Dip Coating
in a fluidized bed
of Kynar® ADX
powder

Surface preparation:
Degreasing
Pretreatment: grit-blasting (G17 steel grit typical) or chemical etching
NO PRIMER REQUIRED

Preheating conditions:
The preheating time and temperature depend on design and metal thickness and coating thickness target:
- from 4 to 10 min. at 340-360°C for thin parts
- up to 30 min. at 300-340°C for massive parts

Dipping conditions in a fluidized bed:
Operate in a well ventilated area, with air exhaust near the top of the tank.
Surface temperature of the hot part should not exceed 350°C for contact with Kynar® ADX powder
Hot part dipped into the fluidized powder, from 2 to 6 sec. typically.
Coating thickness:
From 200 µm to 500 µm (or even higher for massive parts)

Principle of the fluidized bed dip coating process:

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NO PRIMER REQUIRED
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Surface preparation:
Degreasing
Pretreatment: grit-blasting (G17 steel grit typical) or chemical etching
NO PRIMER REQUIRED

Powder Spraying:
negative (-80V to -100V typical) or positive voltage can be used

Fusion conditions:
Up to 10-15 min at 240-270°C depending on thickness and nature of metal.
In oven with good ventilation (air speed sup 3 m/s)

Coating thickness:
From 80 µm to 120 µm per application
Additional layers can be applied in similar conditions

Principle of the electrostatic spraying process:
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The Kynar® ADX product range enables direct adhesion to metal substrates (steel, aluminium, copper) after standard surface preparation.

The Kynar® ADX product range has been developed to allow primerless powder coating by the standard methods:

- Dip coating in fluidized bed
- Electrostatic spraying
- Hot spraying

### Product range and properties:

<table>
<thead>
<tr>
<th></th>
<th>Homopolymer</th>
<th>Copolymer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Units</strong></td>
<td>Kynar® ADX 111 (natural or green)</td>
<td>Kynar® ADXFLEX 281 (natural or green)</td>
</tr>
<tr>
<td><strong>PHYSICAL PROPERTIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific density*</td>
<td>g/cm³</td>
<td>1.78</td>
</tr>
<tr>
<td>Water absorption to saturation, 23°C/50%RH</td>
<td>%</td>
<td>0.25</td>
</tr>
<tr>
<td><strong>THERMAL PROPERTIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting temperature, +20°C/min</td>
<td>°C</td>
<td>167</td>
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<tr>
<td>Crystallization temperature, -20°C/min</td>
<td>°C</td>
<td>135</td>
</tr>
<tr>
<td>Thermal Decomposition Temperature (5% wt loss in air, at +10°C/min)</td>
<td>°C</td>
<td>370</td>
</tr>
<tr>
<td><strong>MECHANICAL PROPERTIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexural Modulus at 23°C*</td>
<td>MPa</td>
<td>2,200</td>
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<tr>
<td>Hardness*</td>
<td>Shore D</td>
<td>80</td>
</tr>
<tr>
<td>Abrasion, Taber CS-17 1000g-pad*</td>
<td>mg/1000 cycles</td>
<td>6-9</td>
</tr>
<tr>
<td>Notched Izod impact strength at 23°C*</td>
<td>J/m</td>
<td>80</td>
</tr>
<tr>
<td><strong>FIRE PROPERTIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOI*</td>
<td>%</td>
<td>43</td>
</tr>
<tr>
<td>Burning rate UL94*</td>
<td>classification</td>
<td>V-0</td>
</tr>
</tbody>
</table>

(*) from corresponding regular (non-grafted) Kynar PVDF grades
Excellent primerless adhesion

Examples of Electrostatic Spraying
- on 3 mm thick plaques of steel or aluminium
- fusion 10 min at T=270°C
- with Kynar® ADX FLEX-281 and ADX-111 natural

Building thickness
- Typical thickness achievable by each process
  - Electrostatic spraying: 80-120 µm per application
  - Dip coating: 200-500 µm typical and up to 1 mm
  - Hot flocking: up to 1 mm or even higher
- Example of Dip Coating
  - 3 mm thick plaques, preheating 10 min at 360°C, with Kynar® ADX FLEX 281 green

All adhesion data according to standard NFT 58-112
Durability of the adhesion (1)
In boiling water (coating ~350 µm, dip coating, steel)

Durability of the adhesion (2)
In various chemical environments (coating ~100 µm, ES, steel)

› excellent adhesion retained after 2 weeks immersion.

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Durability of the adhesion (3)

After thermal cycling (coating ~350 µm, dip coating, steel)
one cycle = 2 min at 17°C in water + 2 min at 70°C in water

> ADX FLEX 281 provides improved resistance to thermal cycling

Product availability

Packaging: 25 kg sealed bag

Storage: Conditioning in dry environment and seal bag after use

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