



UNITED STATES WELDING CORPORATION

<p align="center">USW ALLOY DESIGNATION AND DESCRIPTION</p>	<p align="center">TURBALOY[®] M190 MC-GRADE GTAW SOLID BARE WELDING WIRE IRON BASE</p>	<p align="center">ISSUED JANUARY 2007</p>	<p align="center">DATA SHEET 5822 (27)</p>																																																
<p align="center">CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</p>	<table border="0"> <tr> <td>MSRR 9500/10</td> <td>UNS S41780</td> </tr> <tr> <td>Jethete M190</td> <td>OMAT 3/54A</td> </tr> <tr> <td>AMS 5822</td> <td>USWC 5822 (V)</td> </tr> <tr> <td>MSRR 6511 (Reference)</td> <td>AMS 5823</td> </tr> <tr> <td></td> <td>Available in HQ-GRADE</td> </tr> </table>			MSRR 9500/10	UNS S41780	Jethete M190	OMAT 3/54A	AMS 5822	USWC 5822 (V)	MSRR 6511 (Reference)	AMS 5823		Available in HQ-GRADE																																						
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<p align="center">METALLURGICAL BACKGROUND INFORMATION</p>	<p>TURBALOY[®] M190VM is produced by vacuum induction melting and remelting techniques. The final wire is manufactured by special lubricant-free, roller-die forming followed by surface abrasion and cleaning processes.</p> <p>These manufacturing routes ensure consistent metallurgical integrity of the alloy with regard to control of trace elements and physical purity of the welding wire surface.</p>																																																		
<p align="center">MATERIALS TO BE WELDED AND APPLICATION</p>	<p>MSRR 6503, 6504, 6506, 6509, 6510, 6511, 6512, various forms of Jethete MSRR 6513, 6514, 6515, various forms of FV607. AMS 5718, AMS 5719 TURBALOY[®] M190 is used for the manufacture and repair of gas turbine components using GTAW and pure argon gas shielding.</p>																																																		
<p align="center">WIRE CHEMISTRY WT%</p>	<table border="0"> <tr> <td>Carbon</td> <td>0.10</td> <td>0.15</td> <td>Cobalt</td> <td>1.30</td> <td>2.00</td> </tr> <tr> <td>Manganese</td> <td>0.40</td> <td>1.30</td> <td>Vanadium</td> <td>0.25</td> <td>0.40</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>0.40</td> <td>Oxygen</td> <td>-</td> <td>0.005 (50ppm)</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.008</td> <td>Nitrogen</td> <td>-</td> <td>0.040 (400ppm)</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.010</td> <td>Hydrogen</td> <td>-</td> <td>0.001 (10ppm)</td> </tr> <tr> <td>Chromium</td> <td>11.00</td> <td>12.50</td> <td>Iron</td> <td></td> <td>Balance</td> </tr> <tr> <td>Nickel</td> <td>2.50</td> <td>3.00</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Molybdenum</td> <td>1.50</td> <td>2.00</td> <td></td> <td></td> <td></td> </tr> </table>			Carbon	0.10	0.15	Cobalt	1.30	2.00	Manganese	0.40	1.30	Vanadium	0.25	0.40	Silicon	-	0.40	Oxygen	-	0.005 (50ppm)	Sulfur	-	0.008	Nitrogen	-	0.040 (400ppm)	Phosphorus	-	0.010	Hydrogen	-	0.001 (10ppm)	Chromium	11.00	12.50	Iron		Balance	Nickel	2.50	3.00				Molybdenum	1.50	2.00			
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<p align="center">PACKAGING</p>	<p>Sealed, air-evacuated, argon purged Vapor Barrier envelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.</p>																																																		

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