



IBIX[®]
INDUSTRIAL

THERMOPLASTIC FLAME SPRAY COATING OF CONCRETE SUBSTRATES

REVOLUTIONARY SYSTEMS TO PROVIDE TOUGH LONG LASTING,
FUSION BONDED COATINGS ON CONCRETE AND OTHER POROUS SURFACES.

CONCRETE – TYPICAL CHARACTERISTICS

Concrete is a composite material that deteriorates when exposed to normal environmental conditions. At the casting stage, concrete is sensitive to climatic changes and absorbs gases present in the atmosphere. We should not overlook the fact that concrete “breathes”, so it expands and shrinks with seasonable moisture and temperature variations, and this often causes cracking problems. Other peculiar and negative characteristics of concrete are a non-uniform, changing surface morphology as well as the typical porosity of the finished body.

CONCRETE AND CORROSION

Carbonation

Carbon Dioxide in air reacts with calcium hydroxide in concrete to form calcium carbonate:

- Increases mechanical strength of Concrete;
- Changes the pH of the concrete from alkaline (pH10+) to acidic.

Below pH10 the passivation layer on steel R-bars dissolves and corrosion will start to occur.

Chlorides:

Can be used to shorten setting time but can leach calcium hydroxide leading to loss of strength.

Sulphates:

Can lead to chemical changes in concrete and loss of strength.

Leaching:

Water flows through cracks in concrete dissolving minerals in the concrete.



Example of secondary efflorescence in parking garage exposed to diluted road salt from vehicles entering the garage during winter.



Example of flat piece of concrete having dislodged with corroded R-bar underneath.



POLYFUSION SYSTEM COATINGS

What is Polyfusion?

Polyfusion is a coating providing an anti-osmotic barrier used to insulate porous substrates against the external agents the coating is exposed to.

Generally speaking, the substrates to be protected are porous materials such as concrete, fiberglass, etc.

POLYFUSION Vs COATING RESINS SUCH AS POLYUREAS AND EPOXIES

Conventional Coatings:

- They do not guarantee a long-lasting protection when applied on concrete substrates since they present both applications and intrinsic problems;
- They have no control over ambient conditions when product is applied (air moisture, wet substrate, air and substrate temperature, etc.);
- They do not guarantee anti-osmotic properties as gases and liquids can pass through them (when these elements reach concrete, the result is early corrosion).



POLYFUSION SYSTEM:

Chemical & Physical Characteristics

- Resistance to penetration of liquids (anti-osmotic characteristics);
- Enhanced smooth fluidity;
- Excellent resistance to chemicals (acids, alkali, solvents*);
- Excellent resistance to adverse weather conditions;
- Outstanding UV protection;
- Excellent behaviour in case of fire (material that would not easily catch fire);
- Stain resistance, there are no pores for calcium, rust or other staining agents to grab or imbed into;
- Anti-bacterial properties (special formulations).

*Contact IBIX® for specific chemical resistance requirements.

Mechanical Properties

- Excellent Adhesion;
- Abrasion-resistance (Taber ASTM 60mg/ 500g);
- Remarkable elastic properties (elongation at break: 500%);
- Excellent resistance to blistering, chalking, peeling, cracking and other signs of deterioration in normal use;
- Excellent flexibility, even at very cold temperatures;
- Resistance to cold (-50°C).

Appearance and Technical Characteristics

- Smooth, durable and long-lasting coating;
- Antislip version available;
- Colour and pattern uniformity which will last for many years to come;
- Easy to repair if accidentally damaged (Thermoplastic);
- Eco Friendly;
- No porosity.



Application Procedure

- Removal of existing coating;
- Surface Preparation:
 - Inspect the surface for any delamination or hollow spots. If hollow spots are found they must be chopped out and repaired using appropriate repairing material;
 - Sand and/or smooth existing surface to a flat finish with a sanding disc and/or a cement-based product.
- Blast to clean the surface;
- Coat the substrate with the sealing primer **Polyres** (2 coats needed);
- Apply **Polyfusion** using the **Hercules Flame Spray System**.



ALTERNATIVE COATINGS

TecnoLiner is the alternative coating solution when **Polyfusion Flame Spray System** cannot be used (e.g. in explosion-risk environments).



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