



Antioxidants for dairy products

The best choice for protecting good taste and extending shelf life

The shelf life of foodstuffs, e.g. milk and milk products, is a decisive factor in ensuring the supply of satisfying nutrition for the increasing population. In general, the shelf life of milk and milk products, is limited. The symptoms of deterioration are off-taste and off-odor. Rancidity is one of them.

DSM can help you to select the ideal antioxidant mixture for your product and your manufacturing process.

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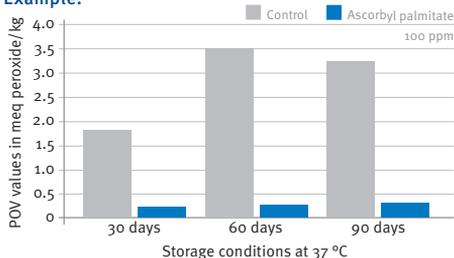
Milk powder:

The addition of ascorbates and sodium citrate to milk, prior to evaporation and spray drying, provides an antioxidant effect for the lipids and for the fat-soluble vitamins A and D in the end product. This is of special interest in vitamin-fortified milk powders to keep the vitamin A overages lower. The shelf life of such products is prolonged and organoleptic properties and nutritional value improved. The method of addition depends on the type of product and manufacturing process. Approximately 50 ppm sodium ascorbate (to reduce the danger of curdling) and possibly 50 ppm sodium citrate are added to the milk prior to processing. Ascorbyl palmitate (approx. 200 mg per kg of end product) can be dissolved in coconut oil in which subsequently the oily vitamins A and D are diluted and then added to the concentrate before homogenization and spray drying.

Anhydrous butter fat:

The sensitivity of products containing milk fat against off-flavors and the economic importance of such products has led to numerous attempts to limit such oxidative changes with antioxidants. Anhydrous butterfat can be successfully stabilized with ascorbyl palmitate (see example below).

Example:



Processed cheese:

Due to autoxidation of the fat content rancidity as well as loss of flavor quality and color may be a problem in processed cheese. Ronoxan® A added to the fat part may efficiently reduce oxidative deterioration.

As a general rule, antioxidants have to be added to products at the earliest possible point in the manufacturing process. DSM antioxidants are suitable in oils and products made thereof. It is recommended to evaluate the type and the optimum dosage.

Suggested dosage (mg per kg in liquid milk prior to processing):

Sodium Ascorbate	50 – 100
Sodium citrate	50 – 100

Suggested dosage (mg per kg in fat, ghee, processed cheese etc. on milk fat content):

Ascorbyl Palmitate	100 – 400
dl- α -Tocopherol	200 – 400
Mixed Tocopherols 70 IP	250 – 600
Mixed Tocopherols 95%	200 – 400
Ronoxan®-blends: synergistic mixtures based on above ingredients	1000 – 2000



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Quality for Life™ means sustainability. It symbolizes our commitment to our environment, consumers, our business partners, our people and the regulatory framework that governs our operations.

With the Quality for Life™ seal, we aim to ensure peace of mind for you and for your customers.

For more information on Antioxidant solutions by DSM, visit www.dsm.com/human-nutrition

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