



# UNITED STATES WELDING CORPORATION

<b>USW ALLOY DESIGNATION AND DESCRIPTION</b>	<b>TURBALOY® 31</b> HQ-GRADE GTAW SOLID BARE WELDING WIRE COBALT BASE	<b>ISSUED</b> JANUARY 2007	<b>DATA SHEET</b>  <b>5789</b> (3)																														
		<b>REVISION NO.</b> A																															
<b>CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</b>	MSRR9500/25 MSRR 7049 AMS 5789 USWC 5789 (A)	54Co 25.5Cr 10.5Ni 7.5W W-31 UNS R30031																															
<b>METALLURGICAL BACKGROUND INFORMATION</b>	<p>TURBALOY® 31 undergoes a series of proprietary abrading and cleaning processes to remove all surface contaminants. These manufacturing processes ensure a consistent ultra-clean weld wire surface.</p> <p>TURBALOY® 31 is a Co-Cr-Ni-W wear resisting, high temperature alloy used for welding base metal of similar compositions.</p>																																
<b>MATERIALS TO BE WELDED AND APPLICATIONS</b>	AMS 5382 UNS R30031	MSRR 7049/ 7122, 7185 ASTM A567GR2	PWA A648																														
<b>WIRE CHEMISTRY WT%</b>	<table border="0"> <tr> <td>Carbon</td> <td>0.45</td> <td>0.55</td> <td>Chromium</td> <td>24.50</td> <td>26.50</td> </tr> <tr> <td>Manganese</td> <td>-</td> <td>1.00</td> <td>Nickel</td> <td>9.50</td> <td>11.50</td> </tr> <tr> <td>Silicon</td> <td>-</td> <td>1.00</td> <td>Tungsten</td> <td>7.00</td> <td>8.00</td> </tr> <tr> <td>Sulfur</td> <td>-</td> <td>0.04</td> <td>Iron</td> <td>-</td> <td>2.00</td> </tr> <tr> <td>Phosphorus</td> <td>-</td> <td>0.04</td> <td>Cobalt</td> <td></td> <td>Balance</td> </tr> </table>			Carbon	0.45	0.55	Chromium	24.50	26.50	Manganese	-	1.00	Nickel	9.50	11.50	Silicon	-	1.00	Tungsten	7.00	8.00	Sulfur	-	0.04	Iron	-	2.00	Phosphorus	-	0.04	Cobalt		Balance
Carbon	0.45	0.55	Chromium	24.50	26.50																												
Manganese	-	1.00	Nickel	9.50	11.50																												
Silicon	-	1.00	Tungsten	7.00	8.00																												
Sulfur	-	0.04	Iron	-	2.00																												
Phosphorus	-	0.04	Cobalt		Balance																												
<b>WELD PROPERTIES</b>	<table border="0"> <tr> <td>As cast hardness:</td> <td>30-35 HRC</td> <td></td> <td></td> </tr> <tr> <td>As cast hardness:</td> <td>90 HRB at 930°F</td> <td></td> <td>Density: 7.82 gm/cc</td> </tr> <tr> <td>As cast hardness:</td> <td>70 HRB at 1650°F</td> <td></td> <td></td> </tr> </table>			As cast hardness:	30-35 HRC			As cast hardness:	90 HRB at 930°F		Density: 7.82 gm/cc	As cast hardness:	70 HRB at 1650°F																				
As cast hardness:	30-35 HRC																																
As cast hardness:	90 HRB at 930°F		Density: 7.82 gm/cc																														
As cast hardness:	70 HRB at 1650°F																																
<b>SIZES AND FORMS AVAILABLE</b>	<table border="0"> <tr> <td style="text-align: center;"><b>STRAIGHT LENGTHS</b></td> <td style="text-align: center;"><b>SPOOLED WIRE</b></td> </tr> <tr> <td>5 lb. (2.2kg) packs</td> <td>Precision layer wound, with controlled cast and helix</td> </tr> <tr> <td>36" (914mm) lengths</td> <td>12" (300mm) diameter spools standard</td> </tr> <tr> <td>Flag tagged for traceability.</td> <td>8" (200mm), 4" (100mm) and proprietary spool sizes</td> </tr> <tr> <td>(Double tagging and other lengths on request)</td> <td>on request.</td> </tr> <tr> <td>Wide range of diameters.</td> <td>Wide range of diameters and spool weights.</td> </tr> </table>			<b>STRAIGHT LENGTHS</b>	<b>SPOOLED WIRE</b>	5 lb. (2.2kg) packs	Precision layer wound, with controlled cast and helix	36" (914mm) lengths	12" (300mm) diameter spools standard	Flag tagged for traceability.	8" (200mm), 4" (100mm) and proprietary spool sizes	(Double tagging and other lengths on request)	on request.	Wide range of diameters.	Wide range of diameters and spool weights.																		
<b>STRAIGHT LENGTHS</b>	<b>SPOOLED WIRE</b>																																
5 lb. (2.2kg) packs	Precision layer wound, with controlled cast and helix																																
36" (914mm) lengths	12" (300mm) diameter spools standard																																
Flag tagged for traceability.	8" (200mm), 4" (100mm) and proprietary spool sizes																																
(Double tagging and other lengths on request)	on request.																																
Wide range of diameters.	Wide range of diameters and spool weights.																																
<b>PACKAGING</b>	Sealed polyethylene envelopes. (Desiccants optional)																																

DISTRIBUTED BY:

3579 HIGHWAY 50 EAST # 104 □ CARSON CITY, NEVADA 89701-2826  
775/883-7878 □ 800/423-5964 □ FAX: 775/883-7776