

## ◆ INTRODUCTION

A primary use for Aluminum 4643 is in the welding of heavy sections of certain aluminum alloys when multiple weld passes are used and dilution of the base metal into the puddle is negligible. Post weld solution heat treatment and artificial aging may develop 90% of the tensile strength of the unwelded base metal in alloys 6061, 6063, 6070, and 6071. This alloy could also offer advantages in brazing type applications on thin sections where dilution ratios are low. Welds made with AL4043 or AL4643 filler metal should have approximately equal performance in the as-welding condition. AL4643 is very similar in weldability to AL4043. The weld cracking characteristics, flow, pre-cleaning and machine settings are the same for this alloy as for AL4043. The corrosion resistance is very good and equals or exceeds AL4043 in the weld zone and heat affected regions.

## ◆ APPLICATIONS

- Welding filler wire

## ◆ GENERAL INFORMATION

- Heat treatable
- Principle alloying elements: Silicon, Magnesium

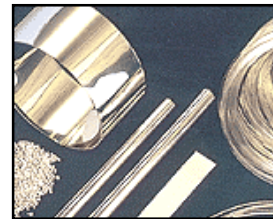
## ◆ CHEMICAL COMPOSITION

<u>Silicon</u>	<u>Iron</u>	<u>Copper</u>	<u>Beryllium</u>	<u>Manganese</u>	<u>Magnesium</u>	<u>Zinc</u>	<u>Titanium</u>	<u>Others</u>		<u>Aluminum</u>
								<u>Each</u>	<u>Total</u>	<u>Remainder</u>
3.6-4.6	0.8	0.10	0.0008	0.05	0.10-0.30	0.10	0.15	0.05	0.15	

Note: All values are maximum percentage, unless shown in range.

## ◆ PHYSICAL PROPERTIES

Melting Range:	1065-1175°F
Density, at 68°F:	0.097 lb/in <sup>3</sup>
Resistance to Corrosion:	B (Gen) A (SCC)
Anodize Color:	Gray



## ◆ SPECIFICATIONS MEET or EXCEED

- ANSI/AWS A5.10 (ER & R 4643)
- AMS 4189

## ◆ STANDARD SIZES AND DIAMETERS

<u>Diameters</u>	<u>Package Form</u>
.030, .035, 3/64, 1/16, 3/32, 1/8	4 & 12 in. Spools
1/16, 3/32, 1/8, 5/32, 3/16, 1/4	Straight lengths



Aufhauser  
 Corporation  
 39 West Mall  
 Plainview, NY 11803  
 Telephone:  
 516-694-8696  
 800-645-9486  
 Fax:  
 516-694-8690

## Aluminum 4643

### ◆ TYPICAL GMAW PARAMETERS

Wire diameter	Range		Base material thickness	Suggested		Wire feed	Gas flow	Consumption 100 ft of weld
	<u>Inches</u>	<u>Amps</u>		<u>Volts</u>	<u>Amps</u>			
0.030	60-170	13-24	0.062	90	22	260	25	1.5
			0.094	110	23	320		1.8
			0.125	130	23	380		2
			0.187	150	24	430		4
			0.250	175	24	510		6
0.035	70-180	15-26	0.062	90	23	250	35	1.5
			0.125	130	24	360		2
			0.250	170	25	470		6
0.047	140-260	20-29	0.094	110	25	215	45	1.8
			0.125	150	26	290		2
			0.250	190	26	370		6
			0.375	220	27	430		16
0.062	190-350	25-30	0.250	200	26	190	55	6
			0.375	230	27	215		16
			0.500	260	28	240		30
			0.750	280	29	261		50
			1.000	300	30	280		105
0.094	280-400	26-31	0.500	280	28	170	65	30
			0.750	290	29	175		50
			>1.000	300	30	180		150+

NOTE: Parameters based on flat position, groove joint, backing strip, and 100% argon gas.