The Versatile Coating System

High Performance Polyurea Coating Systems
**Polyurea**

**High Performance Technically Advanced Coating Systems**

### What are Polyurea?
Polyurea systems consist of polyether amines which typically react very fast and cure to form tough, durable coatings and sealants. The fast reactivity and cure characteristics of polyurea allow for rapid turnaround and application to a wide variety of substrates, even at high humidity. The speed of reaction also means polyureas are weather tolerant and can be applied at extremely low or high temperatures.

Polyureas are elastomeric, have high tensile strength and are resistant to impact, abrasion and chemical attack.

### Typical Uses
- **Primary and secondary containment**
- **Waterproofing**
- **Industrial floors**
- **Stadium walkways**
- **Ramps**
- **Line marking**
- **Cable ducts**
- **Renovation of cooling towers**
- **Roof restoration**
- **Wastewater facilities**
- **Operating theaters**
- **Institutional shower stalls**
- **Clean rooms**
- **Food processing plants**
- **Aquaculture facilities**

### Features
- **Fast return to service**
- **Shortens costly downtime**
- **Can be applied and used in service at low and high temperatures**
- **Waterproof - Withstands both positive and negative hydrostatic pressure**
- **UV resistance assures no loss of properties when used in direct sunlight**
- **Resistant to a wide variety of industrial chemicals, caustics, solvents, fuels, oils and most acids**
- **Acceptable in USDA inspected facilities**
- **Easy to clean and sterilize**
- **Restores old steel and concrete surfaces**
- **Prevents corrosion and extends life of concrete surfaces**
- **Protects floors from heavy traffic, impact and harsh cleaning agents**
- **Withstands high pressure wash downs**
- **High film build achievable with a single coat application**
- **Low odor**
- **Can be applied without evacuating premises**
- **Custom colors available on request**

### X-Shield Primers

<table>
<thead>
<tr>
<th>Product</th>
<th>Characteristics</th>
<th>Elaboration %</th>
<th>Tensile Strength psi/MPa</th>
<th>Shore Hardness</th>
<th>Gel/Touch Dry Time (min)</th>
<th>Return to Service</th>
<th>Application Temperature</th>
<th>Service Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>PolyPrime S</td>
<td>Two component, 100% solids (no VOC), polyurea based primer. Used for priming substrates prior to application of polyurea coatings or sealants.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td><em>1 to 6 hrs.</em></td>
<td>N/A</td>
<td>50 to 120°C (100 to 250°F)</td>
<td>-40°C to 55°C (-40°F to 131°F)</td>
</tr>
<tr>
<td>PolyPrime LT</td>
<td>Two component, 100% solids (no VOC), low temperature/impact primer for concrete and steel.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td><em>1 to 2 hrs.</em></td>
<td>N/A</td>
<td>10 to 15°C (50 to 60°F)</td>
<td>-40°C to 55°C (-40°F to 131°F)</td>
</tr>
<tr>
<td>PolyPrime S</td>
<td>Two component, 100% solids (no VOC), water based low odor epoxy primer. Can be applied on concrete less than 28 days old.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td><em>1 to 8 hrs.</em></td>
<td>N/A</td>
<td>50 to 120°C (100 to 250°F)</td>
<td>-40°C to 55°C (-40°F to 131°F)</td>
</tr>
<tr>
<td>Primer H</td>
<td>Two component, 100% solids (no VOC), fast setting high build epoxy primer and sealant for horizontal use.</td>
<td>49</td>
<td>260</td>
<td>18</td>
<td>N/A</td>
<td>0.5 to 2 hrs.*</td>
<td>N/A</td>
<td>60 to 85°F (18 to 29°C)</td>
</tr>
</tbody>
</table>

* Temperature dependent – see technical data sheet

### Chemical Resistance

Polyureas have very good chemical resistance. The table below shows resistance to commonly used chemicals.

<table>
<thead>
<tr>
<th>Chemcial</th>
<th>No visible damage</th>
<th>Slight surface effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Brake Fluid</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Gasoline</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Diesel</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Crude Oi</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Kerosene</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Jet A Fuel</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Ethylene Glycol (Anti-freeze)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MTBE</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Methanol</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Hydorfluor Fluid</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hexane</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Acetone</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Propylene Glycol</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Isopropyl</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Sodium Hypochlorite, 12.5%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CopperArsenate</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Urea Ammonium Nitrate</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ammonium Polyphosphate</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Acetic Acid, 5%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sulfuric Acid, 20%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sodium Hydroxide, 10%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Cold Spray

**Tomorrow’s Technology Today**
X-Shield FS950 is the best cold spray product on the market today. When used with a custom designed low pressure pump and spray tip, production up to 3000PPF (3000MP) per day is easily achievable.

### Advantages
- Fast return to service – just like hot spray
- Low capital cost of equipment
- Easy maintenance and clean up
- Low rebound and over spray
- Quick and easy set up
- Small and confined areas can be quickly sprayed

### X-Shield Polymers Coatings

- **No visible damage**
- **Slight surface effect**

### Recommended Thicknesses

X-Shield polyurea coatings should be applied at the thicknesses shown below:

<table>
<thead>
<tr>
<th>Primary containment</th>
<th>Secondary containment</th>
<th>Wells (non-immersed)</th>
<th>High alaration</th>
<th>Pedestrian traffic</th>
<th>Vehicular traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 to 120 mm</td>
<td>1.5 to 3.0 mm</td>
<td>0.8 to 1.5</td>
<td>70 to 120</td>
<td>1.8 to 3.0</td>
<td>80 to 120</td>
</tr>
<tr>
<td>30 to 60</td>
<td>1.0 to 1.5</td>
<td>1.5 to 3.0</td>
<td>40 to 60</td>
<td>1.0 to 1.5</td>
<td>50 to 80</td>
</tr>
<tr>
<td>50 to 80</td>
<td>1.4 to 2.0</td>
<td>0.9 to 1.5</td>
<td>70 to 120</td>
<td>1.8 to 3.0</td>
<td>50 to 80</td>
</tr>
</tbody>
</table>
The most comprehensive and technically advanced range of polyurea coatings

X-Shield FS450
High elongation, elastomeric, chemically resistant waterproof coating. The product is an aromatic, 100% solids (zero VOC), two component pure polyurea. Recommended for primary and secondary containment as a waterproofing membrane and as a liner for ponds and landfill.

X-Shield CS450
Color stable, high elongation, elastomeric, chemically resistant waterproof coating. The product is an aliphatic, 100% solids (zero VOC), two component pure polyurea. Available in white as standard and is recommended for interior wall and floor waterproofing and as an exterior coating for any structure exposed to direct sunlight.

X-Shield FS200
Fast setting, elastomeric, chemically resistant waterproof coating with very high abrasion resistance. The product is an aromatic, 100% solids (zero VOC), two component pure polyurea. Recommended as an abrasion-resistant coating for floors and tanks and as a protective coating for concrete, wood, steel and other metals.

X-Shield FS590
High elongation, elastomeric, chemically resistant waterproof coating. It has been specifically developed for application using low pressure cold spray equipment. The product is an aromatic, 100% solids (zero VOC), two component pure polyurea. Recommended for use in confined areas. Can be used for primary and secondary containment, as a waterproofing liner and as a flooring material in freezor rooms.

X-Shield FR380
Fire resistant, high elongation, elastomeric waterproof coating. The product is an aromatic, 100% solids (zero VOC), two component pure polyurea. Recommended for primary and secondary containment and as a waterproofing liner in mines and tunnels.

X-Shield ProFlex One
Single component, elastomeric, hybrid polyurea base coat used to waterproof and protect roofs, slabs, decks and walls. The product is 100% solids (zero VOC), moisture cured, and has been developed for application by squeegee, roller or airless spray. Can be applied on horizontal and vertical surfaces and is resistant to abrasion and ponded water. Recommended as a tough but economical base coat for roofs, floors and walls prior to coating with an aliphatic topcoat.

X-Shield ProFlex Two
Fast setting, two component, elastomeric hybrid polyurea base coat used to waterproof and protect roofs, slabs, decks and walls. The product is a solvent free, high solids elastomer that has been developed for application by squeegee, roller or airless spray. Can be applied on horizontal and vertical surfaces and is resistant to abrasion and ponded water. Recommended as a tough but economical fast setting base coat for roofs, floors and walls prior to coating with an aliphatic topcoat.

X-Shield ProCoat
Aliphatic, single component, elastomeric hybrid polyurea coating, specifically developed to waterproof and protect roofs, slabs and walls. The product is a 100% solids (zero VOC), moisture cured polyurea developed for application by squeegee, roller or airless spray, white and highly reflective aliphatic coating. Recommended for roofs and decks where resistance to solar radiation and ponded water is required.

X-Shield RG40
Two component, extended set aliphatic polyurea coating. It has excellent color stability and resistance to abrasion, weathering and a wide range of chemicals. It can be roller or spray applied on horizontal and vertical surfaces. Can be used as a skirt resistant coating with the addition of aggregate broadcast to the surface.

X-Shield FixCoat
Two component, hand mixed elastomeric polyurea repair material. A 100% solids (zero VOC), hand applied aromatic pure polyurea with an easy 1:1 mix ratio. Can be used on vertical and horizontal surfaces and has good resistance to a wide range of chemicals. Recommended for the repair of blisters, pinholes and holidays in polyurea coatings.

Priming and Surface Preparation

X-Shield Primer HB
Fast curing two-component, 100% solids (zero VOC), self-leveling primer used to prime and level floors prior to the application of polyurea and other coating systems. Suitable for internal and external use depending on the topcoat used. Recommended as a primer and underlay for polyurea and polyurethane coatings.

X-Shield BugFill
High build thixotropic epoxy resin for filling bug holes (dew holes) in concrete and imperfect steel substrates prior to the application of epoxy and polyurea coatings. Can be used in immersed conditions; has a long pot life and is easy to apply.

X-Shield PolyPrime S
A 100% solids (zero VOC), polyurea based primer for use with polyurea coatings and sealants at temperatures between 50 and 120°F (10 to 49°C). Can be applied by roller, brush or airless spray and is recommended for use on concrete and steel substrates.

X-Shield PolyPrime LT
A 100% solids (zero VOC), polyurea based primer for use with polyurea coatings and sealants at temperatures between 50 and 50°F (-10 to 10°C). Can be applied by roller, brush or airless component spray and is recommended for use on concrete and steel substrates.

X-Shield ProPrime S
Two component, 100% solids (zero VOC), water based, low odor epoxy primer for use with polyurea coatings and sealants at temperatures between 50 and 120°F (10 to 49°C). Can be applied by roller, brush or airless spray. Recommended for use on concrete and brick substrates. Can be applied to concrete less than 28 days old.

Other Polyurea Products

Joint Sealants
X-Seal Polyurea CJ for control joints
X-Seal Polyurea XJ for expansion joints
Both have high abrasion resistance; can be used at very low service temperatures and have fast return to service times.

Crack and Patch Repair
X-Roc CPR for fast repair of cracks and spalls
Can also be used as a heater sealer coat and anti-skid surface. It is available in easy to use bulk packs for application by hand or low pressure proportioning pump.

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