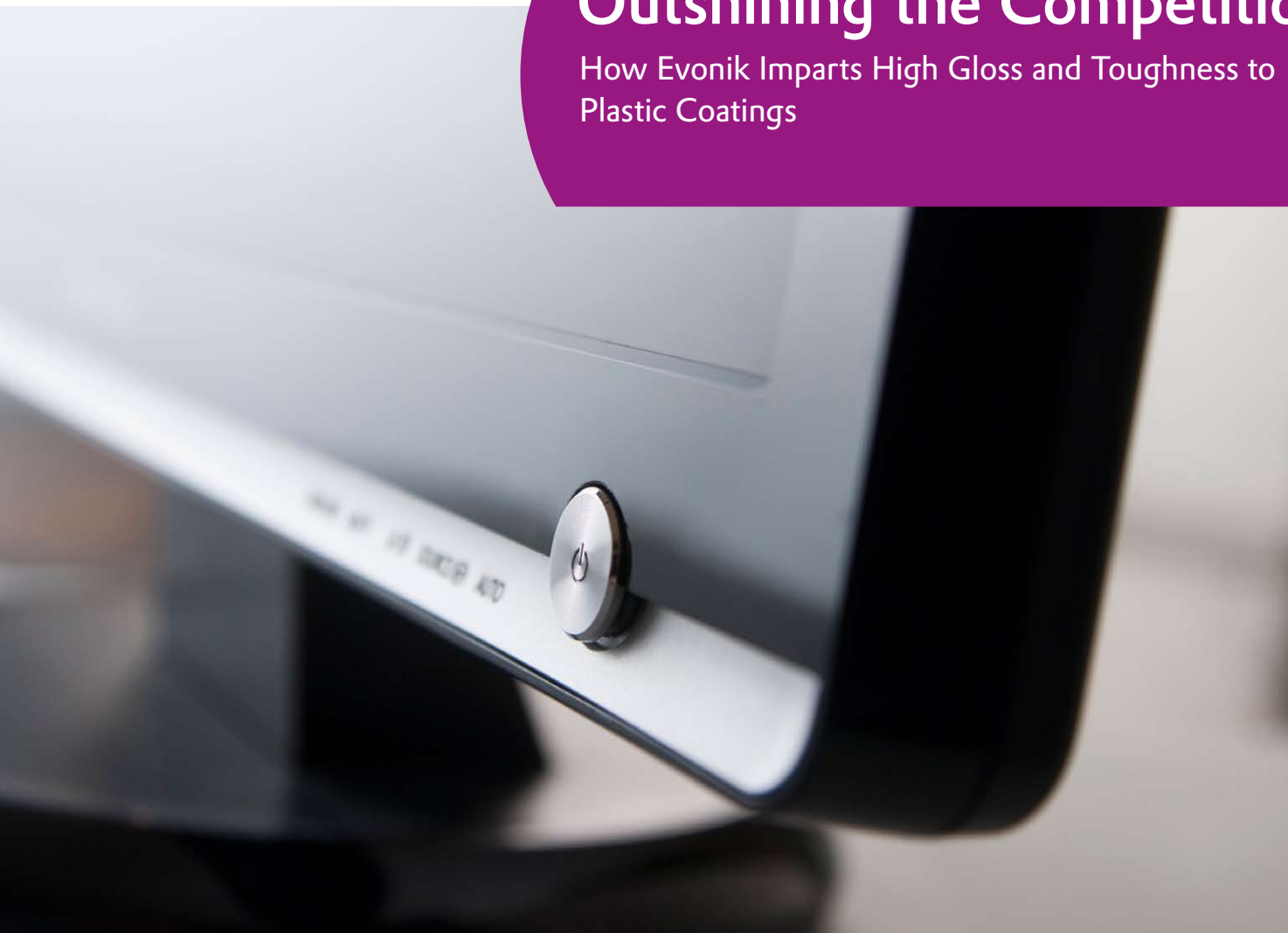


Outshining the Competition

How Evonik Imparts High Gloss and Toughness to Plastic Coatings



Electronic gadgets are right at the top of consumers' wish lists—and not just for Christmas! Those with housings finished in luxurious piano black are currently in vogue. Until recently, however, gadgets with glossy plastic skins suffered from a serious deficit. Their surfaces were particularly sensitive and almost impossible to clean without damaging the coating. Evonik Industries has now solved this problem with a new methacrylate resin, a resin that lends plastic coatings properties that were once considered incompatible: aesthetics and functionality.

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Evonik. Power to create.

First, it goes without saying that electronic devices like cell phones, MP3 players, and flat-screen TVs have to function reliably and well. That's one side of the coin. The other side is that they also need to embody the latest trend and be inspired by design, featuring a chic, highly polished look, because a sophisticated appearance suggests quality and helps the item sell itself. A growing number of buyers think it important, for example, that a flat-screen TV blend harmoniously into a contemporarily furnished living room, yet stand out as an art object, a conversation piece on account of its elegant design.

For flat-screen TVs, the current trend is classic black—to be sure, piano black—a glossy plastic coating that conveys virtually the same quality as an expensive concert grand piano. Nearly all major television set manufacturers are clearly partial to piano black in their product range, aware as they are that the appearance of a TV set, in addition to the electronics housed inside it, plays a major role in buying decisions.



A seemingly unremarkable product that packs a powerful punch: With its DEGALAN® VP 1034 F, Evonik has developed a methacrylate resin that, when used as a binder, makes plastic coatings both highly glossy and resistant to alcohol.



The irreconcilable reconciled

The problem is that common glossy plastic coatings are relatively susceptible to mechanical stress and chemical attack. They are easily damaged when cleaned and resist alcohol-containing cleaning agents poorly. But that will soon be history. With its DEGALAN® VP 1034 F, Evonik has developed a methacrylate resin that, when used as a binder, imparts to plastic coatings exactly those properties that have so far been considered irreconcilable: a high-gloss surface combined with good resistance to cleaning agents. The substances responsible for these desirable properties are specialty monomers. Evonik's Coatings & Additives Business Unit developed the new product at the Wolfgang Industrial Park in Hanau.



It's not just the inside that matters. Consumers want electronic gadgets like cell phones and flat-screen TVs not only to function reliably, but also look good. It's a disappointment, though, when the high-gloss housings are damaged when cleaned. But a new product from Evonik now makes it possible for glossy plastic coatings to withstand cleaning agents.

"It was obvious that we had to develop a product that both provides a high-gloss finish to plastic coatings and ensures that the surface of the coating film can be cleaned simply and efficiently without being damaged by the alcohol in the cleaning agent," explains Technical Service Manager Andreas Olschewski. "With DEGALAN® VP 1034 F we were able to do that."



The binder was developed mainly for the high-end market, in other words, for the high-quality plastic coatings used for cell phones, designer stereo systems, and flat-screen TVs. The binder can be used in either a single-coat or two-coat process. In the single-coat process, only one coat is applied on the substrate, usually a less substantial plastic mix. The coating must then perform two functions: ensure bonding to the underlying plastic as well as provide aesthetic appeal. In the two-coat process, a coat based on the new binder is applied for the color and is overlaid by a clear coat based on UV-curable or polyurethane systems for a glossy effect—as in the case of piano black.

Brilliant in many ways

In addition to these properties, coatings containing the binder have excellent weathering resistance. Moreover, the product can also be used in metalization processes, which make it possible to produce metallic reflective coatings. It is also suitable for gravure inks such as those used for printing on packaging films.

So the new binder will continue to shine in many fields of application in the future. The binder successfully combines two requirements on plastic coatings—aesthetics and functionality—which in the past were often incompatible with each other. Evonik's binder offers both.