

TECHNICAL BULLETIN 1



ELASTOMERIC COATINGS

Introduction

Elastomeric coatings are:

- Fluid applied materials that dry to form a solid elastic membrane that are intended to provide water-resistance to the substrate that they are applied.
- Available in a variety of colors and textures that can provide aesthetic changes and/or improvements to the substrates to which they are applied.
- Normally comprised of acrylic or silicone resins and are predominantly water-based products.
- Typically applied at much lower coverage rates than paint so the dry film thickness (DFT) will be much higher. DFT is critical to the performance of these coatings and all performance data is based on the proper DFT.

Features and Benefits

1. Elastomeric, by definition, means to have the ability to expand and contract (elasto-) and also the memory to return to the original condition (-meric). This allows the coating to move, within limitation, in concert with the substrate to which they are applied during expansion and contraction of the substrate. This attribute allows properly applied coatings to bridge certain cracks (as defined by the specific coating manufacturer - typically defined as 1/32" or less) that may develop in the substrate after application of the coating.
2. Elastomeric coatings are designed to resist bulk water penetration when subjected to wind-driven rain. This feature protects against the wall coating acting as a conduit and allowing water to migrate into the substrate.
3. Elastomeric coatings are generally also breathable which allows the transfer of water vapor through the coating. The breathability varies from one product to the next so this should be considered when specifying a manufacturer and coating.
4. Some elastomeric coatings can reduce mildew problems. By preventing moisture accumulation in the substrate, mildew spores lack the necessary moisture to grow and propagate. Some coatings are also formulated with additives to reduce mildew growth.
5. The majority of elastomeric coatings are water-based, providing for easy clean-up and also reducing concerns in areas of strict VOC compliance regulations.
6. Elastomeric coatings are available in a wide range of colors which can also provide aesthetic improvements to a façade by hiding patches and blemishes in the original substrate, or allowing a complete change in color(s) to the façade. Pigments are added to match any color, but beware that organic pigments are subject to fading; inorganic (mineral) pigments are available for certain colors and would have a reduced level of fading. NOTE: Due to the presence of the elastomers, the product cannot hold as much pigment as 100% acrylic paint, so some darker colors may not be available.

7. Elastomeric coatings are generally more durable than paints based on the thickness of the finished material and their ability to resist cracking

Applications

1. Weatherproofing of above-grade, vertical, exterior surfaces without the possibility of negative-side water intrusion.
2. Recommended substrates:
 - Stucco over lath, block or concrete
 - CMU, with a block-filler base coat
 - Concrete, cast-in-place or precast
 - EIFS
 - Brick, where aesthetically acceptable
 - Previously painted masonry.
3. Elastomeric coatings may also be applied to metal and wood substrates, but the coating manufacturer should always be consulted in advance.

Design Considerations

1. Moisture drive from the interior should be minimized.
2. All adjacent surfaces and openings must be watertight to prevent moisture migration behind the coating. Water vapor to a certain extent can pass through the coating, but liquid water will cause delamination and blistering of the coating.
3. Walls subject to water pressure from the negative or "other" side are not acceptable substrates for the same reason. (Berm walls, retaining walls, planters, etc.)
4. Some elastomeric coatings can pick up dirt during their service life, particularly in urban environments. Some products and formulations can be more susceptible to dirt pick-up than others. Run-off/dirt streaking may be reduced with the use of drip edges and other flashings
5. Elastomeric wall coatings are not designed for continuous submersion and should not be applied to dead-level substrates where water can accumulate for extended periods of time or substrates that will be subjected to immersion.



Application Considerations

1. Ambient Conditions

- a. Most manufacturers require a minimum ambient and surface temperature of 40-50 degrees F and rising, without threat of freezing temperatures for 12-24 hours after application.
- b. Humidity should be below 90% (or less, refer to manufacturer's recommendations) to encourage drying and curing.
- c. In dry, hot climates confer with the manufacturer for hot-weather/substrate applications.
- d. Coatings should not be applied to substrates with frost, condensation or water on the surface.
- e. Substrate pH should typically be 10 or greater, while some coatings will tolerate a pH of 6 or greater. Applying a coating on fresh stucco or other high pH substrates may result in blistering. Consult the manufacturer for acceptable substrate pH.
- f. Do not apply if rain is threatened in the next 12-24 hours to prevent wash-offs.

2. Substrates

- a. Do not apply over poorly adhered coatings. The weight and surface tension created by the new coating will encourage adhesion failures in the previously applied materials.
- b. Bug holes in concrete should be filled prior to coating.
- c. Porous substrates may require additional coats to achieve proper DFT.
- d. Do not use solvent-based primers or finish coats on EIFS walls. Solvent migration may cause deterioration of the substrate.
- e. Pressure cleaning of previously coated substrates may only remove surface oxidation. Deeper oxidation (chalk) will require application of the coating manufacturer's recommended primer. Primers can improve bond and increase service life.
- f. Existing cracks, regardless of size, should be repaired or treated in accordance with coating manufacturer's recommendations prior to the coating application.
- g. Substrate texture and porosity will greatly affect coverage rates. Wet-film application rates and dry film thickness should be monitored to ensure the proper millage is achieved and a warranty will be issued. Printed coverage rates are theoretical and are based on smooth, non-porous substrates.
- h. Elasticity of the coating varies from product to product and ranges from 150% to 1200%. The dynamic movements of the substrates should be considered to determine what level of elasticity is required.

3. Recoating

- a. Most elastomeric coatings should weather for one year prior to being over-coated with non-elastomeric materials (i.e. accent colors, graphics, etc.).

Cleaning

1. Elastomeric coatings may require periodic maintenance and cleaning. Cleaning should be performed in accordance with coating manufacturer's recommendations.

Warranties

1. Elastomeric coating can have warranty periods up to 10-years.
2. Periodic inspection and repair should be performed to prevent water from getting behind the coating. A new top-coat applied near the end of the coating's design life will refresh the coating system and may be eligible for a warranty extension.

Application Procedures

1. Most elastomeric coatings can be applied by brush, roller or spray equipment.
2. Spray equipment may require thinning of the material and manufacturer's guidelines must be followed.
3. A mock-up should be installed to determine the coverage rates for specific substrates and textures.
4. When rolling, always saturate a roller and never dry roll.
5. For best results, most coatings should be applied in a double-pass or fan-like manner and should be laid-off in the same direction to reduce visual surface texture differences.
6. If spraying, anticipate a 10% or greater spray loss in addition to the effect that thinning will have on the dry film thickness (DFT).
7. Finish coat should be pinhole free and some substrates may require a 2-coat application to achieve the proper DFT required for warranty. Spraying may require a back-rolling to eliminate pinholes.
8. Custom colors should be boxed to ensure a consistent finish color.

Check manufacturer data sheets for more specific information or contact SWRI headquarters.

For more information contact

SWR Institute, 400 Admiral Blvd, Kansas City, MO 64106.

(816) 472-7974 phone; (816) 472-7765 fax; www.swrionline.org.