UNITED STATES WELDING CORPORATION

USW ALLOY DESIGNATION AND DESCRIPTION	**TURBALOY® 418** **MC-GRADE** **GTAW SOLID BARE WELDING WIRE** **IRON BASE**	**ISSUED** JANUARY 2007 REVISION NO. A	**DATA SHEET** 5817 (25)

CROSS-REFERENCE CONFORMANCE SPECIFICATIONS

Greek Ascoloy
AMS 5817
UNS S41800

USWC 5817
13Cr 2.0Ni 3.0W
AISI 615
Available in HQ-GRADE

METALLURGICAL BACKGROUND INFORMATION

TURBALOY® 418 is a corrosion and heat resistant steel. The wire is manufactured by special lubricant-free, roller-die forming followed by surface abrasion and cleaning processes.

These manufacturing processes ensure physical purity of the welding wire surface. TURBALOY® 418 is a hardenable Cr-Ni-W martensitic alloy for service up to 1202°F in highly stressed parts. The alloy is deep-hardenable. It is used for steam turbine buckets, blades; and compressor parts in gas turbines. Note the addition of Tungsten for high temperature properties.

TURBALOY® 418 is used to weld materials of similar base metals composition.

MATERIALS TO BE WELDED AND APPLICATION

AMS 5616, 5508, 5354.
ASTM A565
Similar 12Cr high-strength alloys, weld wire: AMS 5823, 5821, 5776.
Preheat 400°F - 600°F, maintain interpass at this level.
Anneal after welding.
Note: For non-critical work, AMS 5694 can be used for welding 418.

WIRE CHEMISTRY WT%

Carbon	0.15	0.20	Tungsten	2.50	3.50
Manganese	-	0.50	Molybdenum	-	0.50
Silicon	-	0.50	Aluminum	-	0.15
Sulfur	-	0.03	Copper	-	0.50
Phosphorus	-	0.04	Tin	-	0.05
Chromium	12.00	14.00	Iron		Balance
Nickel	1.80	2.20			

WELD PROPERTIES

Response to heat treatment: >45 HRC Minimum

Density: 7.86gm/cc

SIZES AND FORMS AVAILABLE

STRAIGHT LENGTHS	SPOOLED WIRE
5 lb. (2.2kg) packs 36” (914mm) lengths Flag tagged for traceability. (Double tagging and other lengths on request) Wide range of diameters.	Precision layer wound, with controlled cast and helix 12” (300mm) diameter spools standard 8” (200mm), 4” (100mm) and proprietary spool sizes on request. Wide range of diameters and spool weights.

PACKAGING

Sealed, air-evacuated, argon purged Vapor Barrier e nvelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.

DISTRIBUTED BY:

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