

I.125 – Hybrid Polymer Technology for Cementitious Overlays

Revised: 3/16/2023 Version: 1.3

Hybrid Polymer Technology engineered and developed by Elite Crete Systems blends multiple types of redispersible polymers, various resins and other key components to eliminate inferior performance and product failure commonly found in other VAE or Acrylic modified concrete overlay products. Typical modifiers used for cement overlays on the market today are single component acrylic resins or readily available, low technology polymers such as variations of vinyl (PVA or VAE) or styrene (SBR).

Listed below is a breakdown of the pros and cons the most common polymers/modifiers typically have:

- Poly Vinyl Acetate (Co-Polymer or VAE): Has excellent softness, flexibility and adhesion properties, but lacks weatherability, UV resistance and overall strength.

Note: Re-emulsification (re-wetting) is the biggest problem with PVA's and VAE's. Case studies have shown that over 80% of the adhesion and structural properties are lost once saturated with water.

- Acrylic: Has excellent hardness and weatherability but lacks overall strength and long-term adhesion characteristics.

Note: Brittleness and long terms adhesion is the biggest problems with acrylic modified cements. During application process, the material begins to "dry out" after only a few passes with the trowel. This "drying out" leads to a lack of long-term adhesion. Brittleness is evident once an acrylic coating has aged. Reflective cracking areas indicate lost adhesion and brittle surfaces.

- Styrene (SBR): Has excellent overall water resistance and strength but lack flexibility and adhesion.

Note: Similar in problems as acrylic, but on a larger scale.

Hybrid Polymer Technology has created technological advancements in hybrid polymers and adhesives to produced scientific molecular compounds that when mixed with cement, aggregates and water increase the overall properties, versatility, performance and application of the newly enhanced compound.

Elite Crete Systems has led the industry with the most advanced technology in cement modification. These systems consist of hybrid polymer resin-based cement, which is water compatible and non-toxic. These systems have been successfully developed, time-tested and used for many permanent applications by contractors, engineers, architects and public works agencies for internal and external applications, above and below grade. These systems resist chemical attack and weather degradation considerably better than conventional cement or other modified cements; and due to its chemical structure, repairs or imperfections in concrete are easily corrected. It adheres tenaciously to most surfaces and is considerably more flexible, thereby resulting in less or no cracking, with a warranted resistance from delamination due to hydrostatic pressure.

These systems are permanent overlays that offer longer life, durability, reliability, flexibility, water and chemical resistance, and optional safety (non-slip) textures that are not only cost effective and time saving but can also be aesthetically appealing.

These systems are economical because they provide long term, durable renovation without the need for costly and continuous repairs normally associated with deteriorating surfaces. It's fixed once, permanently and beautifully with a minimal amount of time lost, compared to traditional renovation projects.

Some of the benefits of our hybrid polymer systems include:

- Much increase strength compared to normal concrete and other concrete coating products.
- Highly resistant to salt, chemicals, UV, freeze/thaw, delamination, hydrostatic pressure, oil, stains, mildew/fungus, and more depending on the chosen finish seal coat.
- Cost effective. Since it provides a permanent surface, not one that needs repaired or replaced often.
- Ability to apply from the thinness of a grain of sand up to several inches thick with extreme durability.