



# UNITED STATES WELDING CORPORATION

<b>USW ALLOY DESIGNATION AND DESCRIPTION</b>	<b>4643</b>  <b>GTAW and GMAW SOLID WELDING WIRE ALUMINUM BASE</b>	<b>ISSUED</b> JANUARY 2007	<b>DATA SHEET</b>  <b>4189</b>  (4)																								
		<b>REVISION NO.</b> A																									
<b>CROSS-REFERENCE CONFORMANCE SPECIFICATIONS</b>	AMS 4189 UNS A94643  ER 4643 (AWS A5.10) USWC 4189 (C)																										
<b>METALLURGICAL BACKGROUND INFORMATION</b>	ALLOY 4643 is a solid welding wire produced conventionally and then surface cleaned to remove standard metal working lubricants.  ALLOY 4643 is a specially modified version of 4043 alloy to be used where post weld heat treatment and aging are required.																										
<b>MATERIALS TO BE WELDED AND APPLICATIONS</b>	6061, 6063, 6070, 6071, 6082 and subsequent PWHT and aging.  Suitable for fabricating material in thicker sections (>20mm). Will also substitute for 4043.																										
<b>WIRE CHEMISTRY WT%</b>	<table> <tr> <td>Silicon</td> <td>3.6 - 4.6</td> <td>Zinc</td> <td>0.10</td> </tr> <tr> <td>Iron</td> <td>- 0.8</td> <td>Beryllium</td> <td>0.0008</td> </tr> <tr> <td>Copper</td> <td>- 0.10</td> <td>Other impurities</td> <td>0.05 each max</td> </tr> <tr> <td>Manganese</td> <td>- 0.05</td> <td>Other impurities</td> <td>0.15 total max</td> </tr> <tr> <td>Magnesium</td> <td>0.10 0.30</td> <td>Titanium</td> <td>0.15</td> </tr> <tr> <td></td> <td></td> <td>Aluminum</td> <td>Balance</td> </tr> </table>			Silicon	3.6 - 4.6	Zinc	0.10	Iron	- 0.8	Beryllium	0.0008	Copper	- 0.10	Other impurities	0.05 each max	Manganese	- 0.05	Other impurities	0.15 total max	Magnesium	0.10 0.30	Titanium	0.15			Aluminum	Balance
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<b>WELD PROPERTIES</b>	Melting range 1065° - 1175°F                      Density 2.69gm/cc																										
<b>SIZES AND FORMS AVAILABLE</b>	<table> <tr> <td> <b>STRAIGHT LENGTHS</b>            2.2 kg ( 5 lb) packs.            914 mm (36") lengths.            Flag tagged for traceability.            (Double tagging and other lengths on request).            Wide range of diameters.         </td> <td> <b>SPOOLED WIRE</b>            Precision layer wound &amp; with controlled cast &amp; helix.            300 mm (12") diameter spools standard.            200 mm, 100 mm and proprietary spool sizes on request            Wide range of diameters and spool weights.         </td> </tr> </table>			<b>STRAIGHT LENGTHS</b> 2.2 kg ( 5 lb) packs. 914 mm (36") lengths. Flag tagged for traceability. (Double tagging and other lengths on request). Wide range of diameters.	<b>SPOOLED WIRE</b> Precision layer wound & with controlled cast & helix. 300 mm (12") diameter spools standard. 200 mm, 100 mm and proprietary spool sizes on request Wide range of diameters and spool weights.																						
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<b>PACKAGING</b>	Sealed, air-evacuated, argon purged Vapor Barrier envelopes with desiccants ensure full protection from atmospheric contamination and prolonged shelf-life.																										
<b>DISTRIBUTED BY:</b>																											