant oils, butters)	5 - 25%
Hair Care Actives (e.g., proteins, vitamins)	0 - 10%
Preservative	0.5 - 1.5%

3. Dosing by Application

Application	Recommended / Max Dosage
Rinse-Off Hair Conditioners	1.0 - 5.0%
Leave-In Hair Conditioners	0.5 - 3.0%
Hair Masks / Deep Treatments	3.0 - 5.0%
Shampoos / Hair Rinses	0.5 - 3.0%
Leave-On Facial Creams	Max 3.0%

The information and data contained herein are believed to be accurate but may not be all inclusive and should only be used as a guide. The information is furnished upon the condition that the person receiving it shall make his own determination of the suitability of the product for his particular use and on condition that they assume the risk of the use thereof.

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