TRIBALOY® POWDERS

TECHNICAL DATASHEET

T-400 • T-800 (TRIBALOY®) POWDERS

AMETEK offers water atomized powder versions of the Tribaloy® 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

Tribaloy® 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. Tribaloy® alloys are also used extensively for coating and cladding applications in a variety of markets ranging from industrial to aerospace.

TRIBALOY® T-400

Tribaloy® 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.

TRIBALOY® T-800

Tribaloy® 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.

TRIBALOY® POWDERS

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T-400 • T-800 (TRIBALOY®) POWDERS

CHEMICAL COMPOSITION %										
ALLOY	**Co**	**Cr**	**W**	**C**	**Ni**	**Mo**	**Fe**	**Si**	**Others**	**UNS**
Tribaloy® T-400	Balance	8.5	-	<0.08	<1.5	29	<1.5	2.8	<1.0	R30400
Tribaloy® 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**
Tribaloy® T-400	0.320 lb/in3	6.8 in/in°F x 10- 6	52	1290 - 1340
Tribaloy® T-800	0.312 lb/in3	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**
Tribaloy® T-400	220	35	18 - 23
Tribaloy® T-800	250	35	15 - 26

HOT HARDNESS	
Tribaloy® T-400	51 - 57 HRC
Tribaloy® T-800	53 - 61 HRC

EIGHTY FOUR / AMETEK SPECIALTY METAL PRODUCTS

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