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Transitioning to Green Energy
Interview with **Markus Heimbach**, Executive Vice President and the Managing Director at Hitachi Energy
Clean Energy

Protecting Equipment with Powder Elevates Protection and Sustainability

Photo: PPG

Regular review of paint specifications is an important task to ensure that power industry manufacturers are leveraging the best possible coatings to protect their equipment, manage costs and improve application efficiencies.

This evaluation of solutions in terms of performance requirements and paint line maintenance considerations often leads manufacturers to products that offer more durable protection, but also to advantages that put them closer to their sustainability goals.

Based on key evaluation metrics like performance, maintenance, material usage and aesthetics, powder coatings often come out on top. In fact, it is currently the world's fastest growing coating technology.

BASED ON KEY EVALUATION METRICS LIKE PERFORMANCE, MAINTENANCE, MATERIAL USAGE AND AESTHETICS, POWDER COATINGS OFTEN COME OUT ON TOP. IN FACT, IT IS CURRENTLY THE WORLD'S FASTEST GROWING COATING TECHNOLOGY.

One of the most appealing features of powder is that it offers important sustainability benefits like low volatile organic compound (VOC) content and higher first pass build rates.

Since powder coatings are generally made without solvents, they generate virtually no harmful VOC emissions, helping manufacturers stay compliant with increasingly stringent environmental regulations around the world.

Because it is an electrostatic process that applies charged particles to a grounded part, powder has excellent adherence to metal, even on hard-to-reach areas. The result is less powder needed to coat the parts, improving material utilization rates.

Finally, unlike liquid paint that is always a spray-to-waste process, powder overspray can be reclaimed and recycled, depending on the capabilities of the coater, the number of colors utilized, the absence of contaminants and financial considerations related to the quality of the powder.

While these features are appealing to manufacturers striving to reduce costs and their environmental footprint, there are valuable protective performance gains with powder coatings as well.

Powder coatings are formulated for applications that require the ultimate combination of corrosion resistance, weathering performance and operational advantages. These coatings are typically formulated with polyester resins that are favored for their excellent corrosion and chemical resistance, as well as all-around application versatility.

In fact, powder coatings, particularly, newer generations, often offer better protection in a single coat in terms of coverage, corrosion resistance and weathering than two-coat liquid systems, which reduces the overall amount of product needed, and also eliminates the need to manage and treat wastewater.

Specification & Paint Line Maintenance

The most effective way to make progress in sustainability goals is to select the right coating for metal electrical equipment using a total system approach that accounts for the following variables:

1. The composition of the metal substrate (cold-rolled steel, hot-rolled steel, stainless steel, galvanized metal, mixed-metal, etc.) while ensuring those suppliers are considering sustainability in their manufacturing processes.

2. The types of lubes and coolants used to fabricate the equipment. Manufacturers can work with their steel supplier to get a better understanding of what is used so that they are better able to control contaminants in the paint process that result in unnecessary increases in water usage or additional chemicals to clean the substrate. This affects the materials needed to pretreat the metal substrate (zinc, iron- or zirconium-based pretreatments).

3. The type of finish coat, including film build (coating thickness) and cure (baking time and temperature) requirements.

4. Optimal paint line maintenance programs limit excess water usage and chemical additives. In addition, oven temperature monitoring reduces energy demands.

Improve first-pass build rates

With the notable advantages of protective powder coatings, it's not surprising that more manufacturers than ever are switching to this coating technology. But leading powder makes are continuing to develop formulations that take these sustainability, performance and application benefits to the next level, including a new generation of high transfer efficient (HTE) powders that offer:

- up to 85% first-pass build rates that reduce labor, material and utility costs
- improved wrapping on complex parts for fewer rejected parts and touch-ups
- better control of powder film thickness so less powder is needed for full coverage
- reduced energy needs with lower baking temperatures (320°F)
- good penetration on complex parts, shapes and recesses

HIGH TRANSFER EFFICIENT (HTE) POWDERS OFFER UP TO 85% FIRST-PASS BUILD RATES THAT REDUCE LABOR, MATERIAL AND UTILITY COSTS.

Of course, there are several ways to improve first-pass application build rates, including regular equipment maintenance and refining application technique. But leveraging HTE solutions specifically formulated for excellent edge-to-edge coverage goes a long way in increasing throughput, reducing material usage and costs, while limiting waste.

Today, newer generations of powder coatings are giving manufacturers tools that not only elevate the protection of their switchgear, transformers and generators, but also support their environmental compliance and stewardship initiatives.

Photo: PPG

Maria Lamorey is a commercial strategy manager at PPG. With over 20 years of industry experience, Maria plays a leading role in PPG's commitment to delivering high-performance coatings products across a variety of general industrial applications including electrical equipment of all types.