

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.

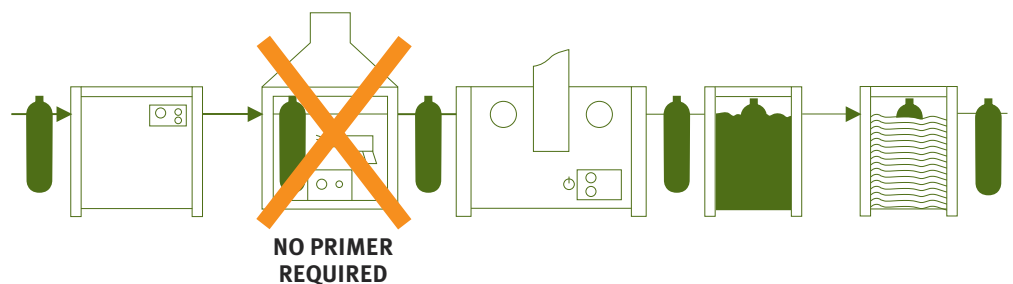
Surface temperature of the hot part should not exceed 350°C for contact with Kynar[®] ADX powder

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:



A global chemical company and France's leading chemicals producer, Arkema consists of three strategically related businesses: Vinyl Products, Industrial Chemicals, and Performance Products. Arkema reported sales of 5.7 billion euros in 2007. Arkema has 15,200 employees across over 40 countries and six research centers located in France, the United States and Japan. With internationally recognized brands, Arkema holds leadership positions in its principal markets.

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ARKEMA
INNOVATIVE CHEMISTRY

420, rue d'Estienne d'Orves
92700 Colombes - France
Tél. : 33 (0)1 49 00 80 80
Fax : 33 (0)1 49 00 83 96
www.arkema.com

www.kynar.com

Electrostatic spraying of Kynar[®] ADX powder



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.

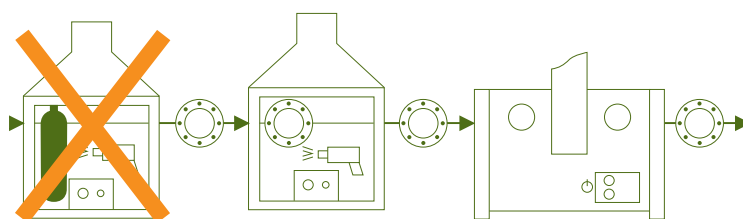
In oven with good ventilation (air speed sup 3 m/s)

Coating thickness:

From 80 µm to 120 µm per application

Additional layers can be applied in similar conditions

Principle of the electrostatic spraying process:



**NO PRIMER
REQUIRED**

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INNOVATIVE CHEMISTRY

420, rue d'Estienne d'Orves
92700 Colombes - France
Tél. : 33 (0)1 49 00 80 80
Fax : 33 (0)1 49 00 83 96
www.arkema.com

www.kynar.com

Kynar[®] ADX for powder coating



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:

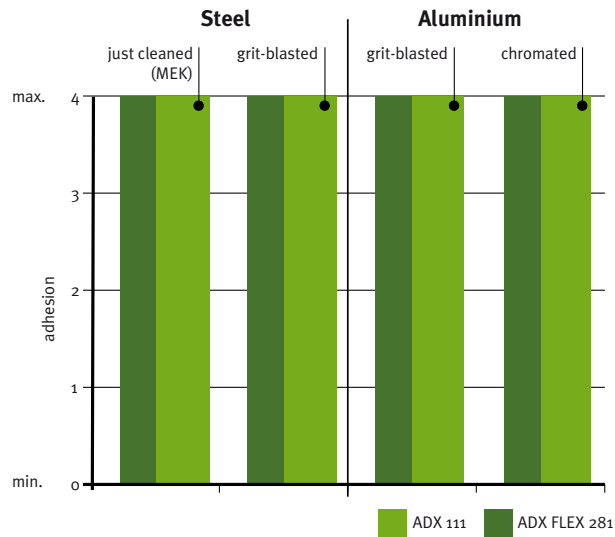
	Units	Homopolymer	Copolymer
		Kynar [®] ADX 111 (natural or green)	Kynar [®] ADXFLEX 281 (natural or green)
PHYSICAL PROPERTIES			
Specific density*	g/cm ³	1.78	1.77
Water absorption to saturation, 23°C/50%RH	%	0.15	0.15
THERMAL PROPERTIES			
Melting temperature, +20°C/min	°C	167	156
Crystallization temperature, -20°C/min	°C	135	130
Thermal Decomposition Temperature (1%wt loss in air, at +10°C/min)	°C	370	370
MECHANICAL PROPERTIES			
Flexural Modulus at 23°C*	MPa	2,200	1,000
Hardness*	Shore D	80	70
Abrasion, Taber CS-17 1000g:pad*	mg/1000 cycles	6-9	5-9
Notched IZOD impact strength at 23°C*	J/m	80	210
FIRE PROPERTIES			
LOI*	%	43	43
Burning rate UL94*	classification	V-0	V-0

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

Excellent primerless adhesion

Examples of Electrostatic Spraying

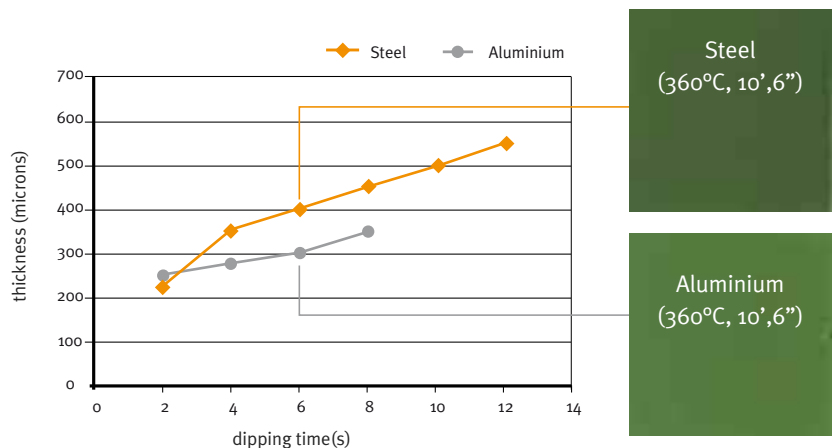
- on 3 mm thick plaques of steel or aluminium
- fusion 10 min at T=270°C
- with Kynar® ADX FLEX-281 and ADX-111 natural



All adhesion data according to standard NFT 58-112

Building thickness

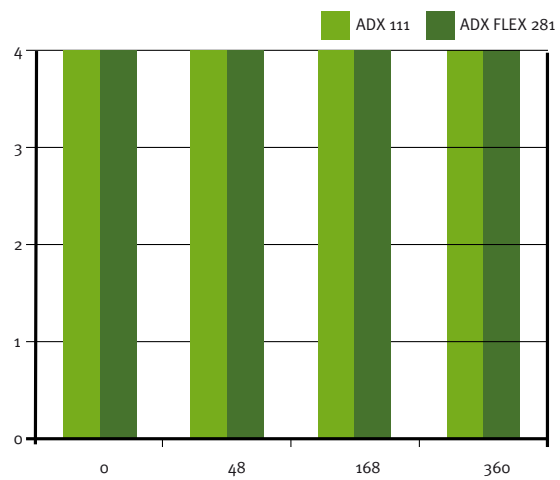
- Typical thickness achievable by each process
 - Electrostatic spraying : 80-120 µm per application
 - Dip coating : 200-500 µm typical and up to 1 mm
 - Hot flocking : up to 1 mm or even higher
- Example of Dip Coating
 - 3 mm thick plaques, preheating 10 min at 360°C, with Kynar® ADX FLEX 281 green





Durability of the adhesion (1)

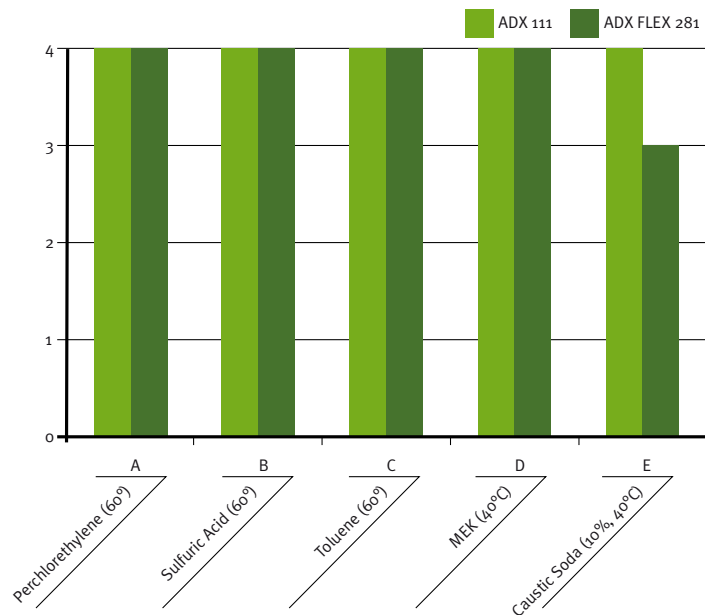
In boiling water (coating ~350 µm, dip coating, steel)



› excellent adhesion retained after 2 weeks immersion.

Durability of the adhesion (2)

In various chemical environments (coating ~100 µm, ES, steel)

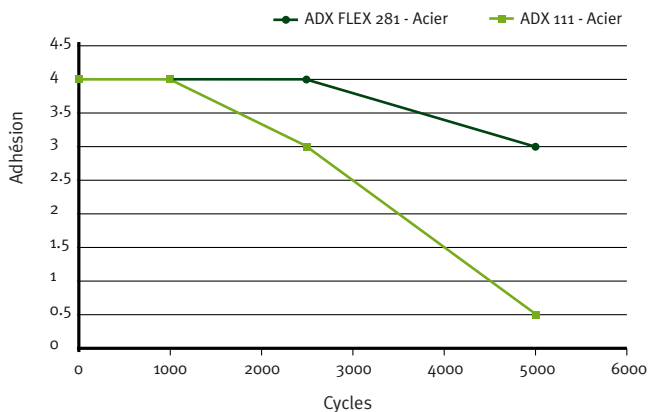


› excellent adhesion retained after 2 weeks immersion.



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

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Product availability

Packaging: 25 kg sealed bag

Storage: Conditioning in dry environment and seal bag after use

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