

Green Coatings Truths and Myths

Introduction

Just about everyone these days has a "green" product in the coatings industry. There is 'Eco this' or 'Enviro that' labeling. Manufacturers splash exotic colors all over their slick brochures with lush green leaves and tranquil waterfalls cascading in the background. They inform us how their coatings are environmentally friendly and will help protect our fragile ecosystems. But are these coatings really environmental at all? Not always.

VOC Debate

Many environmental organizations such as the U.S. Environmental Protection Agency (EPA), South Coast Air Quality Management District (SCAQMD), Leadership in Energy and Environmental Design (LEED) and Green Seal have established a number of well intentioned but erroneous standards regarding VOCs. Generally speaking, VOC levels for interior latex paints are 150 g/L for non-flat paints and 50 g/L for flat paints. Exterior paints are typically 200 g/L for non-flat and 100 g/L for flat paints.

But what does this all mean? Perhaps it means very little because VOCs are only calculated on the base white product and without the colorant system. For example, a 150 gram VOC base white with the addition of a red oxide pigment could increase to 160 g/L. Universal colorants can have more than 160 grams per liter of VOCs because of high glycol levels. If a painting contractor is coating a surface with an accent color such as yellow, three to five coats are often required to get decent hide. If you combine the VOCs from the base polymer with the universal colorant system then a great deal more VOCs are being emitted from the combined coats.

VOCs can cause headaches, allergic reactions and health problems in humans if inhaled and contribute to the formation of troposphere ozone, smog and global warming.

Energy Efficiency

Energy efficiency should be considered a criterion for green coatings. Energy-efficient coatings utilize sophisticated heat-blocking pigments that refract the sun's visible, infrared and UV radiation away from the substrate, thereby reducing radiant heat transfer within a property. If a property can remain cool, there is a lower demand for cooling systems, which, in turn, decreases the demand on utility companies to burn fossil fuels to run generators. It is the burning of fossil fuels that contributes to smog and ozone depletion. Typical retail-bought paints, which are specified on most exterior walls, are not heat-reflective or energy-efficient. They can contain high levels of VOCs, may not be durable and often do not help protect the environment.

Performance

Performance should be an important feature of an environmental coating. A long-lasting coating means less paint cycles, which means fewer VOCs are emitted. The physical performance of latex paints depends on a number of variables such as quality of pigments, film build, polymer and sheen. Highly reflective Mixed Metal Oxides (MMOs) reduce surface temperature, which extends the life of the coating. High film build coatings last longer than low film build simply because of greater thickness. One-hundred-percent acrylics last longer than styrene and PVA acrylics. High-sheen coatings last longer than flat-sheen coatings because they contain fewer fillers and extender pigments.

Retail latex paints typically last 3-7 years between repaint cycles. Some high-performing elastomerics and thermoplastics that utilize heat reflective technology can last more than 20 years between recoats. The longer a coating lasts, the better it is for the environment, and this is the reason why it should be considered a criterion for a green coating specification.

Recycling

Recycled paint has been a green practice for a period of time in the United States. However, why aren't the paint containers also recycled in a similar fashion as they are in other countries such as New Zealand or Canada? It is estimated that 95% of all paint cans in the U.S. end up clogging landfills. Many paint cans are manufactured from polyethylene, which can be recycled into garbage bags, soda bottles or shopping bags.

Definition of a Green Coating System

Defining a green coating within the United States is like pulling a confused rabbit out of a magic hat. Anyone can conjure up his or her own set of standards. Green coating standards must include a more comprehensive look at VOCs, energy efficiency, long-term performance, and recycling latex polymers and containers.