



## Baycusan® C 1008 – a breakthrough in hair care

Bayer MaterialScience was even honored for its achievement at this year's Personal Care and Homecare Ingredients (PCHi) trade show in Shanghai with an Innovation Award in the category "Functional Ingredients"

*Baycusan® C 1008 is the leading global manufacturer of polyurethanes. The Baycusan® polyurethane dispersions developed by the company are found in numerous cosmetic applications, including the hair care segment.*

Baycusan® C 1008 combines a three-fold advantage in formulations for hair care products: Protection, hold and conditioning.

### Outstanding heat protection

The sleek look is the current international trend in hair styling. Millions of women treat their hair every day with straightening irons that reach temperatures of up to 230°C, but this is not without consequences: Unprotected hair suffers microscopic damage that in the long term leads to split ends, reduced shine and hair breakage. Conditioning products containing Baycusan® C 1008, a film-forming polymer stable up to 270°C, coat every single hair fiber and easily wash out later on, without leaving behind any residue.

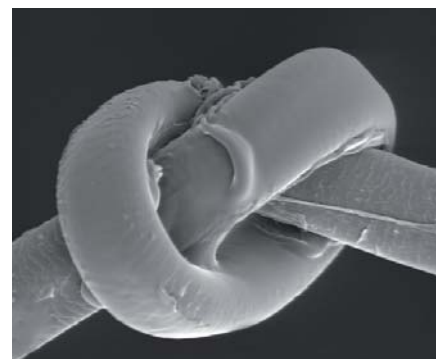
Extensive testing confirms the tremendous protective effect against heat: Electron microscope images of hair fibers that have been regularly treated with a straightening iron for a long period show significant differences compared to conventional heat protection products: The thin, highly elastic



*Hair without protection*

Baycusan® C 1008 film protects hair against overheating at concentrated points. It expands with the hair under the influence of high temperature and shrinks again during cooling. "That prevents the surface of the hair from becoming brittle," says Paula Rodrigues, global head of Cosmetic Raw Materials at Bayer MaterialScience. "Otherwise, longitudinal and transverse fractures and broken hair would be visible under an electron microscope." Proof positive, in other words, that the hair is protected against extreme heat.

These characteristics also were confirmed in tests of the tensile elastic behavior of hair strands: The heat protection of different conditioning products was examined on hair treated regularly with a straightening iron over a long period of time. The results are unequivocal: "Adding Baycusan® C 1008 protects hair significantly better than other systems against damage caused by heat



*Hair with protection*

straightening. In fact, it even matches the property level of unstraightened hair," explains Dr. Sophie Viala, head of technical development for cosmetic raw materials at Bayer MaterialScience. "Formulations with the polyurethane dispersion lend hair elastic, natural hold and protect it from extreme heat."

### Humidity? It won't ruin your hair style ever again!

The effect on styling is just as impressive as the heat protection: Formulations based on Baycusan® C 1008 display astounding anti-frizz properties. The film-former is proven to prevent frizzy hair for a period of up to 24 hours, even in weather with 90 percent humidity. At the same time, the protective film gives hair flexibility and breathtaking shine.

## Split-end repair – A myth becomes reality

Damaged hair needs effective conditioning. Hair care products containing this raw material truly are capable of “cementing” split ends. Studies show that using a two-percent test formulation of Baycusan® C 1008 reduces the average length of split ends by over 90 percent. Millions of women have been waiting for this very solution.



Dr. Paula Rodrigues

## 5 questions on the subject for Dr. Paula Rodrigues, head of Cosmetics at Bayer MaterialScience AG

**Euro Cosmetics:** *Your Baycusan® C 1008 development is a multifunctional polymer for hair care. What results can be achieved with it and what makes the product so special?*

**Dr. Paula Rodrigues:** Baycusan® C 1008 is a multitalent when it comes to hair care and styling. Formulations containing this raw material give hair protection, hold and conditioning. In particular, it is excellently suited to protecting hair against heat, which is a great advantage for the sleek look that is so trendy right now. Millions of women

treat their hair every day with straightening irons that reach temperatures of up to 230°C, but this kind of styling is not without its consequences: unprotected hair suffers microscopic damage that in the long term leads to split ends, reduced shine and hair breakage. Conditioning products containing Baycusan® C 1008, a film-forming polymer stable up to 270°C, coat every single hair fiber and easily wash out later on, without leaving behind any residue. The protective effect has been verified with the help of extensive tests.

**Euro Cosmetics:** *What about anti-aging in the hair care segment. What trends do you see in this area and how can your hair care solutions counteract aging?*

**Dr. Paula Rodrigues:** Hair ages for two main reasons: hormonal aging results in slowed growth and a rougher, drier texture. It makes hair go thin and gray. Chronological aging chiefly affects long hair, which is exposed for years to mechanical, chemical and environmental influences.

Products in the Baycusan® line specifically counteract these changes.

The product can repair damaged hair. Hair care products containing this raw material are capable of “cementing” split ends. Studies have shown that by using a suitable formulation, the average length of split ends can be reduced by over 90 percent. In other words, Baycusan® C not only protects hair, it minimizes environmental effects. It improves the appearance, flexibility and shine of hair without being greasy.

**Euro Cosmetics:** *Hair styling is another trend topic. What does Baycusan® C 1008 have to offer in this regard?*

**Dr. Paula Rodrigues:** Formulations containing our waterborne dispersion give hair elastic, natural, lasting hold.

Most importantly, the thin film effectively protects hair against humidity and is proven to prevent frizz. These anti-frizz properties of Baycusan® C 1008 last for a period of up to 24 hours, even in weather with 90 per-

cent humidity. Hair has a flexible feel and a fascinating shine.

**Euro Cosmetics:** *In which hair care products can it be found or for which is it most suitable?*

**Dr. Paula Rodrigues:** Baycusan® C 1008 has proven effective in hair care products offering a triple advantage: protection, hold and conditioning. These primarily include “leave-in” products, which are applied to the hair after washing and not rinsed out.

**Euro Cosmetics:** *Where will the development of Baycusan® C 1008 go from here?*

**Dr. Paula Rodrigues:** Encouraged by the positive experiences we made with Baycusan® C 1008 in hair care and hair styling products, and the positive response from the market, we currently are developing and testing guide formulations for additional fields of application.

One current topic is straightening very curly, frizzy hair. Initial trials with a hair-straightening balm based on Baycusan® C 1008 have been very promising. We were able to prove its smoothing effect quite impressively in this application too. The anti-frizz effect was observed over a period of 24 hours at high humidity.

**Euro Cosmetics:** *Thank you for speaking with us!*