

Two questions, two answers:

- 1 Where do you see the powder coatings technology in five years?
- 2 What are current expectations from customers when it comes to powder coating formulation?

Source: Pixelmasher - Fotolia.com



1 There are two major trends emerging in powder coatings technology. First, the traditional sources of new technology have awakened and will be eventually introducing innovations to apply and cure powder coatings on low temperature substrates such as molded plastics, composites and natural woods. These centres of technology include multi-national coating suppliers and their corresponding resin and polymer suppliers. A corresponding effort will be made in curing process engineering which includes infrared and probably UV curing concepts. Advances in materials and processes will open up tremendous opportunities in automotive, transportation, architectural and recreational equipment markets and will displace prevailing liquid coating technologies.

In addition the industrial regions of Asia and the rest of the world will catch up with the Western centres of technology and establish themselves as bona fide sources of new product development. This shift will expand their product bases to include new applications as well as current commodity uses. The Asian market will continue to exceed the Western regions in growth and see improvement in margins and profitability.

“Advances in materials and processes will open up tremendous opportunities.”



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2 The biggest challenge for these new generations of powder coatings will be to create a balance of fast cure at low temperatures, low melt viscosity at these conditions plus reasonable storage stability, meaning non-clumping at ambient conditions. These advances will require advances in polymer architecture and engineering on a molecular level. Novel monomers will be needed as well as tightly controlled processes to ensure very precise molecular weight distribution. The introduction of crystallinity into some of the resin components will probably be part of this new technology.

Of course these new material advancements will have to provide the durability and performance specified in the automotive trim and components market as well as the requirements of the architectural and other major industries.

Not only will new formulation techniques require development but application technology will have to improve to provide consistent and even application to non-conductive substrates. Alternative substrate compositions may have to be considered to provide conductivity for the electrostatic application of powder coatings.

The future looks bright for powder coating technology.

R & D Interview

Chemistry was
“love at first sight”

Dr Damiano Beccaria,
Eastman

www.european-coatings.com



1 Since its conversion to being TGIC-free, we're already seeing rapid replacement of liquid with powder as a better sustainable solution for structural steel coating. With chrome plating, anodized finishes and lower curing, we can expect powder to become the product of choice over liquid coating in the coming years.

Applicators can now expect better durability with powder coating technology as today's powder coating products have better corrosion resistance and provide enhanced surface resistance, ensuring more longevity and durability. We're already seeing a shift in market preference to these higher durable powder coating solutions. Applicators will also find powder coatings more suitable in terms of application because of faster curing, higher transfer efficiency and mileage.

Powder coating technology has advanced over the years where engineers have designed a wide choice of colours and special metallic sparkle effects that meet growing design trends. Powder coatings are available in all RAL colours and premium products are available for construction, furniture and home appliances.

2 We've realised that there is a growing need for a more durable powder coating which many engineers are currently working to achieve. Applicators have high expectations for better scratch resistance and corrosion free products which are easier to clean with less dirt pick-up. Engineers are also looking to develop smarter coating solutions that add specific functionalities, such as heat reflective or antimicrobial products, without using hazardous materials. These systems need less safety labeling. Additionally, products need to have higher storage stability, longer lifetime, better chargeability and be more compatible with various surface pre-treatments. Also higher reactivity products,

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leading to application on heat sensitive materials, are being considered. Last but not least, we cannot forget aesthetics. Powder coatings products can still offer brighter and higher chemical resistant metallic solutions with better special effects – while still maintaining a good appearance and overall performance.

Book tip

Powder Coatings
3rd revised edition
Emmanouil Spyrou
www.european-coatings.com/books



Editors Blog

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