FeCrAl Alloy Foil

NiWire Industries
www.niwire.com

For Metallic Catalyst Substrate

Based on traditional FeCrAl resistance alloys, NIWIRE has developed NW CrAl4 and NW CrAl6 with lower C content which is less than 0.03%, with higher aluminium content in combination with precisely adjusted additions of rare earth elements (Lanthanum, Cer, Yttrium, Hafnium, etc.).

NIWIRE melt with top quality raw material and use double slag process, helping it to reduce the content of C, S, P and narrowing the content of Al in the meantime which reduce the fluctuation of resistance.

Competitor Specification

Aluchrom Y Hf from VDM Metals
MKM CrAl 4 and MKM CrAl 6 from MK Metallfolien
JFE20-5USR and *JFE18*-3USR from JFE Steel

Chemical Composition

Grade	C%	S%	P%	Si%	Mn%	Cr%	Al%*	Other%**
NW CrAl4	≦0.03	≦0.025	≦0.025	≦0.40	≦0.50	17.0-19.0	3.0-4.5	0.04-1.0
NW CrAl6	≦0.03	≦0.025	≦0.025	≦0.40	≦0.50	19.0-21.0	5.0-6.0	

*the difference of aluminum content for one heat number should be less than 0.30%
**one or several elements of La, Ce, Ti, Nb, Y, Zr, Hf is added

Applications

The foils are made into metallic substrate for catalytic converts and diesel particle filters in automotive exhaust systems and heating elements for cooking plates and ceramic hobs

Physical Properties

Grade: NW CrAl6 / NW CrAl4
Max working temperature: 1300℃ / 1200℃
Melting: 1500℃ / 1500℃
Density(20℃, μΩ·m): 1.4±0.07 / 1.23±0.08
Specific Heat Capacity J/(g·℃): 0.49 / 0.50
coefficient of thermal conductivity (20℃) W/(m·K): 12 / 15

Mechanical Properties

Grade	Condition	Thickness mm	Tensile $R_{p0.2}$ MPa	Yield R_m MPa	Elongation at Break A %	Hardness HV
NW CrAl6	Hard	0.1	≧950	<1300	<2	≧300
	Soft	0.3	≧500	<750	>15	≧200
NW CrAl4	Hard	0.1	≧800	<1100	<2	≧270
	Soft	0.3	≧450	<650	>20	≧170

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Tolerance

Thickness mm		Width mm	
Range	Tolerance	Range	Tolerance
0.030-0.05	+/-0.004	5.0-180.0	+/-0.1
>0.050-0.100	+/-0.005		
>0.100-0.250	+/-0.010	>180.0	Per request

Flatness

The foil flatness is less than 7mm per one meter.

Edge Wave

Edge Wave = wave height/wave length
1, thickness <0.100mm, edge wave < 0.05
2, thickness >0.100mm, edge wave < 0.04