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TECHNOLOGY 2007 *Innovation Awards*

INNOVATION AWARD FOR PROCESSING TECHNOLOGY: **Plasmatreat Openair Pretreatment Technology for Metal**

The concept of using plasma energy to pretreat plastic substrates has been embraced by the finishing industry for years. Plasma energizes the surface that then provides an anchor for various finishes to adhere. Plasmatreat, based in Steinhagen, Germany, with North American offices in Mississauga, Ontario, Canada, has taken this innovation further to clean and energize metal surfaces. The impact this technology may have on the coatings industry is monumental.

Typically, metal cleaning/pretreatment processes involve the application of a series of heated aqueous solutions that alternately clean, then rinse, then convert, then rinse, then seal and dry the substrate. These process usually are accomplished in three to five steps but can exceed 15 stages in more complicated systems. The stages all require meticulous management of temperature, solids level, pH and other chemical analyses to ensure expected performance. Many stages also require heat to optimize the cleaning or chemical reactions. Furthermore, the processes generate sludge that may contain hazardous materials that require special handling and disposal.

The Plasmatreat technology eliminates all the stages prior to the application of the conversion coating. This process provides an energized hydrophilic surface possessing a contact angle of 15 to 28 degrees. Plasmatreat commercialized this technique at an aluminium coil coating line in Switzerland this past summer. Project engineers estimate that the conversion will eliminate 150 to 180 tons of sludge and wastewater produced at the plant per year.

Kevin Biller, Technical Editor

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