

Aluchrom Eco

Material Data Sheet No. 8004
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Heating element - Special alloy

Aluchrom Eco

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Aluchrom Eco

Aluchrom Eco is a magnetic aluminium-containing ferritic chromium steel with small additions of yttrium, hafnium and zirconium and 2.5 to 3.0 % aluminium. Due to the reduced aluminium content the working characteristics of the material has significantly been improved. Through the addition of yttrium, hafnium and zirconium the material nevertheless possesses good high-temperature stability and forms an extremely well-adhering oxide scale which thus results in extended service life even under cyclic operating conditions.

Characteristic features of Aluchrom Eco are:

- extended service life
- good formability and workability
- maximum service temperature: 1200°C
- based on the extended service life and the low electrical resistivity a saving in material costs can be attained in comparison to the similar Aluchrom W (1.4725) material listed in DIN 17470

Designations and standards

Country National Standard	Material designation	Specification	
		Chemical composition	Wire
D DIN	(CrAl 14 3 So)	Similar to CrAl 14 4 in DIN 17470	(17470)
USA ASTM			(B 603)

Table 1 – Designations and standards.

Chemical composition

	Ni	Cr	Fe	C	Mn	Si	Al	Zr	Y	Hf	N
min.		14.0	bal.				2.5				
max.	0.30	15.0		0.05	0.50	0.50	3	0.1	0.1	0.1	0.02

Table 2 – Chemical composition (wt.-%).

Physical properties

Density	7.3 g/cm ³
Melting point	1500°C approx.

Electrical resistivity at RT: 1.10 Ω • mm²/m

Mechanical properties

Wire diameter mm	0.2 % Yield strength $R_{p0.2}$ N/mm ²	Tensile strength R_m N/mm ²	Elongation A_5 %
0.1 – 0.2	≥ 400	≥ 550	≥ 12
> 0.2 – 0.5	≥ 400	≥ 550	≥ 15
> 0.5 – 1.0	≥ 400	≥ 550	≥ 18
> 1.0 – 4.5	≥ 350	≥ 500	≥ 20

Tabelle 3 – Typische mechanische Werte im weichgeglühten Zustand bei Raumtemperatur.

Corrosion resistance

Despite the lower aluminium content, in comparison to the similar established 1.4725 standard material, the addition of precisely adjusted amounts of yttrium, zirconium and hafnium has resulted in a material with good high-temperature stability and extended service life in high-oxygen gaseous atmospheres.

The maximum service temperature of Aluchrom Eco is 1200°C.

Applications

Aluchrom Eco is mainly used for heating elements in domestic appliances.

Fabrication and heat treatment

Available products in Aluchrom Eco can readily be formed and worked using conventional fabricating techniques.

Welding

Aluchrom Eco can be welded by conventional welding processes using filler metal of the same composition.

Availability

Aluchrom Eco is available as wire and flat wire.

Condition:
Soft annealed

Dimensions:
0.1 to 4.5 mm diameter,
on coils and pay-off packs; also available on request on spiders
and special spools.

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