

Cupro-Nickels are among the most attractive, durable and versatile copper alloys available. Offering unique properties such as excellent resistance to biological fouling, corrosion and stress corrosion cracking, these alloys are used in a range of applications from heat exchangers, ship components and condenser tubes of power plants to coinage and even touch surface on medical equipment. Nickel additions in these alloys allow designers to benefit from attractive color options ranging from lite rose to silver. These For more information contact Olin Brass Market Development Engineering at 618-258-5255, OlinBrass.com or email us at info@olinbrass.com.

Chemical Composition

Copper¹	Remainder
Nickel²	19.0 - 23.0%
Iron	1.0% MAX
Manganese	1.0% MAX
Zinc	1.0% MAX
Lead	0.05% MAX

¹ Cu includes Ag; Copper plus named elements, 99.5%

² Ni Values Include Co

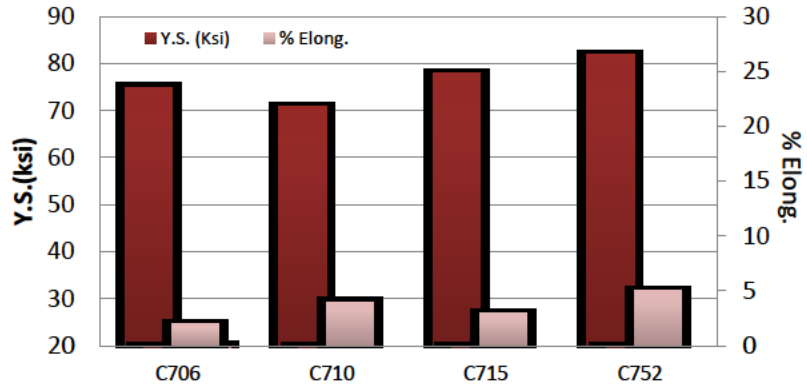


Figure 1: Comparison of Yield Strength and Elongation performance of select Hard temper Cupro-Nickel materials.

Physical Properties

	English Units	Metric Units
Density	0.323 lb/in ³ @ 68°F	8.94 g/cm ³
Thermal Conductivity	21 BTU-ft/ft ² -hr-°F	36 W/mK
Electrical Resistivity	160 ohm circ mils/ft	26.6 microhm-cm
Electrical Conductivity (annealed)	6.5% IACS	.038 megamho/cm
Modulus of Elasticity	20,000,000 psi	138 kN/mm ²
Coeff. Of Thermal Expansion	9.1 PPM/°F	16.4 PPM/°C
	68-572°F (20-300°C)	

Mechanical Properties

Temper ¹	Tensile Strength		Yield Strength ²		% Elongation ³	Typical 90° Bend Formability GW/BW ⁴
	ksi	N/mm ²	ksi	N/mm ²		
Soft(Annealed)	43-53	295-365	21	145	40	
1/4 Hard	47-63	325-435	40	275	15	
1/2 Hard	56-70	385-485	57	395	5	
Hard	67-79	460-545	70	485	2	
Extra Hard	72-84	495-580	75	515	1 min	
Spring	78-87	540-600	79	545	2 max	

¹ Mechanical properties subject to change. All tempers listed are made to a Tensile Strength specification unless otherwise noted. ² Nominal Values

³ Nominal Values in 2" (51mm) ⁴ DATA FOR REFERENCE ONLY. R/T = Bend Radius/Material Thickness <0.016" (0.4mm) thick, 11/16 (17.5mm) wide.

Olin Brass Headquarters
4801 Olympia Park
Plaza, Suite 3500
Louisville, KY 40241
Ph: 502-873-3000

GBC METALS ASIA PACIFIC PTE LTD
1 Kim Seng Promenade
Great World City, E Tower
Singapore 237994
Ph: 65.6238.1155

GBC METALS LLC SHANGHAI
Room 2004 Aetna Tower
No. 107 Zunyi Rd
Shanghai 200051 China
Ph: 86.21.6237.5898

OLIN BRASS-HEADQUARTERS

4801 Olympia Park
Plaza, Suite 3500
Louisville, KY 40241
Ph: 502-873-3000

OLIN BRASS - MILL

285 Lewis & Clark Blvd.
East Alton, IL 62024
Ph: 618-258-5255

BRYAN METALS INC.

1103 South Main Street
Bryan OH 43506-0487
Ph: 419-636-4571
Fx: 419-636-3994

SOMERS THIN STRIP

215 Piedmont Street
Waterbury, CT 06706
Ph: 203-597-5000
Fx: 203-597-5081

A.J. OSTER COMPANY

180 ALEXANDRA WAY
Carol Stream, IL 60188-2068
Ph: 630-260-1040
Ph: 800-323-9644
Fx: 630-260-1102

A.J. OSTER CARIBE, INC.

Centro industrial Rio Canas
Lote 29, P.M.B HC-01
Box 29030
Caguas, PR 00725
Ph: 787-747-7575

A.J. OSTER FOILS, INC.

2081 McCrea Street
Alliance, OH 44601-2793
Ph: 330-823-1700
Ph: 800-321-9750
Fx: 330-823-1705

A.J. OSTER WEST INC.

22833 La Palma Avenue
Yorba Linda, CA 92887-4767
Ph: 714-692-1000
Ph: 800-933-5933
Fx: 714-692-1225

A.J. OSTER COMPANY

457 Industrial Drive
Warwick, RI 02886
Ph: 401-739-0800
Fx: 401-739-1276

INTERNATIONAL SALES OFFICES & FACILITIES**GBC METALS ASIA PACIFIC PTE LTD.**

1 Kim Seng Road Promenade
Great World City, East Tower #13-04
Singapore 237994
Ph: 65.6238.1155
Fx: 65.6238.0660

GBC METALS LLC SHANGHAI

Room 2004, Aetna Tower
No. 107 Zunyi Road
Shanghai 200051, China
Ph: 86.21.6237.5898
Fx: 86.21.6237.5805

OLIN LUOTONG METALS (GZ) Co Ltd

No. 8 Jung Gong Road, East District
Guangzhou Economic Technological & Dev District
Guangzhou, P.R. China 510530
Ph: 86.20.8226.6818
Fx: 86.20.8226.6718

DOWA-OLIN METAL CORPORATION

2630, Shingai
Iwata-shi, Shiznoka-ken
438, Japan
Ph: 81.538.37.5111
Fx: 81.538.37.0147

OLIN BRASS - INTERNATIONAL DISTRIBUTORS**UNITED KINGDOM / IRELAND****Aurubis UK Ltd.**

Rabone Park, Smethwick
West Midlands B66 2NN
England
Ph: 44 (0) 121 555 1199
Fx: 44 (0) 121 555 1188
Email: info-uk@aurubis.com
Website: www.aurubis.com

EUROPE**Walter Türkis GmbH**

Struthstrasse 35
55743 Idar-Oberstein
Germany
Ph: 49 (0) 6781 62-0
Fx: 49 (0) 6781 62-28
Email: service@tuerkis-schneid-center.de
Website: www.tuerkis-schneid-center.de

OLIN BRASS MEXICO S.A. de CV

Av. La Griega # 117
Parque Industrial Queretaro
Santa Rosa, Jaurgui
Queretaro, Mexico 76220
Ph: 52 442 2 29 40 00
Fx: 52 442 2 29 40 29