

NGK BERYLCO PLATE PRODUCTS PLUS, SUPRA, and ULTRA

Technical Datasheet

Description

BERYLCO® **PLUS**, **SUPRA** and **ULTRA** Products are excellent mold alloys for the plastic industry, used as injection mold and tooling for blow molds. They are known to produce superior quality plastic parts, with minimum total production costs, compared to other competing mold materials. This is due to its optimum combination of hardness, wear resistance, thermal fatigue and thermal conductivity.

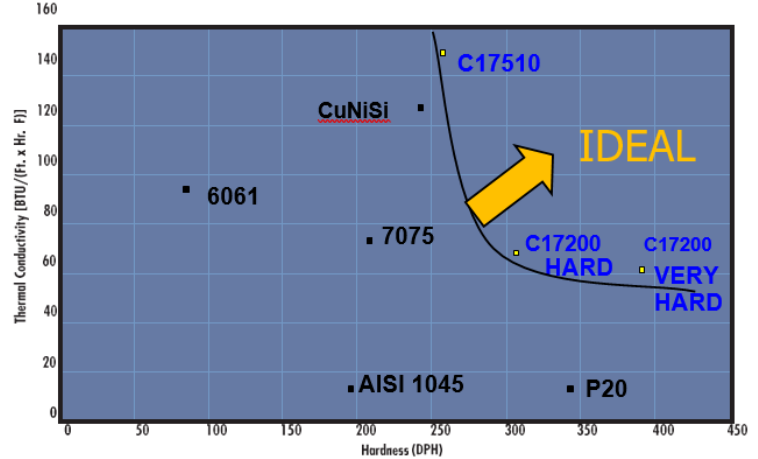
BERYLCO® products are available in three grades from two alloy systems:

PLUS is a higher conductivity, lower hardness beryllium copper alloy.

SUPRA is a medium conductivity, medium hardness beryllium copper alloy.

ULTRA is a lower conductivity, higher hardness beryllium copper alloy.

Mold Material Comparison (Thermal Conductivity – Hardness)



Typical Properties

	Thermal Conductivity [BTU/(ft.hr.°F)]	Coefficient of Thermal Expansion (in./in./°F)	Modulus of Elasticity (psi)	Rockwell Hardness B/C scale	Tensile Strength (ksi)	% Elongation
PLUS	145	10.0 x 10 ⁻⁶	19.2 x 10 ⁶	B 97	105	15%
SUPRA	75	9.7 x 10 ⁻⁶	18.5 x 10 ⁶	C 30	140	15%
ULTRA	60	9.7 x 10 ⁻⁶	18.5 x 10 ⁶	C 40	170	6%

Mold Material Characteristics

NGK Trade Name	CDA Alloy Number	Typical Characteristics	Chemistry %
PLUS	17510 / RB 97	High Conductivity / Low Hardness	Be 0.2-0.6 Ni 1.4 – 2.2 Cu Balance
SUPRA	17200 / C 30	Medium Conductivity / Medium Hardness	Be 1.8 – 2.0 Ni + Co 0.2 min. Ni + Co + Fe 0.6 max. Cu Balance
ULTRA	17200 / C 40	Low Conductivity / High Hardness	

NGK BERYLCO PLATE PRODUCTS PLUS, SUPRA, and ULTRA

Technical Datasheet

Other Physical Properties	<i>PLUS</i>	<i>ULTRA / SUPRA</i>
Melting Point – Liquidus °F	1955	1800
Melting Point – Solidus °F	1885	1590
Density lb/cu in. at 68°F	0.317	0.298
Specific Gravity	8.77	8.26
Electrical Conductivity % IACS at 68 °F	48	22
Specific Heat Capacity Btu/lb/°F at 68°F	0.1	0.1
Modulus of Elasticity in Tension ksi	19200	18500
Modulus of Rigidity ksi	7500	7300

The machinability and polishability of BERYLCO® PLUS, SUPRA, and Ultra products meet cosmetic industry requirements.

Material	Hardness (HRC)	Thermal Conductivity BTU/FT/HR/°F	Charpy V-Notch FT-LB	UTS (KSI)	CTE (10 ⁻⁶ IN/IN/°F)
PLUS	20	145	50	115	9.8
Alloy 940	16	120	35	96	9.7
QC7 Aluminum	B88	90	30	78	12.9
SUPRA	30	75	12	140	9.7
ULTRA	40	60	4	170	9.7
Alloy 18	B90	35	-	95	9.0
Alloy 22	35	23	2	100	9.0
P-20 Tool Steel	30	17	25	140	7.1
H-13 Tool Steel	45-50	15	8-14	250	7.1
420 Stainless	50	10	5-10	250	6.1

NGK BERYLCO PLATE PRODUCTS PLUS, SUPRA, and ULTRA

Technical Datasheet

NORTH AMERICAN DISTRIBUTION

HEADQUARTERS + TECHNICAL SUPPORT

SWISS STEEL USA, INC.
365 Village Dr.
Carol Stream, IL 60188
Phone: 800.323.1233
Fax: 630.879.0498

MANUFACTURING + CENTRAL STOCKING FACILITY

SWISS STEEL USA, INC.
1609 E. Wilson Street
Batavia, IL 60510

DISTRIBUTION LOCATIONS

WEST COAST

556 Vanguard Way
Brea, CA 92861

MIDWEST

365 Village Dr.
Carol Stream, IL 60188

1455 Miller Pkwy.
Streetsboro, OH 44241

SOUTHEAST

119 Old Airport Rd.
Roebuck, SC 29376

NORTHEAST

370 Franklin Turnpike
Mahwah, NJ 07430

CANADA

SWISS STEEL CANADA, INC.
6350 Vipond Dr.
Mississauga, ONT L5T 1G2

www.swisssteel-international.us
www.swisssteel-international.ca

General Note

All statements regarding the properties or utilization of the materials or products mentioned are for the purpose of description only. Guarantees regarding the existence of certain properties or a certain utilization are only valid if agreed upon in writing.

