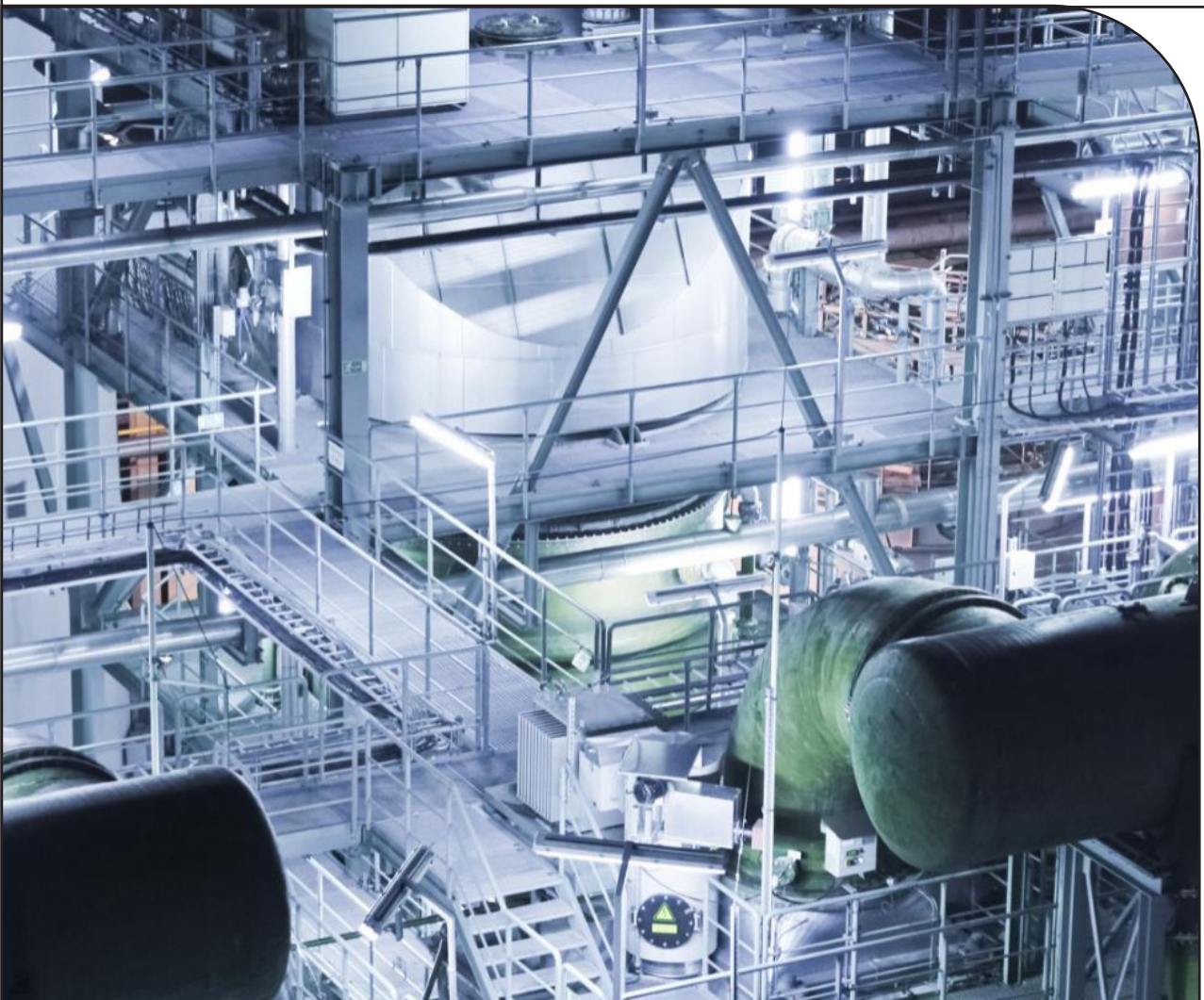


ARKEMA

**KYNAR<sup>®</sup>**  
ADX

Powder Coating Solutions  
with Kynar<sup>®</sup> ADX  
Fluoropolymer



# KYNAR® ADX FLUOROPOLYMER POWDER COATINGS FOR THE MOST SEVERE CHEMICAL ENVIRONMENTS

## KEY BENEFITS

### Oustanding Characteristics:

- Chemical resistance
- Imperviousness to UV
- High barrier properties
- High purity
- Good mechanical & thermo-mechanical properties

## TWO VERSIONS AVAILABLE:

Kynar® ADX Flex 281  
(Natural)

Kynar® ADX Flex 281 G  
(RAL 6009)

### Ease of use for various application modes:

- Direct adhesion to metal substrates (steel, aluminum, copper) after standard surface preparation
- Dip coating in fluidized bed, Electrostatic spraying, Hot spraying

## TECHNICAL PROPERTIES

Powder Properties		
Nature	PVDF	ISO 1043
Particle Size Distribution		
Median Size (D50)	88,5 µm	ISO 13320
< 40 µm	16,9 %	
> 250 µm	6,1%	
Tapped Density	0,957	ISO 1068
Melting point	152°C	ISO 1218
Coating Properties		
Colour	Green (RAL 6009)	-
Density	1,72 g/cm3	ISO 1183
Recommended thickness	500 µm	
Covering efficiency	0,8 kg/m2 at 500 µm thickness	
Water absorption to saturation, 23°C/50%RH	< 0,10%	ISO 62/1
LOI	43%	ASTM D 2863
Burning rate UL94	V-0	UL 94
Shore D Hardness	75	ISO 868
Persoz Hardness	207	ISO 1522
Coefficient of Friction on Carbon Steel :		
- Static	Ks = 0,545	ASTM D 1894-14
- Dynamic	Kd = 0,482	
Coefficient of Friction on Stainless Steel :		
- Static	Ks = 0,405	ASTM D 1894-14
- Dynamic	Kd = 0,300	
Abrasion, Taber CS-17 1000g:pad	35,5 mg / 1000 cycles	ISO 9352
Impact resistance	2,5 J	ASTM G 14
UV Resistance - 2000 hs		
Adhesion	4/4	ISO 11507 (method A)
ΔE	17,2	
Gloss 60° Retention	95%	
Salt Spray - 2000 hs	Good adhesion after 2000h	ISO 9227

## CHEMICAL COMPATIBILITY

Kynar ADX Flex® grades show outstanding chemical resistance, imperviousness to UV, high barrier properties, high purity, good mechanical and thermo-mechanical properties.

Substance	Conc.	20°C	50°C	80°C
Water		→		
HCl	5%	→		
HCl conc.	37%	→		
H <sub>2</sub> SO <sub>4</sub>	10%	→		
H <sub>2</sub> SO <sub>4</sub> conc.	98%	→		
HNO <sub>3</sub>	53%	→		
Sodium Hypochlorite (ph 13)	34%	→		
NaOH	10%	→		
H <sub>2</sub> O <sub>2</sub>	30%	→		
Perchloroethylene	30%	→		
Toluene	100%	→		
Chlorobenzene	100%	→		
Chlorine (gas)	100%	→		
Br <sub>2</sub>	100%	→		

For higher temperatures, or for any question related to chemical compatibility, please contact Arkema technical staff for assessment.

Temperature (°C)	Thickness (µm)	Permeation to water (g/day. m <sup>2</sup> )
50	300	7,5
50	600	4,2
80	300	66
80	600	38

## PERMEATION

The comonomer used to synthesize the **Kynar Flex**® grades is hexafluoro-propene (HFP) which is a completely fluorinated molecule. Thus, the major factor responsible for the outstanding chemical resistance of Kynar® PVDF is not changed by the incorporation of a comonomer.

The reduced cristallinity results in an enhancement of permeation rates at temperatures above 55°C.

Higher permeation can be compensated by higher thickness

## PROCESS

### Fluid Bed Dipping 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:

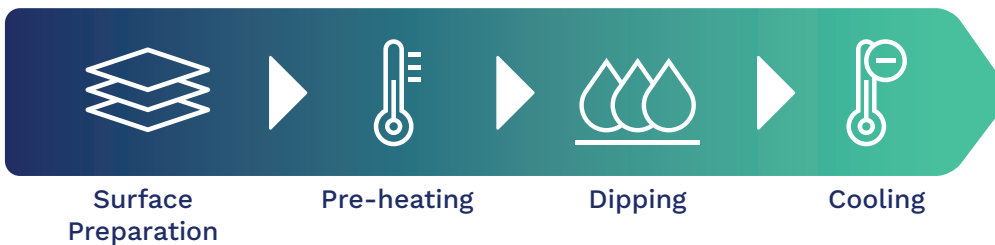
- from 4 to 10 min. at 340 - 360°C for thin parts

- up to 30 min. at 300 - 340°C for massive parts

#### Dipping conditions:

- Operate in 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
- Hot part dipped into fluidized powder for 2 – 6 sec. typically

#### Principle of the fluid bed dip coating process:



#### Coating thickness

From 200µm to 500µm  
(or even higher for massive parts)

### Hot spraying of Kynar® ADX powder

#### Surface preparation:

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

#### 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 < 3 m/sec.)

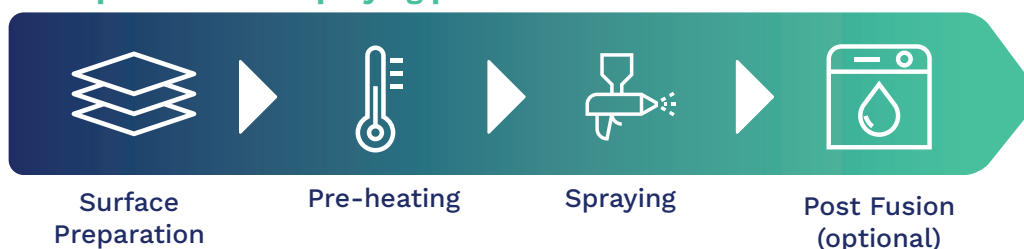
#### Powder Spraying:

Negative (-80V to -100V typical) or positive voltage can be used

#### Post Fusion (optional):

Up to 10-15 min. at 220°C

#### Principle of the hot spraying process:



#### Coating thickness

- From 200 µm to 300µm per application
- Additional layers can be applied in similar conditions



#### EASY TOUCH-UP PROCEDURE

A quick and simple touch-up procedure is available for repairing small damaged areas.

\* For any question related to chemical compatibility or the above table, please contact Arkema technical staff for assessment.



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