

**AQUANOVA develops a new generation of highly effective food preservatives**

**Sorbic and benzoic acid, two commonly used food preservatives, are now available as water and fat-soluble, pH-independent formulations**

**Darmstadt, August 15<sup>th</sup> 2007** – AQUANOVA, leading supplier of special liquid formulations of nutraceuticals, food additives, cosmetic and pharma actives (“solubilisates”), has developed novel highly effective and pH-independent formulations of the classical preservatives sorbic and benzoic acid, using its proprietary patented solubilization technology.

The acids and their salts have long and extensively been used for the preservation of foods, but have the well known and limiting disadvantage of showing a performance strongly dependent on the pH-value of the food, i.e. it decreases drastically above pH 4. At pH 6 and beyond they practically don't work anymore. Their application is, therefore, largely limited to acidic (sour) foods and, in the conventional form, not possible for the preservation of surfaces.



The new generation of liquid sorbic and benzoic acid formulations, which AQUANOVA introduces under its established NovaSOL<sup>®</sup>-brand as the NovaSOL<sup>®</sup> DS/DC-family, allows the application of these preservatives in completely new dimensions and areas:

**The Innovation:**

- pH-independent performance throughout the entire pH-range from 0.1 – 7.0:

NovaSOL<sup>®</sup> allows the protection of products against microbial spoilage, which so far, due to their high pH, could be preserved only insufficiently, or which had to be influenced detrimentally by making them sourer

- Extended performance:

Owing to the Product Micelles, the tiny, only 30 nm big carrier systems, developed by AQUANOVA, in which the preservatives are embedded, either alone or in combination, the preservatives spread homogeneously throughout the entire surface **and thus, for the first time, prevent the growth of mold on surfaces long term and in a sustainable way.**

- Manifold higher solubility:

The NovaSOL<sup>®</sup> DC/DS formulations, for the first time, allow a 20 to 30 times higher, temperature independent, stable and crystal free solubility of the contained microbiologically effective acids (sorbic- and benzoic acid).

**Hence, for the first time, contrary to the prevailing expert opinion, in a range of applications the use of salts of these acids, e.g. Na-benzoate or K-sorbate can be renounced.**

- Possible applications and/or applications being in the test phase
  - NovaSOL<sup>®</sup> DS for certain foods, cosmetic and dermatological products, pharmaceuticals and
  - NovaSOL<sup>®</sup> DC for open and solid surfaces of e.g. sausage casings, cheese rinds, citrus fruits, plants, wood (pallets), storage rooms, silos, air filters and surfaces of equipment in the food industry, paper factories as well as in agricultural plants etc.

**The extended application spectrum of sorbic and benzoic acid thanks NovaSOL<sup>®</sup> DS and DC is a uniqueness, that has so far, with the application of the pure conventional preservatives (sorbic and benzoic acid) been inconceivable in the business.**

**Company profile AQUANOVA:**

AQUANOVA is a leading supplier of innovative solubilisates for raw materials and active substances. Completely in accordance with the era of nanotechnology, AQUANOVA develops and produces nano structured substances (product brand "NovaSOL") utilizing its proprietary technology and in close cooperation with renowned scientists. The basis are nano particles (so called "product micelles"), which are thermally, mechanically and pH stable, even in gastric acid. These particles exhibit an average diameter of only approx. 30 nm. By means of the product micelle and the AQUANOVA solubilisates, the development of innovative and pioneering end products in the fields of nutraceuticals, cosmetics, and pharmaceuticals is extremely simplified technically / galenically (due to dispensing with matrix design). The absorption of the active substance in the solubilisate (product micelles) and the bioavailability is significantly increased and optimized. In addition the solubilisates generate unique technical features and benefits such as superior antioxidative capacity for essential oils. The company's headquarter is located in Darmstadt (near Frankfurt), Germany.

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