

MECHANICAL AND PHYSICAL PROPERTIES OF Alloy C19025

ALLOY
DATA

Alloy C19025 has been introduced to meet the needs of the automotive, electronic and electrical markets. This alloy has been licensed by Olin from Dowa Metals in Japan. It was developed as Alloy NB109 to meet the increasing requirements of current carrying capacity, stiffness, formability and service temperature survivability demanded by automotive and electronic terminal designers. Should higher electrical conductivity strengths be required, consider Olin C18080. For more information contact Olin Market Development Engineering at 618-258-5255, OlinBrass.com or email us at info@olinbrass.com.

Table 1
Composition Limits of C19025

Copper¹	Remainder
Nickel	0.8-1.2%
Tin	0.7-1.1%
Phosphorus	0.03-0.07%

Zinc	0.30% Max.
Iron	0.05% Max.

1. Copper plus Named Elements, 99.7% min.

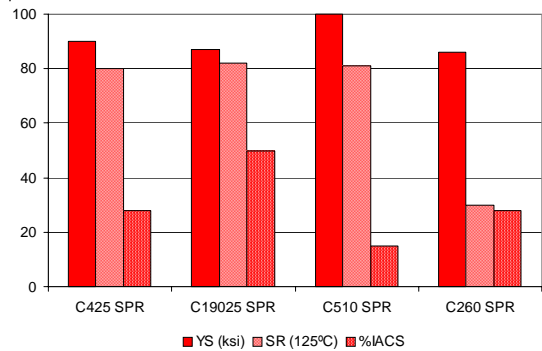


Figure 1: Comparison of Electrical Conductivity, % Stress Remaining at 3000 hrs 125° C, and Yield Strength of various automotive terminal materials.

Table 2
Physical Properties of C19025

	English Units	Metric Units
Density	0.322 lb/in ³ @ 68°F	8.91 g/cm ³ @ 20°C
Thermal Conductivity	92.5 Btu-ft/ft ² -hr-°F @ 68°F	160 W/mK @ 20°C
Electrical Resistivity	25.93 ohm circ mils/ft @ 68°F	4.31 microhm-cm @ 20°C
Electrical Conductivity (Annealed)	40% I.A.C.S. † @ 68°F	23.2 MS/m Megmho/cm @ 20°C
Modulus of Elasticity	18,800,000 psi	129 kN/mm ²
Coefficient of Thermal Expansion 68-572°F (20-300°C)	9.7 PPM/°F	17.5 PPM/°C

† International Annealed Copper Standard

Table 3
Mechanical Properties of C19025

Temper	Tensile Strength		Nominal Yield Strength (0.2% Offset)		Nominal % Elong. in 2 Inch (51mm)	90° Bend Formability GW/BW ²
	ksi	N/mm ²	ksi	N/mm ²		
1/4 Hard	47 – 69	325 – 475	53	365	25	
1/2 Hard	63 – 76	435 – 525	66	455	15	0.5/0.5
Hard	72 – 83	495 – 570	76	525	10	0.8/1.0
Ex. Hard	78 – 89	540 – 615	80	550	8	1.3/1.8
Spring	84 – 95	580 – 655	87	600	6	2.0/2.8
Ex.Spring	91 – 106	625 – 730	97	670	4	

2. R/T = Bend Radius/Material Thickness @ <0.012" (0.3mm) thick 11/16 inch (17.5mm) wide.

MAIN OFFICE and MILL Olin Brass 427 North Shamrock Street East Alton, Illinois 62024-1197 Phone: 618-258-5255 Fax: 618-258-5772	OLIN ASIA PACIFIC 1 Kim Seng Promenade Great World City, East Tower #13-04 Singapore 237994 Phone: 65.6238.1155 Fax: 65.6238.0660	OLIN BRASS JAPAN 145-1 Tokiwa-cho Hamamatsu-shi, Shizuoka-ken 430-0917 Japan Phone: 81.53.413.1500 Fax: 81.53.451.0010	OLIN CHINA Room 2004, Aetna Tower No. 107 Zunyi Road Shanghai 200051, CHINA Phone: 86.21.6237.5898 Fax: 86.21.6237.5805
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**OLIN BRASS – HEADQUARTERS
OFFICE AND MILL**

427 North Shamrock Street
East Alton, Illinois 62024-1197
Phone: 618-258-5255
Fax: 618-258-2769

**WATERBURY ROLLING MILLS, INC.
OFFICE AND MILL**

240 East Aurora Street
Waterbury, Connecticut 06708
Phone: 203-754-0151
Fax: 203-754-1016

**BRYAN METALS INC.
OFFICE AND MILL**

1103 South Main Street
Bryan, Ohio 43506-0487
Phone: 419-636-4571
Fax: 419-636-3994

**SOMERS THIN STRIP
OFFICE AND MILL**

215 Piedmont Street
Waterbury, Connecticut 06706
Phone: 203-597-5000
Fax: 203-597-5081

**NEW HAVEN COPPER CO.
OFFICE AND MILL**

79 Main Street
Seymour, Connecticut 06483

INTERNATIONAL SALES OFFICES AND FACILITIES

OLIN ASIA PACIFIC

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

OLIN BRASS JAPAN

Hamamatsu MH Bldg 13F
145-1 Tokiwa-cho
Hamamatsu-shi, Shizuoka-ken
430-0917 Japan
Phone: 81.53.413.1500
Fax: 81.53.451.0010

OLIN SHANGHAI

Room 2004, Aetna Tower
No. 107 Zunyi Road
Shanghai 200051, CHINA
Phone: 86.21.6237.5898
Fax: 86.21.6237.5805

OLIN LOUTONG METALS (GZ) LTD. CO.

No. 8 Jun Gong Lu, East District
Guangzhou Economic Technological & Dev. District
Guangzhou, P.R. China 510530
Phone: 86.20.8226.6818
Fax: 86.20.8226.6718

OLIN APPROVED INTERNATIONAL DISTRIBUTORS

UNITED KINGDOM / IRELAND

EIP Metals Limited

Heath Street South
Birmingham B18 7PZ
Phone: 44 (0) 121 452 1199
Fax: 44 (0) 121 456 1595
E-mail: sales@eipmetals.co.uk
Website www.eipmetals.co.uk

EUROPE

Walter Türkis GmbH

Struthstrasse 35
55743 Idar-Oberstein
Germany
Phone: 49 (0) 6781 62-0
Fax: 49 (0) 6781 62-28
E-mail: service@tuerkis-schneid-center.de
Website www.tuerkis-schneid-center.de

