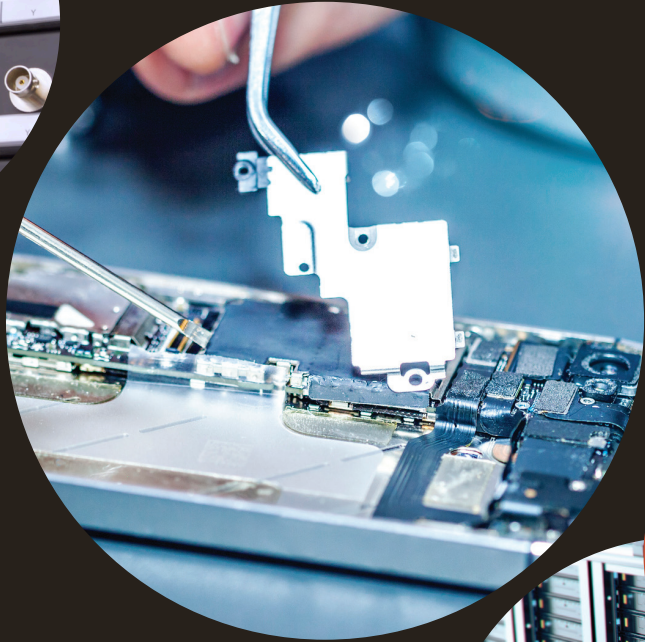




lebronze alloys



Declafor[®] 1015

Highly machinable, recyclable,
high performance beryllium-free and lead-free



DECLAFOR® 1015

CuNiSn alloys

Declafor® 1015 is a range of Copper-Nickel-Tin (CuNi8Sn6; UNS C72700) alloys designed and produced by Lebronze alloys (ex. CLAL).

Its complex manufacturing process includes solution annealing, work hardening and spinodal hardening to obtain very high mechanical and physical properties. Declafor® can be a substitute to Copper-Beryllium and leaded Copper-Beryllium for some applications. It is available in wires, rods as well as strips and sheets.

Mechanical and processing advantages

Declafor® 1015 exhibits very high mechanical properties as well as good polishing ability.

Declafor® machinability is comparable or superior to CuBe2Pb, thanks to Tellerium addition, making it suitable for applications such as horology microcomponents and coaxial connectors for telecommunications.

This alloy possesses high formability that makes it a material of choice for the eyewear industry.

High physical properties

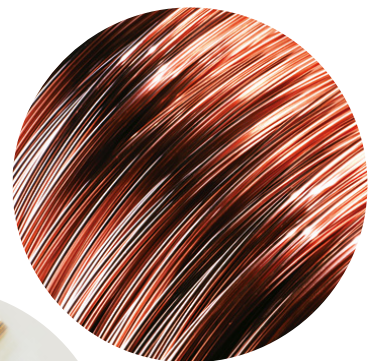
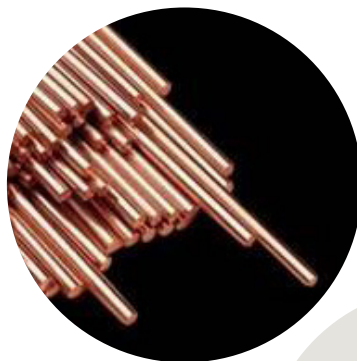
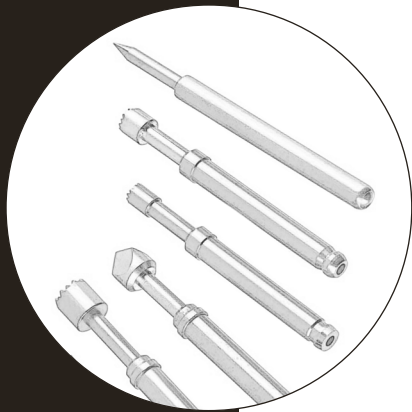
Declafor® exhibits high conductivity, very good corrosion resistance, and good electromagnetic shielding effectiveness.

It is extensively used in the electronics industry, including aerospace systems, for applications such as coaxial connectors and electrical spring contacts.

A recyclable and environment-friendly solution

Declafor® materials are beryllium-free, lead-free and cadmium-free, and are compliant with REACH and RoHs regulations.

Lebronze alloys is committed to offer recyclable solutions, to enhance their environmental performance during manufacturing and also during the whole components life cycle.



General features

Chemical composition

	Cu	Ni	Sn	Te
%	Balance	7.5	5	0.25

Physical properties

Density	8.8	(g/cm ³)
Melting point	960	(°C)
Coefficient of thermal expansion from 20 to 200 °C	17.2	(x 10 ⁻⁶ /°C)
Modulus of elasticity	115	(GPa)
Resistivity at 20 °C :	13	(μ Ω.cm)
Electrical conductivity % IACS:	13	(% IACS)
Thermal conductivity at 20 °C	55	(W/m.K)

Key benefits by tempers

Tempers	Key characteristics
TB	Maximum plasticity: drawing, stamping, bending
TD1-2-3	Formability, bending possible
TF	Increased elasticity up to the maximum Better conductivity
TH1-2-3-4-X	Very good fatigue properties Less formability

From these standard precipitation heat treated tempers, some compromises can be obtained by adapting the temperature or the duration of the heat treatment.

Available forms

- Bars and wires, diameter from 1 to 13mm
- Strips, thick from 0.1 to 3.5mm, wide from 3 to 360mm

Applications

- Electronics (Electrical spring contacts and test probes)
- Watch industry (micro-components)
- Coaxial connectors for:
 - Automotive
 - Telecommunications
 - Defense
 - Aerospace



DECLAFOR® 1015

Temper designation

TB	Solution annealed
TD	Solution annealed cold rolled
TF	Solution annealed Precipitation heat treated
TH	Solution annealed cold rolled Precipitation heat treated

Mechanical properties per temper

Bars and rods

Temper	Hardness HV	Tensile Strength Rm (MPa)	Yield Strength Rp 0.2 (MPa)	Elongation A 50 mm (%)
Solution annealed and cold rolled				
TD1	140 to 160	460 to 500	370 to 480	≥ 7
TDX	230 to 270	730 to 860	630 to 780	≤ 3
Solution annealed and age hardened				
TF	≤ 250	700 to 800	540 to 650	≥ 15
Solution annealed, cold rolled and age hardened				
TH1	240 to 280	800 to 850	650 to 760	≥ 10
TH2	280 to 300	850 to 885	760 to 830	≥ 5
TH3	300 to 310	885 to 925	830 to 890	≥ 5
TH4	310 to 325	925 to 990	890 to 940	≥ 5
THX	≥ 325	≥ 990	≥ 940	≥ 1

Wires

Temper	Hardness HV	Tensile Strength Rm (MPa)	Yield Strength Rp 0.2 (MPa)	Elongation A 50 mm (%)
Solution annealed				
TB	≤ 140	410 to 460	≤ 370	≥ 30
Solution annealed and Cold rolled				
TD1	140 to 160	460 to 500	370 to 480	7 to 30
TD2	160 to 200	500 to 600	480 to 540	4 to 7
TD3	200 to 220	600 to 680	540 to 610	≥ 4
TD4	220 to 240	680 to 740	610 to 660	≥ 4
TDX	≥ 240	≥ 740	≥ 660	≥ 4



lebronze alloys

Lebronze alloys Group was born from the integration of different companies specializing in development and production of technical high-performance alloys components : copper alloys, nickel alloys, but also aluminium alloys, specialty steels, stainless steels, titanium and nickel superalloys.

Thanks to a multidisciplinary know-how, the Group provides innovative solutions to all major industries such as Aerospace, Power, E-mobility, Oil & Gas, Railway but also in sectors manufacturing smaller equipment and products.

Our 14 production facilities and 1,300 employees manage a unique range of metal processing technologies: continuous and semi-continuous casting, sand casting, die precision chill casting, centrifugal casting, extrusion, ring rolling, hot and cold rolling, drawing, open-die forging, hot stamping, closed-die forging, cold forming, machining, non-destructive testing, etc.

The Group's commitment is to find appropriate and optimized solutions for every sector's requirements.

contact@lebronze-alloys.com

www.lebronze-alloys.com