

TECHNICAL DATA SHEET

Product Name: Potassium Sorbate

INCI Name: Potassium Sorbate

CAS: 24634-61-5

Chemical Class: Organic Salt

Functional Category: Preservative (natural bactericide and bacteriostat)

IUPAC Name: Potassium (2E,4E)-hexa-2,4-dienoate

Description: Potassium sorbate is the potassium salt of sorbic acid. It dissociates in water into potassium and sorbate ions. It is chemically stable under normal storage conditions. It does not react with other cosmetic ingredients and maintains its preservative function over time. Though stable, it can react with oxidizing agents. It is sensitive to ultraviolet light, which can lead to its degradation. Potassium sorbate prevents the growth of mold, yeast, and some bacteria. It is widely used as a preservative in the food industry and cosmetics. Generally recognized as safe (GRAS) by food safety authorities if used within prescribed limits. It is non-toxic and non-irritating at concentrations used for food preservation. Generally used in concentrations ranging from 0.025% to 0.1% in the food industry. Potassium sorbate is effective over a wide range of pH values. This makes it a versatile and widely used preservative in the food and beverage industry, as well as in personal care products. It is usually available in the form of a white crystalline powder. It is highly soluble in water and ethanol, making it particularly useful for use in liquid products.

Antimicrobial Action Mechanism: The mechanism of action of potassium sorbate as a preservative is based on its ability to inhibit the growth of microorganisms, such as mold, yeast, and some bacteria. Potassium sorbate works by interfering with the activity of various enzymes within the cells of microorganisms. These enzymes are crucial for metabolism and energy production, and their inhibition leads to a reduction in ATP (adenosine triphosphate) production, which is the main energy source for cellular processes, leading to their slowed growth and death. Potassium sorbate can disrupt the integrity of the microbial cell membrane, making it more permeable. This allows the leakage of vital internal components from the cells of microorganisms, leading to their

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death. The effectiveness of potassium sorbate as a preservative is enhanced in acidic conditions. In such an environment, a greater portion of the sorbate remains in its undissociated form, which facilitates its passage through the cell membranes of microorganisms, thereby increasing its effectiveness. Its effectiveness can further be enhanced with chelating agents (e.g., EDTA). Potassium sorbate is particularly effective against molds and yeasts, and less effective against bacteria, so it is often used in combination with other preservatives when broader antimicrobial protection is needed.

Usage Instructions: Typical concentrations range from 0.15-0.3% (if used alone) or 0.1-0.2% (if used in combination with other preservatives). For external use only.

Application: Used to protect all types of cosmetic products such as creams, lotions, shampoos, makeup products, and sun protection products.

Raw Materials Source: Sorbic acid

Production Method: Produced by neutralizing sorbic acid with potassium hydroxide. The precursor of sorbic acid is produced in a two-step process: condensation of crotonaldehyde and ketene.

Animal Testing: The substance is not tested on animals.

GMO: Non-GMO

Vegan: Does not contain components of animal origin