Elastomeric Wall Coating

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Elastomeric Wall Coating Provides a Long Lasting Waterproof Coating

Exterior masonry walls--particularly ones that are weathered--have long represented one of the most difficult maintenance challenges for the contractor, the painter, and the waterproofer alike.

Most typical exterior surfaces can be successfully protected and maintained by the regular applications of high quality conventional acrylic latex paints. But even the best paints often tend to split and fail when they have been applied over the surface cracks that develop as masonry ages.

There are two main reasons for this phenomenon. For one, conventional paint formulations have relatively low volume solids content and tend to shrink on drying. If the paint contracts too much, it can re-expose the substrate. The other cause of paint failure is even more significant. It has to do with the fundamental nature of conventional paint films.

Most architectural and maintenance paints are based on "hard" polymers with relatively high glass transition temperatures -- generally between 0 degrees and 25 degrees C. As a result, the films formed by these formulations tend to be relatively rigid and in-elastic. Most surfaces to be coated are generally dimensionally stable, so this lack of a high degree of flexibility and elasticity poses no problem.

However, masonry surfaces are another case entirely. Masonry often exists as large monolithic areas that usually contain some cracks. Most of the cracks are relatively small ranging from hairline thickness to no more than 1/8" in width, but they undergo remarkable fluctuations in size--as much as 300% to 400% or even higher in climates that experience wide swings in temperature. When a conventional paint experiences the stresses caused by this movement, it responds by cracking.

There is a better alternative to latex paint on masonry substrates. Advances in acrylic technology, pioneered by Rohn &Haas Company, have developed a unique series of 100% acrylic elastomeric masonry coatings. Acrylic elastomeric coatings are water based "rubber like" weatherproof coatings. Elastomeric wall coatings based on this technology combine many of the traditional benefits of high-quality acrylic latex paints superb

exterior durability, excellent dirt resistance, soap and water cleanup together with elasticity and flexibility required to tolerate the thermal movement of cracks.

A Better Alternative: Elastomeric Wall Coatings

For more than three decades, virtually everyone associated with the construction industry has known about the limitations of traditional paints on masonry. For almost that long, the industry has been searching for better alternatives. Early attempts to solve the cracking problem involved formulating coatings with polymers not generally used in conventional paints. Many of these experimental systems provided acceptable service as dirt-resistant coatings.

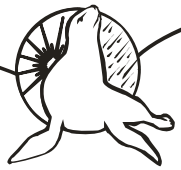
Unfortunately, virtually all of the polymers tested formed hard films that were too rigid to accommodate the temperature-related fluctuation in the dimensions of the cracks. Inevitably, coatings based on these hard polymers fractured, exposing the masonry to the elements once again.

Recognizing that hard binders were not the answer, the industry turned to "softer"polymers with much lower glass transition temperatures. Many of the products investigated were already seeing use as binders for caulks and sealants. Because they had low glass transition temperatures, they furnished excellent elasticity and flexibility over a wide range of temperatures.

Formulations based on these polymers were better able to tolerate dimensional fluctuations without cracking than conventional paints. Consequently, they possessed good functional durability on masonry. Unfortunately, in solving one problem, the soft binders created another. These polymers produced tacky films that rapidly accumulated dirt, with a notably adverse effect on appearance. The bottom line was that none of the many products tested by the industry into the mid-1970s proved any more successful than conventional acrylic latex paint. Basically, none of these alternative coating materials possessed both the decorative appeal and durability of all-acrylic paints and the mechanical properties required by masonry.

As has been indicated, coatings made from this new acrylic technology have the durability expected of a 100% acrylic binder, they dry rapidly, and are easy to clean-up. They adhere well to all kinds of common building substances, including masonry. Finally, they have dirt resistance associated with conventional acrylic latex paints, and they can be formulated with standard pigments to possess the same kind of visual appeal.

However, the novel composition of the new polymers provides two features that conventional latex paints do not possess. For one, these coatings exhibit excellent



elastomeric properties. Under stress, they can stretch to several times their original dimensions. Thus, when the masonry substrates expands and contracts, with changes in temperature, the elastomeric coating can accommodate the movement without cracking. The other key difference between coatings based on the elastomeric technology and conventional latex paints concerns thickness. Latex paints are normally applied at thicknesses ranging from 1 to 3 mils.

Elastomeric coatings are formulated to form much thicker films (10 to 30 mls). As a result, they are much better able to bridge cracks than the comparatively thin films formed by latex films. Greater film thickness also enables elastomeric wall coatings to conceal fairly large surface imperfections. The result is a smoother, more uniform surface, a major benefit in some applications.

Not All Acrylic Elastomeric Coatings Are Created Equal

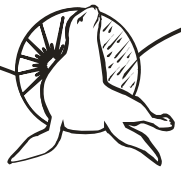
To this point, our discussion of elastomeric wall coatings binders has focused solely on the 100% acrylic products. However, there are also two other types of polymers used in elastomeric wall coatings: styrenated acrylic polymers and vinyl acetate copolymers.

Although all can be formulated into elastomeric coatings, there are critical differences between the three types of binders. The most significant distinctions lie in the areas of inherent elasticity, dirt resistance, resistance to hydrolysis, and ultraviolet stability. One hundred percent acrylic elastomeric emulsion polymers are the only products that can provide all four properties. Styrenated acrylic and vinyl acetate binders are each lacking in one or more of these respects.

To begin with, neither the styrene acrylic or the vinyl acrylic polymers are very flexible at low temperatures. To obtain acceptable performance in this area, the formulations must incorporate an external plasticizer in coatings based on either type of binder. Although an external plasticizer can improve flexibility, there are other serious drawbacks to its use.

For one, although typical plasticizers will enhance elongation and flexibility at lower temperatures, the effect occurs in a relatively narrow range of temperatures. If the ambient temperatures run outside this range on the high side, the coating lose its recovery properties, becomes gummy, and sags to the point of collapse under the stresses caused by the dimensional fluctuations of the cracks in the masonry.

The migration of plasticizer from the coating also has an adverse effect on flexibility and durability. When the plasticizer leaches out, the coating reverts to its original rigid, in-elastic state. No longer able to tolerate the dimensional fluctuations of the underlying substance, the film cracks!



Instead of depending on a separate, external component to impart flexibility to the film, they derive elasticity from a unique combination of special composition, molecular weight, and cross-linking. As a result, they retain flexibility over periods of time. Moreover, formulations based on the 100% acrylic elastomeric polymers exhibit their elastomeric properties over a broad range of temperatures. Thus, the performance of waterborne coatings based on the acrylic elastomeric remains consistently outstanding under all conditions.

In comparing the different types of binders in other areas of performance, the 100% acrylic binders have a significant edge over styrenated products in the area of ultraviolet stability, over vinyl acetate products in the area of hydrolysis resistance, and over both chemistries in the area of dirt pick-up resistance. As a result, on extended exposure, waterborne acrylic coatings are more resistant to chalking and do not yellow as do styrenated products. They are not as vulnerable to damage from ambient moisture as acetate-based systems, and they remain cleaner than both types of non-acrylic systems.

Collectively, the advantages provided by 100% acrylic technology translates into superior durability in both protective and decorative terms. Acrylic-based coating films retain their integrity better than styrenated and vinyl acetate systems; the acrylic formations do not crack, flake, or peel. Consequently, they do a better job of shielding masonry substrates for the elements.

At the same time, since the 100% acrylic coatings retain their elasticity and do not yellow or pick-up dirt very readily, they maintain an attractive, "decorative" appearance far longer than their competitors.

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Energy Seal Coatings

Energy Seal Coatings are ideal for application over a wide variety of vertical substrates including, masonry, wood, metal, block, brick, to name a few.

Our coatings have excellent color retention, mold & mildew resistance and flow and leveling. Our coatings are also “breathable”. They will allow moisture to escape from the substrate but will not allow it back into the substrate.