AMETEK®
SPECIALTY METAL PRODUCTS

INNOVATIVE & ADVANCED METALLURGICAL TECHNOLOGY

434L Stainless Steel

DESCRIPTION

Low-carbon ferritic stainless steels, in mildly corrosive environments or atmospheric exposures, have corrosion resistance approaching that of some nickel stainless steels. These alloys are oxidation resistant at elevated temperatures. Type 434 alloys are ductile and do not work-harden readily.

The toughness, defined as resistance to crack propagation or notch strength, of ferritic steels is relatively low, and the ductile-to-brittle transition temperature is at or above room temperature.

The corrosion and oxidation resistances of the ferritic steels are directly related to their chromium content. The 17% Cr 434 steel alloys have good corrosion resistance to atmospheric conditions.

These alloys are used in a variety of applications where corrosion resistance is more important than strength.

CORROSION RESISTANCE

These alloys are resistant to attack in a wide variety of corrosion media.

RESISTANCE TO OXIDATION

Type 434 alloys resist oxidation at temperatures up to 1600°F for intermittent service, and from 1450°F to 1500°F for continuous service. The scale formed is tightly adherent and not easily shed during sudden temperature changes. Since the rate of oxidation is greatly affected by the atmosphere involved, by the heating and cooling cycles, and by the structural design, no actual data can be presented which would apply to all service conditions.

PHYSICAL PROPERTIES

Density: 0.276 lbs/in^3

Specific Gravity: 7.65

RESPONSE TO HIGH-TEMPERATURE EXPOSURE

These alloys become susceptible to intergranular corrosion in certain environments when the air is cooled from temperatures about 1500°F. The sensitivity to intergranular attack may be accomplished by a decrease in ductility. Normal corrosion resistance and ductility are restored by annealing.

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POWDER PROPERTIES

Chemical Composition

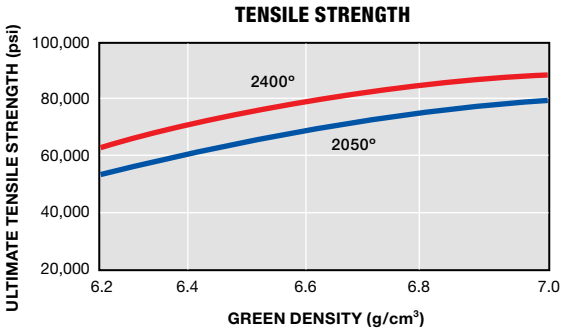
Chromium: 16-18%
Molybdenum: 0.75-1.25%
Silicon: 1.0% max
Manganese: 1.0% max
Carbon: 0.03% max
Sulfur: 0.03% max
Phosphorus: 0.04% max
Iron: Balance

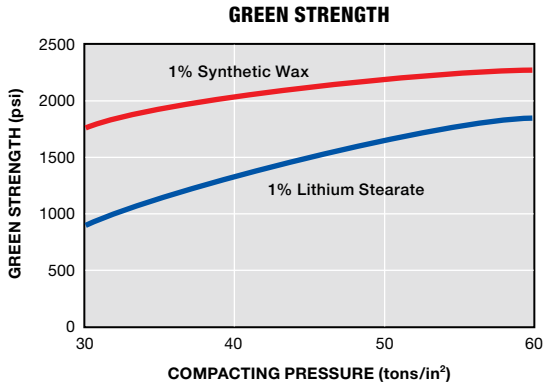
Physical Properties

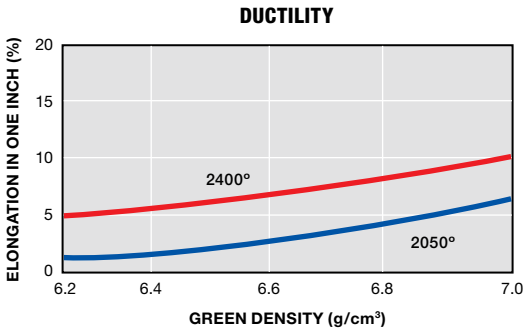
Apparent Density: 2.8 g/cm^3
Flow Rate: 30 sec/50g

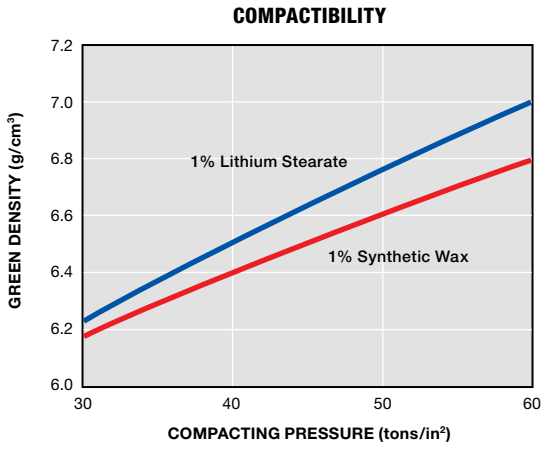
SINTERED PROPERTIES

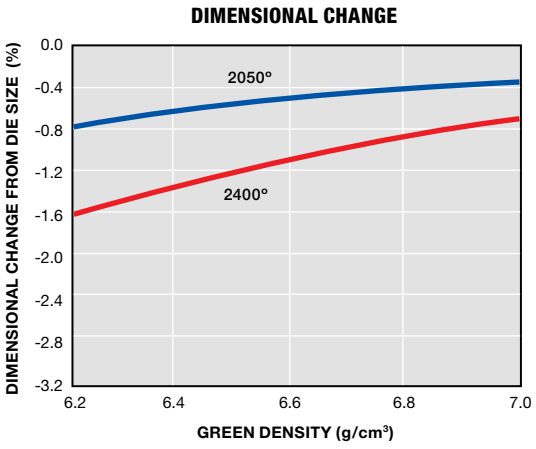
Sintered properties were determined using test specimens that were sintered for 45 minutes in dissociated ammonia with a -40°F dew point.











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