

## Metal Comparison

Choosing the Best Metal for Your Application

The following general metal comparison is intended as a guide only to help you select the optimum metal for your application. Virtually all metals can be woven into wire cloth. For best results, please describe the application on your order and/or discuss it with one of our sales representatives.

### Heat Resisting Alloys

High Nickel copper alloys such as Monel and Inconel can withstand temperatures up to 1800°F and resist corrosion in acids, sea water, and caustic solutions.

### Nickel

Excellent corrosion resistance in most environments except sulfurous conditions most commonly used in petrochemical and heat treating applications.

### Aluminum

Light weight, good electrical conductor, and resists atmospheric corrosion; 5056 alloy is used for higher strength.

### Copper

Good formability with excellent electrical and thermal conductivity. Resists corrosion from fresh and salt water, alkaline solutions, and atmospheric conditions.

### Brass

Commonly 65% copper/35% zinc. Good formability with lower thermal conductivity and higher tensile strength than copper, yet resists corrosion like copper.

### Bronze

Most common 90% copper/10% zinc. Better corrosion resistance and lower strength than brass.

### Rare Metals

Such as Tantalum, Molybdenum, Titanium, Silver, and Platinum can be furnished as specified.

### Steel

Low carbon (C1008) is most commonly used. For high tensile strength and good abrasion resistance, high carbon/hard drawn is recommended.

### Stainless Steel

The benefits of stainless steel are that it has high strength, good heat resistance and resists rusting.

#### Type 304

Stainless is the basic alloy of this group and is used extensively in the manufacturing of wire cloth. It contains nominally 18% Chromium and 8% Nickel.

#### Type 316

With its addition of 2% minimum Molybdenum, it provides considerable increased resistance to certain corrosive media. It also provides increased strength at high temperatures.

#### Types 304L & 316L

Lower in carbon content, these are frequently used to retain corrosion resisting properties after welding.

#### Type 321

Containing Titanium, it is frequently specified where there is a possibility of sensitization with a resulting loss of corrosion resistance.

#### Type 347

For most welded assemblies which operate in corrosive environments, Type 347 is used to minimize sensitization. Contains Columbium, which does not volatilize during welding.

#### Type 430

Stainless Steel contains 17% nominal Chromium and is more resistant to chemical attack and high temperature scaling. This alloy is magnetic and is not heat treatable.

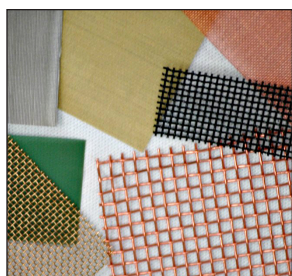
## Metal Comparison

Corrosion Resistance of Metals and Alloys

### Corrosion Resistance of Common Metals

Chemical	Brass	Copper	Inconel	Monel	Nickel	Nichrome	Stainless Steel	Steel
Alcohol	E	E	E	F	G	G	G	G
Alkalis	F	X	E	E	E	G	E	E
Ammonia	X	X	E	G	F	E	G	G
Ammonia Salts	X	X	E	F	F	E	F	F
Brine	G	G	E	E	F	G	X	G
Cyanide	X	X	G	X	F	E	E	G
Hydrochloric	F	X	F	G	F	E	X	X
Hydrofluoric	X	F	G	E	F	F	X	X
Nitric	X	X	G	X	X	E	E	X
Sulfuric	F	F	F	G	F	E	X	X

Ratings: E = Excellent | G = Good | F = Fair | X = Not Recommended



#### Monel® Alloy 400

High strength, good weld ability, excellent corrosion resistance over a wide range of temperatures and conditions.

#### Inconel® Alloy 600

High nickel, high chromium content for resistance to oxidizing and reducing environments; for severely corrosive environments at elevated temperatures. Good oxidation resistance to 2150°F. Good formability.

#### Hastelloy® Alloy C-276

Outstanding corrosion resistance in reducing and oxidizing environment. Maintains corrosion resistance in welded condition. Excellent resistance to pitting and stress-corrosion cracking.

#### Hastelloy® Alloy C-22

Better corrosion than C-276 in select environments. Resistance to a wide range of organic acids and the resistance to chloride-induced SSC, and other reducing chemicals. Also has resistance to some oxidizing environments.

#### Nickel 200/201

Commercially pure wrought nickel, good mechanical properties, excellent resistance to many corrosives. Nickel 201 has low carbon (0.02% max.) for applications over 600°F (315°C).

#### Approximate Maximum Operating Temperatures

Metal	Temperature
Stainless Steel 304	1500 °F
Incoloy	1600 °F
Stainless Steel 330	1650 °F
Nichrome	1700 °F
Inconel	1800 °F
Nichrome V	2000 °F
Nickel	2700 °F
Molybdenum	4700 °F