StarGold™ Aluminum

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Praxair's *StarGold Aluminum,*
for TIG (GTAW) and MIG (GMAW) welding of aluminum alloys.

Praxair's *StarGold*™ *Aluminum* shielding gas is a specially formulated argon based blend. It can help provide enhanced operator appeal, greater weld penetration and improved weld quality when compared with pure argon which is typically used for AC TIG welding of aluminum. Praxair's *StarGold Aluminum* blend can also be used for MIG welding a wide range of aluminum alloys.

As a result of its performance characteristics, *StarGold Aluminum* can help welders achieve high quality TIG welds.

StarGold Aluminum Product Benefits

- Can help create arc stability, easier arc starting and good bead shape control
- Uses standard CGA 580 argon regulator / flow meter
- Can help improve weld appearance with the reduction of the cleaning zone or frost line in AC TIG
- Can improve arc stability/reduces arc wander, which commonly appears with the use of pure argon
- Can result in better weld puddle placement as a result of more focused arc control
- Similar tungsten life to pure argon
- Can improve penetration when compared to argon
- Can provide better spray arc stability
- Requires a lower flow rate than argon/helium blends
- Less post weld cleanup is required as a result of reduced frost line
- Reduced spatter and improved deposition efficiency in MIG welding
- Welder can use one shielding gas for a wide range of aluminum joining applications

Typical Applications

Can be used for pulsed and conventional spray arc MIG welding of aluminum alloys such as:

- Aluminum boats
- Automotive frames, hoods, body panels
- Aluminum truck trailers and fuel tanks
- Aluminum ladders

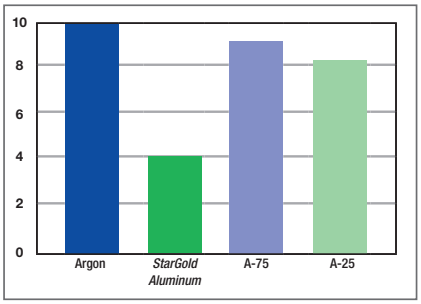
Performance Characteristics

- Can be used for thick to thin joining
- Reduced surface porosity
- Process flexibility as it works well in all welding positions

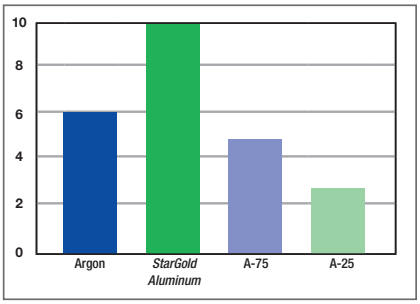
Illustrated to the right are comparisons between shielding gas blends used with 4043 filler metal over a range of current levels. They are intended to provide suggestions for gas blend selection based on the criteria indicated.

Note: The selection of the appropriate shielding gas depends on various operating conditions (base metal, chemistry and thickness, metal transfer, wire selection, welding position, etc). Please consult with your Praxair representative for suggestions on options available for your application.

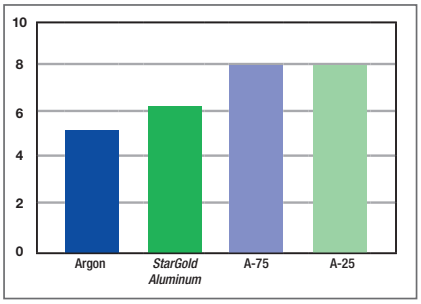
Cleaning Zone Width (10=widest, 1=thinnest)



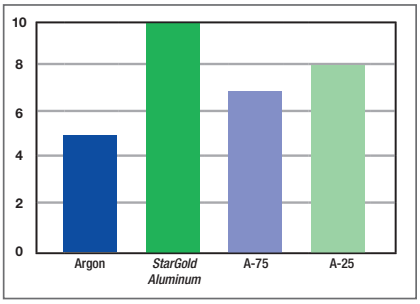
Arc Starting / Arc Stability (10=best, 1=worst)



Penetration (10=best, 1=worst)



Wetting (10=best, 1=worst)



Graph information is based on tests conducted at Praxair Technology, Inc's R&D lab in Tonawanda, New York, USA.

Welding Conditions Selection Table – Typical AC TIG Welding with Filler Rod

Shielding Gas	Aluminum thickness (inches)	Tungsten Electrode Diameter (inches)	Current Level (amps)	Filler Diameter (inches)	Gas Flow (cfh)
StarGold Aluminum	1/16-1/8	1/16-3/32	60-150	3/32-1/8	15-20
	3/16	1/8	180-220	1/8	20-25
	1/4	3/16	220-300	1/8-3/16	25-30
	3/8	3/16-1/4	280-370	3/16	30-35

Welding Conditions Selection Table – Typical MIG Welding with 4043

Shielding Gas	Wire Diameter (inches)	Aluminum thickness (inches)	Wire Feed Speed (ipm)		Amps		Volts	
			4xxx	5xxx	4xxx	5xxx	4xxx	5xxx
StarGold Aluminum	3/64	3/32	170	220	110	120	25	24
		1/8	270	330	150	160	26	25
		1/4	320	370	190	220	26	25
		3/8	390	450	220	230	27	25
	1/16	1/4	170	200	200	210	26	24
		3/8	200	230	230	240	27	25
		1/2	240	270	260	270	28	26
		3/4	260	300	280	290	29	27
		1	280	320	300	310	30	28

Note: The tables above provide approximate welding parameters as starting points for a welder to set their machine for a particular aluminum thickness as indicated. It is recommended that all welding specifications, practices and procedures be thoroughly tested for their intended use before being put into service. The above welding conditions selection chart is provided by Hobart Aluminum (formerly MAXAL). For more information go to www.hobartbrothers.com. Qualified welding procedures utilizing tested practices should be developed for actual production weldments.

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