

## ◆ INTRODUCTION

Aufhauser Aluminum 4043 is one of the oldest and most widely used welding and brazing alloys. AL4043 can be classed as a general purpose-type filler alloy. The silicon additions result in improved fluidity (wetting action) to make the alloy a preferred choice by welders. The alloy is less sensitive to weld cracking and produces brighter, almost smut free welds.

## ◆ APPLICATIONS

- Welding filler wire
- Spray and flame metallizing wire

## ◆ GENERAL INFORMATION

- Non-Heat treatable
- Principle alloying elements: Silicon
- ISO designation: AISi5

## ◆ 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> |
| 4.5-6.0        | 0.8         | 0.30          | 0.0008           | 0.05             | 0.05             | 0.10        | 0.20            | 0.05          | 0.15         |                  |

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

## ◆ PHYSICAL PROPERTIES

|                          |                          |
|--------------------------|--------------------------|
| Melting Range:           | 1065-1170°F              |
| Density, at 68°F:        | 0.097 lb/in <sup>3</sup> |
| Conductivity:            | 42% IACS (-O)            |
| Resistance to Corrosion: | B (Gen) A (SCC)          |
| Anodize Color:           | Gray                     |



## ◆ SPECIFICATIONS MEET or EXCEED

- ANSI/AWS A5.10 (ER & R 4043)
- AMS 4190

## ◆ 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    |

## ◆ TYPICAL MECHANICAL PROPERTIES OF GTAW GROOVE JOINT WELDS

| <u>BASE ALLOY</u> | <u>BASE ALLOY</u> |                  |                  | <u>AS WELDED</u> |                  |                  | <u>POST WELD HEAT TREAT AND AGE<sup>1</sup></u> |                  |                  |
|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|---|------------------|------------------|
|                   | <u>UTS (KSI)</u>  | <u>UYS (KSI)</u> | <u>ELONG (%)</u> | <u>UTS (KSI)</u> | <u>UYS (KSI)</u> | <u>ELONG (%)</u> | <u>UTS (KSI)</u>                                | <u>UYS (KSI)</u> | <u>ELONG (%)</u> |
| 2014-T6           | 70                | 60               | 13               | 34               | 28               | 4                | 50  | -                | 2                |
| 6061-T4           | 35                | 21               | 22               | 27               | 18               | 8                | 35 <sup>2</sup>                                 | -                | 8 <sup>2</sup>   |
| 6061-T6           | 45                | 40               | 12               | 27               | 18               | 8                | 44  | 40               | 5                |
| 6063-T4           | 25                | 22               | 22               | 20               | 10               | 12               | 30  | -                | 13               |

1) Requires sufficient dilution of base metal into weld pool for heat treat and/or age response. Refer to alloy 4643 data sheet for additional information.

(2) postweld aged only.



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## Aluminum 4043

### ◆ TYPICAL GMAW PARAMETERS

| Wire diameter | Range   |       | Base material thickness | Suggested |      | Wire feed | Gas flow | Consumption 100 ft of weld |
|---------------|---------|-------|-------------------------|-----------|------|-----------|----------|----------------------------|
|               | Inches  | Amps  |                         | Volts     | Amps |           |          |                            |
| 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.