Bayer MaterialScience

News Release

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Bayer MaterialScience at In-Cosmetics 2009 in Munich:

Polyurethanes for a fantastic look

New tests show how cosmetic formulations benefit from BayQsan® C

Leverkusen, April 21, 2009 – The BayQsan® C product line made its first major public appearance at last year's In-Cosmetics. At this years event, Bayer MaterialScience will showcase its polyurethane products at the world's leading trade fair for cosmetic raw materials from April 21 - 23 in Munich under the motto ‘Give your formulation star appeal’.. "We will present formulation suggestions and numerous new test results that show how cosmetics benefit from BayQsan® C," says Dr. Sophie Viala, head of Applications Technology Cosmetics at Bayer MaterialScience. The polyurethane dispersions in this range are entirely free of solvents and, like the polyurethane powder BayQsan® C 1005, do not contain any preservatives.

Polyurethane dispersions make decorative cosmetics and sun protection products extremely water-resistant

The BayQsan® C 1000 and BayQsan® C 1004 dispersions can be used in decorative cosmetics. To test and demonstrate how these film-forming raw materials affect the water resistance of mascara formulations, experts at Bayer MaterialScience have developed a method of their own. They first apply black mascara to a piece of cotton fabric and measure the color intensity and weight of the specimen. The fabric is then immersed in a bath of water for 30 minutes , after which the color and weight loss of the fabric is measured to establish how much mascara has been dissolved in the water. One of their findings was that specimens with an otherwise identical oil-in-water formulation but no polyurethane dispersion lost around 22 percent of their color intensity, while those containing BayQsan® C 1004 lost only 8 percent. The specimens with BayQsan® C 1000 lost only 5 percent. These results show that the raw materials from Bayer MaterialScience performed much better than conventional, frequently used film formers.

The polyurethane dispersions also give mascara and eyeliners good abrasive resistance, with BayQsan® C 1004 achieving slightly better results in this case than BayQsan® C 1000. Otherwise, the two dispersions differ primarily in the elasticity of the resultant films.

With mascara based on BayQsan® C 1000, the eyelashes can be shaped into an attractive curved form that retain their shape and style over a long period. "Positive subjective assessments by users have been confirmed through a standard test that is frequently used for hairstyling products," says Viala. "This shows that the polyurethane has a particularly good ‘curl retention capacity’."

The BMS team has also succeeded in developing sun-cream formulations with BayQsan® C 1000 that not only offer excellent water resistance, but also a pleasant skin feel even at a high sun protection factor (>SPF 25). The challenge was to combine the very good non-sticky and non-greasy properties of the BayQsan® film formers with the high concentrations of organic and inorganic UV filters. "The results of the corresponding in-vitro tests were very promising," says Viala.

Polyurethane powders in decorative cosmetics impart a particularly pleasant feeling to the skin

BayQsan® C 1005 polyurethane powder can give decorative cosmetics and skin-care products a whole range of favorable properties. Recent measurements show that it can absorb more oil than other frequently used powders such as acrylate cross-polymers, starch derivatives or conventional polyurethanes. It can therefore be used, for example, to formulate make-up products that effectively reduce the greasiness of the skin. Sensorial tests from the French Dermscan Group, carried out by a panel of trained consumers, also confirm that BayQsan® C 1005 gives a pleasant, velvety-silky feel to the skin. Liquid make-up formulations containing BayQsan® C 1005 are particularly easy to apply and are not tacky. Finally, the polyurethane powder makes it easier to apply make-up containing pigments without leaving behind any color blotches.
Standardized comparisons between eyeshadow formulations in the form of compressed powder reveals a further plus point for BayQsan® C 1005: it significantly increases the cohesion of the eyeshadow powder with the result that, even after repeating the drop test ten times, no cracks were observed in the compressed powder

Polyurethane dispersion gets hair into shape

BayQsan® C 1001 dispersion was developed for hairstyling. Just how elastic the resultant film is can be demonstrated by the standardized "Omega Loop Method". Here, a strand of hair is clamped in such a way that it approximately assumes the form of the Greek letter Omega. After applying the film former, a measurement is made of the force needed by a spiral spring to dent the strand by 25 percent. After this, the spring is returned to its starting position so that the strand of hair can spring back again. This process is repeated 10 times. If the strand of hair has a perfect ‘shape memory’, the same force would be needed every time to dent it. In fact, the force does decline – but to a very much lesser extent with strands to which BayQsan® C 1001 has been applied than with strands treated with other polymeric film formers. This means that, with formulations based on this polyurethane dispersion, the hairstyle keeps its shape very well despite any mechanical influences.

Furthermore, combing hair forty times has a comparatively small effect on the shape of curls treated with BayQsan® C 1001. Other tests document the excellent curl retention capability of the polyurethane even in high humidity. External tests performed with the aid of a combing machine and force measurement instruments show, at the end of the day, that hair treated with this polyurethane dispersion can be combed very much more easily than hair treated with a polyacrylate film. The measurements even revealed a conditioning effect at the tips of the hair. This means that less force is required for combing than with untreated hair. "The advantages of BayQsan® C 1001 become particularly apparent in styling mousse," says Viala.

About Bayer MaterialScience:
With 2008 sales of EUR 9.7 billion, Bayer MaterialScience is among the world’s largest polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative solutions for products used in many areas of daily life. The main segments served are the automotive, electrical and electronics, construction and sports and leisure industries. Bayer MaterialScience has 30 production sites around the globe and employed approximately 15,100 people at the end of 2008. Bayer MaterialScience is a Bayer Group company.

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