Iron-Chromium-Aluminum FeCrAl (0Cr21Al4) alloy

Heanjia Super Metals Co., Ltd

The FeCrAl (0Cr21Al4) attains low temperature coefficient of electric resistivity. It is used to produce large amount of heat in the commercial heating operations. It offers superior resistance to oxidation and corrosion at the high temperatures. It prevents scaling and embrittlement of material and provides long term performance in the rigorous corrosive conditions at the elevated temperatures up to 1250oC.

Chemical Composition of FeCrAl(0Cr21Al4):

Cr	Al	Re	Fe
18.0-21.0	3.0-4.2	suitable	Bal.

Physical Properties of FeCrAl(0Cr21Al4) :

Density(g/cm3)	7.35
Melting Point (oC)	1500
Maximal Temperature(oC)	1100

Conditions causing corrosion

1. Due to absence of nickel, FeCrAl alloys offer good performance in the sulfur conditions.
2. It is not preferred for using in the nitriding conditions because the preparation of chromium and aluminum nitrides reduces the corrosion resistance rapidly.
3. Water steam slow down the functionality of alloy as it produces iron oxide from 1000oC.
4. In the nitrogen atmospheres, functional temperature should be controlled up to 950oC. However adequate life time at high temperature can be obtained but preoxidation as well as periodic reoxidation occur.
5. In the presence of hydrogen, the operation temperature should be controlled from 1300oC to 1400oC.
6. In endothermic/exothermic conditions, application temperature should be 1100oC to 1150oC.

In vacuum conditions, temperature up to 1000oC is recommended, however the limit is lowered quickly on the base of vacuum levels.

Applications of FeCrAl (Cr21Al4) alloys

1. Catalytic converters
2. Resistance heating products
3. Radiant heating elements in gas or oil stoves

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