FACTOID: Gelcoat & Paint

A gelcoat is a pigmented polyester resin with relatively fragile properties used in the fabrication of conventional FRP products but not in the *pultrusion* process.

A type of 'modified resin', gelcoat serves three functions in the hand-laid or form molded FRP manufacturing industry:

Primarily, gelcoat serves as a quick-setting 'buffer' and 'release agent' between the curing fiberglass resins and the waxed surface of the mold. Applied to molds in the liquid state, without gelcoat the resin would eat through the wax and the part being fabricated would adhere to the mold.

Gelcoat also serves as a UV inhibitor. Pigments in the gelcoat as well as added UV stabilizers protect the underlying resin from the harsh radiation of the sun. Without gelcoat the resin which forms the fabricated part would quickly oxidize, leaving nothing but frayed strands of fiberglass.

And lastly, gelcoat is used because it provides a colored (pigmented) glossy surface to the finished product.

Kept under cover or out of direct sunlight, gelcoat may last for years, but in direct sunlight or when subjected to caustic/abrasive or chronically wet environments it tends to oxidize and degrade rather quickly. In fact, as the marine industry has come to learn, gelcoat is permeable by water, allowing microscopic wetness to seep into miniscule airpockets in the layered fiberglass/resin substructure resulting in pervasive delamination.

In addition, the 'thick or thin' nature of the gelcoat application process can cause cracking, crazing and 'aligation' (wrinkled like the hide of an alligator).

Gelcoat is very difficult at best to post apply for touch-up or repair purposes. The material has a very heavy viscosity, a short pot-life and generally a wax solution must be added to enable proper curing, all of which makes gelcoat difficult to work with and hard to apply smoothly.

Paint is essentially any liquid which, after application to a surface, dries to form a thin opaque layer or film. Paint is also used to add functionality to an object or surface by coloring it to modify light reflection or heat radiation. Another example of functionality would be the use of color to identify hazards or to 'color code' the function of equipment, tools or pipelines.

While paint does somewhat protect various surfaces from corrosive elements, this retardant property quickly diminishes with age and exposure. Thus paint's primary function is decorative.

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