Breaking through with polyurea coatings

Polyurea coatings are a recent development in the polyurethane coating industry. While polyurethane coatings have been in use for approximately 50 years, elastomeric spray polyurea coating technology has only been available since the 1990s.

Polyureas are the result of a reaction between an isocyanate component and an amine-terminated resin-blend component. The end result is a seamless, industrial strength elastomeric coating. When it comes to the application process, spray applied polyureas have many advantages.

SPI's high build, fast-set polyurea coatings dry in minutes, allowing for any thickness to be achieved in one application. This allows concrete rehabilitation projects a faster turnaround time, solving downtime concerns for industries that can't afford to have their assets out of service. SPI Polyureas can be applied in a wide variety of temperature ranges and have high tensile strength and abrasion resistance for demanding applications. In addition, SPI pure polyurea products contain no VOCs or ozone depleting ingredients.

New technological breakthroughs from SPI allow certain polyureas to be sprayed over porous, out-gassing surfaces, such as form poured concrete, while virtually eliminating "pin holes" or "blow holes." This new SPI technology eliminates some costly surface preparation procedures, such as dry sacking and using polymer modified mortar or grout; thus, saving valuable time in concrete rehabilitation projects.

When properly applied, SPI polyureas extend the service life of concrete through their unique properties. Polyureas are highly resistant to many chemicals, fuels and reagents; an extremely valuable benefit in many industries, such as oil & gas, chemical, mining, wastewater and sewage treatment facilities.

Most SPI polyureas also have the flexibility to move with concrete expansion and contraction. Some formulas have the ability to stretch more than 1000 percent. Many other coating systems may crack or break when concrete moves, resulting in a coating failure. Advanced polyurea coatings are also able to bridge concrete cracks and form a watertight seal.

SPI polyureas offer excellent cohesion properties and may easily be recoated without the removal of the entire coating system.

SPI polyurea may also be applied using a special technique to achieve a slip-resistant surface that is ideal for high foot and vehicle traffic areas.

One of the most remarkable uses of polyurea is as an energy absorbing material for use in mitigating blast effects on concrete and brick structures during terrorist threats or natural disasters. SPI's advanced polymers, at various thicknesses, have been recognized as an excellent energy absorber by several U.S. government entities, as well as by the private industry.

The cohesive properties of SPI's polyurea product are capable of holding walls together and keeping them intact, protecting occupants from flying debris and/or complete destruction of the walls. SPI polyurea coating solutions are also used for irrigation water canal repair and potable water containment. In addition, polyurea is also used in water features, fountains and pond liners, as well as for the waterproofing of concrete parking garage decks and roofs.

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Polyurea coatings used at a water irrigation canal repair project.