

Ensuring the oxidative stability of perfumes, oils and cosmetic actives is a must for cosmetics players, with success resulting in a longer product shelf life and improved brand perception among consumers. Another benefit is the reduced formation of irritants and allergens from oxidised fragrance compounds, which also increases the likelihood of a positive consumer experience.

Fragrance allergens – which trigger an immune response in the individual – can be structural allergens from the plant of origin. But there are also allergens that occur during the lifecycle of the product because of oxidation.

Preventing oxidation-formed allergens and irritants like peroxide, which, in contrast with allergens, elicit a negative, but not immune-related reaction from skin upon contact, was the primary aim behind the creation of StoppOx, a new natural antioxidant supplied by Germany's All Organic Treasures.

A secondary effect, however, has proven of particular interest to the beauty industry: namely StoppOx's ability to extend finished products' best before dates.

THE TROUBLE WITH ANTIOXIDANTS

When it comes to controlling free radicals in materials across many industries, butylated hydroxytoluene (BHT) and butylated hydroxyanisole (BHA) stand tall as the benchmarks with regards to efficacy. However, both materials' sensitising activity, plus concerns surrounding toxicity to aquatic organisms, and potential (but not conclusively proven) carcinogenic and endocrine disrupting properties have led to the synthetic cosmetics industry moving away from BHT/BHA.

The benchmark in the organic beauty industry, meanwhile, is vitamin E: most commonly α -tocopherol. However, the activity of vitamin E is far lower than that of BHT/BHA.

As David Hauck, CEO of Dr. Hauck R&D, explains: "The challenge of vitamin E alone is that after a while it starts oxidating itself, becoming a pro-oxidant; during the first six months [of a product's shelf life] it prevents oxidation pretty well, but after that it actually increases the oxidation."

As such, Hauck notes that companies from both the organic and synthetic branches of the

STOPPING OXIDATION IN ITS TRACKS

A new natural antioxidant that boasts the efficacy of BHT could be a game-changer for bio personal care. **David Hauck** tells **SPC** the story behind StoppOx and its extensive benefits



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David Hauck, Dr. Hauck R&D

beauty industry were approaching the company looking for solutions.

WHAT IS STOPPOX?

Bearing in mind the limitations of α -tocopherol alone, Hauck tells **SPC**: "What was clear, from the beginning, was that All Organic Treasures had to create a blend, because an isolated compound is unstable alone. So, the target was to create a blend that stabilised the electrons. We have more sensitive and more stable products working in a synergistic approach.

"We did a lot of testing of the best synergistic mixtures and came up with what we have now, which is a combination of vitamin E – not isolated α -tocopherol, but a mixture of tocopherols – and ethyl ferulate, derived from rice shells."

Figure 1

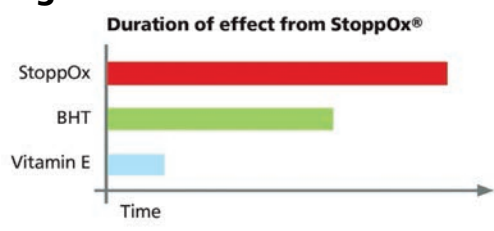
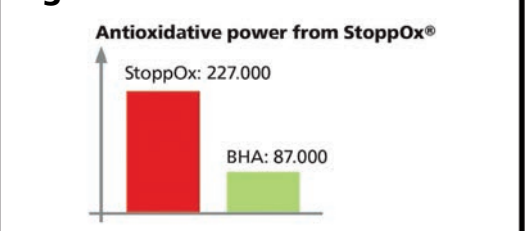


Figure 2



ingredients antioxidant

Other raw materials used in the COSMOS certified-organic StoppOx include hops, lemon and sunflower oil. The rice-derived ethyl ferulate is described as a “very sustainable, food-grade product created using food waste”.

Hauck describes this as the “core mixture” for the ingredient, which comes in three variants: one for lipids (INCI: Helianthus annuus seed oil, Humulus lupulus, tocopherol, ethyl ferulate); one for emulsions (INCI: Helianthus annuus seed oil, Helianthus annuus seed extract, Humulus lupulus, tocopherol, ethyl ferulate, ascorbyl palmitate, maltodextrin); and one for fragrances (INCI: Ethanol, Humulus lupulus, tocopherol, ethyl ferulate, ascorbyl palmitate).

For the fragrance version, Hauck notes: “Because fragrance is the most sensitive part of the cosmetic product, we also use the vitamin C derivative ascorbyl palmitate.”

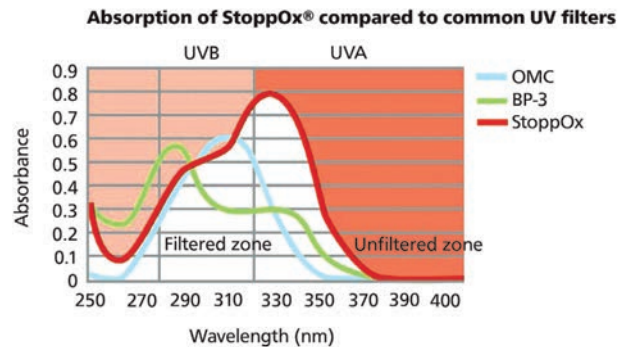
During radical formation, you have an electron that can act as a radical. And you need a ‘partner’ to catch the electron, so that the electron has movement between the partners.

“All together they [the materials] are working like a basketball team. They are pushing the electrons to each other all the time, so the ‘ball’ doesn’t drop to the floor. Each one has a different task: we have a high-speed reacting partner, we have low-speed reacting partner and we also try to figure out the best mixture. We looked at 200 hop plants, for example, and from these we chose the one with the best activity. It’s a very selective mixture.”

Hauck cites usage levels as between 0.1-2% depending on the kind of product the formulator wants to protect. “You really have to check what you need to protect,” he tells SPC. “If you wanted to protect jojoba oil, you’d need a lower concentration than if you wanted to protect almond oil.”

Citrus and conifer oil fragrances, for example, would require a 2% dose of StoppOx Fragrance, while a shampoo could get away with a 0.2% dose of StoppOx Emulsion.

Figure 3



ALL ORGANIC TREASURES HAD TO CREATE A BLEND, BECAUSE AN ISOLATED COMPOUND IS UNSTABLE ALONE

David Hauck, Dr. Hauck R&D

ADDED EXTRAS

In addition to the primary benefits of an extended best before date and the reduction of the formation of allergen and irritant products, StoppOx imparts several useful secondary effects, which All Organic Treasures opts to promote less, so as to avoid confusing merchandising.

“Whenever you use an antioxidant, you have strong anti-ageing benefits and StoppOx offers this as well. We also contribute to UV protection. Normally, with a fragrance, the developer puts in an antioxidant and a UV stabiliser to protect the product from UV. This mixture can protect product from UV rays.”

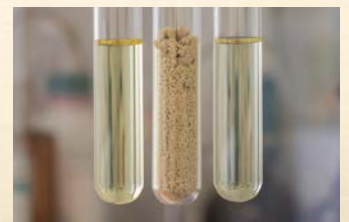
As well as contributing to better UV protection of the product, StoppOx also supports the SPF, says Hauck, noting that All Organic Treasures “didn’t want to focus too much on this issue”.

With a performance exceeding that of BHT/BHA, the natural antioxidant mixture StoppOx, which is suitable for organic systems, has generated interest throughout the cosmetics industry, with fragrance companies being especially “open and positive”, concludes Hauck ●

StoppOx is developed by David Hauck, CEO of Dr. Hauck R&D GmbH, and produced and distributed by All Organic Treasures GmbH

StoppOx® the novelty of a natural antioxidant

- ✓ protects against oxidation
- ✓ 100% natural ingredients
- ✓ ensures high stability and safety
- ✓ extends the minimum shelf life



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