

Polyaspartic

Polyaspartic chemistry was first introduced in the early 1990s making it a relatively new class of coating. Polyaspartic is actually an aliphatic polyurea because it is derived from the reaction product of an aliphatic polyisocyanate component and a polyaspartic ester component, which is a new type of amine/diamine functional coreactant for aliphatic polyisocyanate. Polyaspartic esters perform well as a reactive diluting agent for high solids polyurethane coatings. For this reason, polyaspartic esters initially found use in conventional solvent-borne two-component polyurethane coatings.

Eventually, the advantages of using polyaspartic esters as the main component of the co-reactant for reaction with an aliphatic polyisocyanate in low to zero volatile organic compound (VOC) coatings has been realized. The rate of reaction of polyaspartic esters can be manipulated, thus extending the pot-life and controlling the cure rate of aliphatic coatings. This allows formulators to create high solids coatings systems which are user-friendly with longer working times and still maintain a fast-cure. Traditional aliphatic polyurea formulations required high-pressure, high-temperature plural component spray systems to be applied due to fast initial reaction rates. Aliphatic polyaspartics can be formulated with slower reaction rates to accommodate batch-mixing and application by roller-applied methods or spray-applied through conventional single components paint sprayers without the use of solvent. As with aliphatic polyurethane or acrylic coatings, polyaspartic coatings are UV and light stable and will not yellow like aromatic epoxies, polyureas and polyurethanes.^[1]

Polyaspartic esters are a new type of amine functional co-reactant for aliphatic polyisocyanates. HP Spartacote (now Laticrete), Bayer Material Science and Pflaumer Brothers are among the manufacturers of the individual component resins and systems. HP Spartacote (now Laticrete) maintains two US based patents on the formulation of polyaspartics resins.

When coating concrete, polyaspartics can be installed in both clear and pigmented form. Additionally, broadcast media such as quartz, vinyl paint chips can be incorporating, as well as metallic pigments.^[1]

Polyaspartic resins offer many benefits over traditional resins, higher abrasion resistance, chemical resistance, faster installation, and higher overall performance. The 100% solids version has no odor, solvent, or VOCs. As polyaspartics technology evolves, polyaspartic floor coating systems have been used on notable construction projects like Coors Field baseball stadium in Denver, CO.^[2] Rockefeller Center, New York,^[3] Kimbell Art Museum in Fort Worth, TX,^[4] Aquarium Zoo in Istanbul, Turkey.^[5] and most recently the parade ground of the Pentagon in Washington D.C.

References

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