

TRIBALLOY® POWDERS

TECHNICAL DATASHEET



T-400 • T-800 (TRIBALLOY®) POWDERS

AMETEK offers water atomized powder versions of the Triballoy® alloys T-400 and T-800. These alloys are Co-Mo-Cr-Si based materials that are extremely hard due to the formation of high fractions of intermetallic laves phases. They also exhibit very good oxidation and corrosion performance due to their design chemistry.

TYPICAL APPLICATIONS

Triballoy® alloys are used extensively as hard-phase particles in powder metallurgy of automotive valve seats and guides as well as for other components in the drivetrain requiring enhanced wear performance at elevated temperatures. Triballoy® alloys are also used extensively for coating and cladding applications in a variety of markets ranging from industrial to aerospace.

TRIBALLOY® T-400

Triballoy® T-400 is designed for exceptional wear properties in metal-metal contact scenarios at high temperatures. The alloy has high Co and Mo content and high laves phase fraction leading to very high hardness with reasonable workability and a relatively lubricious surface due to the formation of molybdenum oxides at high temperatures.

TRIBALLOY® T-800

Triballoy® T-800 is designed for the highest possible service temperature in the alloy family, with operating capability nominally in 1800°F / 1000°C range for certain environments. T-800 replaces an additional 10% of the Co content of T-400 with Cr, conferring added protection against oxidation at the expense of some of the workability afforded by high Co content.



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Deloro Stellite Holdings Corporation, a Kennametal Company.

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CHEMICAL COMPOSITION %

ALLOY	Co	Cr	W	C	Ni	Mo	Fe	Si	Others	UNS
Triballoy® T-400	Balance	8.5	-	<0.08	<1.5	29	<1.5	2.8	<1.0	R30400
Triballoy® T-800	Balance	17	-	<0.08	<1.5	29	<1.5	3.7	<1.0	-

PHYSICAL PROPERTIES

ALLOY	Density	Thermal Expansion	Hardness HRC	Melting Range °C
Triballoy® T-400	0.320 lb/in ³	6.8 in/in°F x 10 ⁻⁶	52	1290 - 1340
Triballoy® T-800	0.312 lb/in ³	6.8 in/in°F x 10 ⁻⁶	58	1280 - 1350

MECHANICAL PROPERTIES

ALLOY	Yield Stress ksi	Modulus of Elasticity Dynamic, psi x 10 ⁶	Fracture Toughness ksi √in
Triballoy® T-400	220	35	18 - 23
Triballoy® T-800	250	35	15 - 26

HOT HARDNESS

Triballoy® T-400	51 - 57 HRC
Triballoy® T-800	53 - 61 HRC

EIGHTY FOUR / AMETEK®
SPECIALTY METAL PRODUCTS

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