

## **Interview with Dr. Martin Vollmer, Head of Business Development Dispersions, Bayer MaterialScience; Coatings, Adhesives and Specialties**

### **on the announcement of a capacity increase in waterbased dispersions with an investment of more than €30 Mio.**

#### **1. How quickly will the investments bear fruit in European and global business?**

Low-solvent and solvent-free coating and adhesive systems are currently on the rise worldwide. We see very promising growth rates for waterborne dispersions in nearly all market segments in the coatings, adhesives and specialties markets like textile, leather or life science applications. So, taking all this into account, we expect quick payback for our investments.

#### **2. How is the Bayer investment to be understood: Are you reacting to current demand, or is the investment in anticipation of the future market situation?**

Both are true. The global market for polyurethane coatings and adhesives is very dynamic and one has to recognize trends at an early stage. Quality, efficiency and ecology are the main market drivers. As the technology leader in polyurethanes for coatings, adhesives, and specialties, we offer a number of technologies to meet these needs. As we see a high demand for waterborne products, our investments are clearly future oriented. However, the current market boost drives us to react even faster and to increase our capacity to a higher level. After all, we want to offer our customers long-term and reliable supply. This is why we are establishing PUD (polyurethane dispersions) production facilities in each of the world's major industrial regions. Our newest addition in the second half of the year 2008 will be a new PUD production plant with an annual capacity of 20,000 metric tons in Shanghai, China, followed by new capacities for acrylic dispersions in Europe.

#### **3. How does the competition for waterborne dispersions appear today in Europe?**

The waterborne markets are already big and show high growth rates. Obviously, all market players are very active with strong R&D and market development plans. There is strong competition and each player is seeking for differentiation. This is good news, since competition enlivens business. Bayer MaterialScience is committed to be a leading player, so we will position ourselves with a network of highly efficient production facilities, corporate foresight as well as distinct customer orientation.

#### **4. In your view, how is the demand for waterborne dispersions developing in Europe and world wide?**

In Europe, the environmental legislation is the clear driver for growth with a huge potential to substitute solventborne systems. However, solvent-free or radiation curing technologies will also play a role. The European Deco Paint Directive with its next threshold level in 2010 will enhance the demand for waterborne technologies in the relevant market segments in Europe. The reduction of VOC (volatile organic compounds) will become a global topic. Consequently, we expect a step-by-step impact in all regions and a strong growth in waterborne technologies. Altogether, a world wide impact certainly will be perceived.

#### **5. To what extent will Bayer be able to achieve a competitive advantage with this investment?**

Looking at our global production assets, our target is always to be 'best in class'. With our investment in capacities of polyurethane, polyester and acrylic dispersions, we will have very efficient production processes, flexible asset structures to quickly respond to customer needs, and world scale capacities – of course from a waterborne dispersions perspective. In dispersions, where colloid chemistry and physics play an important role, we will guarantee innovative production methods to preserve the molecular design and morphology from lab to production scale. Indeed, this is a challenge and a prerequisite to deliver high performance products to the market.

#### 6. Which local markets within Europe and/or world wide does Bayer currently consider are the most significant as regards waterborne dispersions - and why?

Let's first talk about the coatings market in Europe. We have to distinguish between 1K and 2K waterborne technologies. The 2K waterborne polyurethane market is booming, especially in metal and wood coatings. The general industrial and large vehicles market show the highest growth rates, followed by wood and furniture and concrete flooring. In the 1K waterborne market, major growth is seen in wood coatings followed by general industrial coatings. The growth is clearly driven by the VOC legislation. Looking at other regions in the world, we see a similar trend. With regard to automotive coatings, from a global perspective, waterborne technologies are growing in primer surfacer, base coats and interior plastics like soft feel. Here, the coatings performance is seen as the key driver. Future potential is seen in 2K waterborne clear coats, however, these developments are still strongly R&D driven.

In adhesives, polyurethane dispersions grow in markets such as footwear and furniture (3D lamination). Other promising market segments are automotive and flexible packaging. In these applications, a number of reasons drive waterborne technologies, e.g. workers health, no safety issues, high performance, or low smell. This also applies to the growth of polyurethane dispersions for textile coatings and artificial leather, where technical and environmental benefits are an important selling point.

#### 7. What role do waterborne dispersions play in Asia, particularly in view of the fact that there the change to more environmentally compatible raw materials is only just starting?

We expect that Asia will show the highest growth rates in waterborne technologies. It is important, however, to clearly differentiate between the different countries: Japan and Korea already have well established waterborne applications in place, whereas the waterborne boom is just beginning in countries like China due to the growing emphasis on the ecology. Polyurethane dispersions for adhesives are already in place in the sports-shoe market, clearly driven by environmental consciousness of the big OEMs. As already mentioned, legislations will arise step-by-step, thereby accelerating the shift from solventborne to waterborne technologies. The slogan for raw materials and coatings suppliers will be: "Be prepared".

#### 8. Expanding production is one thing - what other measures will Bayer have to tackle in the mid to long term in order to meet the challenge of the increasing demand for more environmentally compatible raw materials for coatings?

Another important challenge is the development of our product portfolio – to have the right product at the right time and a sustainable R&D pipeline addressing future market needs. Within our business unit Coatings, Adhesives, Specialties we bundled research, development and technical marketing for waterborne technologies within one department. This enables us to run our R&D and joint customer projects in a fast and flexible way. Our R&D spending above industry average confirms our strong commitment to innovation. In addition, we will further benefit from our unique toolbox of polyisocyanates and polyols as building blocks for innovative dispersions. Waterborne technologies are demanding from a

technical point of view. Robust raw materials and formulations are needed to guarantee easy and efficient application. This will be the basis to create new markets.

9. What role do future cooperative agreements or even acquisitions play in Bayer's strategy for waterborne dispersions and other environmentally compatible raw materials for coatings?

The last years marked an ongoing consolidation in the waterborne raw materials market – a trend that will continue in the future. As a consequence, cooperations as well as acquisitions will be on the agenda of most market players.

10. Bayer announced that it *intends to produce acrylic dispersions in future at the El Prat site in Spain*. Please explain the background to this decision.

Our site in El Prat near Barcelona in Spain has been chosen due to its versatility regarding capacity expansion and infrastructure options to go for customized solutions, for example blends of polyurethane and acrylic dispersions. Moreover, we opened a new customer center in June 2008 with laboratories for waterborne wood and furniture coatings, making this site one of our new waterborne technology centers.

11. The growing demand for environmentally compatible raw materials places high demands on producers such as Bayer. In your estimation, how big will the requirements be, how big will the challenge be to enable you to pursue this route consistently in the future?

The Bayer group is clearly committed to a sustainable and eco friendly development, as illustrated by the “Science for a Better Life” campaign and our recently announced “Bayer Climate Program”. Bayer MaterialScience will make important contributions towards these goals – reflected, amongst others, by our investments in eco-friendly low VOC coating and adhesive raw materials across our growth platforms Polyisocyanates, Prepolymers, UV Systems and Dispersions. The focus is set on intelligent products that offer a convincing performance throughout their entire life-cycle – products that can both be produced efficiently while also helping our customers to do things more efficiently. And, of course, products that set new standards in terms of quality, functionality, and environmental sustainability. Examples are our low viscous and hydrophilic polyisocyanates of our Desmodur<sup>®</sup> and Bayhydur<sup>®</sup> product lines, respectively, as well as our Desmolux<sup>®</sup> line for radiation curing and, last but not least, our waterborne dispersions of the Bayhydrol<sup>®</sup>, Dispercoll<sup>®</sup> or Impranil<sup>®</sup> product families.

We have a strong, sustainable “waterborne growth strategy” in place that will allow us to maintain a leading position in the global waterborne coatings and adhesives market. Together with our expertise in research, development, production and marketing we have the best prerequisites to develop markets and to deliver high-end dispersions to our customers.