

H2350 50% Silicon Aluminum

Silicon exists in aluminum as a naturally occurring trace residual as well as a deliberate alloying addition. As an additive, it is used to improve castability of foundry products and to influence the mechanical properties of finished products. At concentrations above 12%, silicon can significantly improve wear resistance.

Since silicon melts at 1430°C and requires substantially more energy than aluminum to melt, its dissolution in aluminum baths requires special care. The rate of silicon dissolution is controlled by the temperature, the bath composition, and the clean interfacial area between the solid silicon and the molten aluminum.

When adding silicon to a bath, the use of 50% silicon aluminum rather than silicon metal (with or without flux coating) offers certain advantages:

1. More interfacial area.
2. Fewer SiO₂, SiC and silicon metal dross inclusions.
3. Faster overall solution rate.
4. Predictable and complete silicon recoveries.
5. No refractory damage due to salt fluxes.

Physical Properties

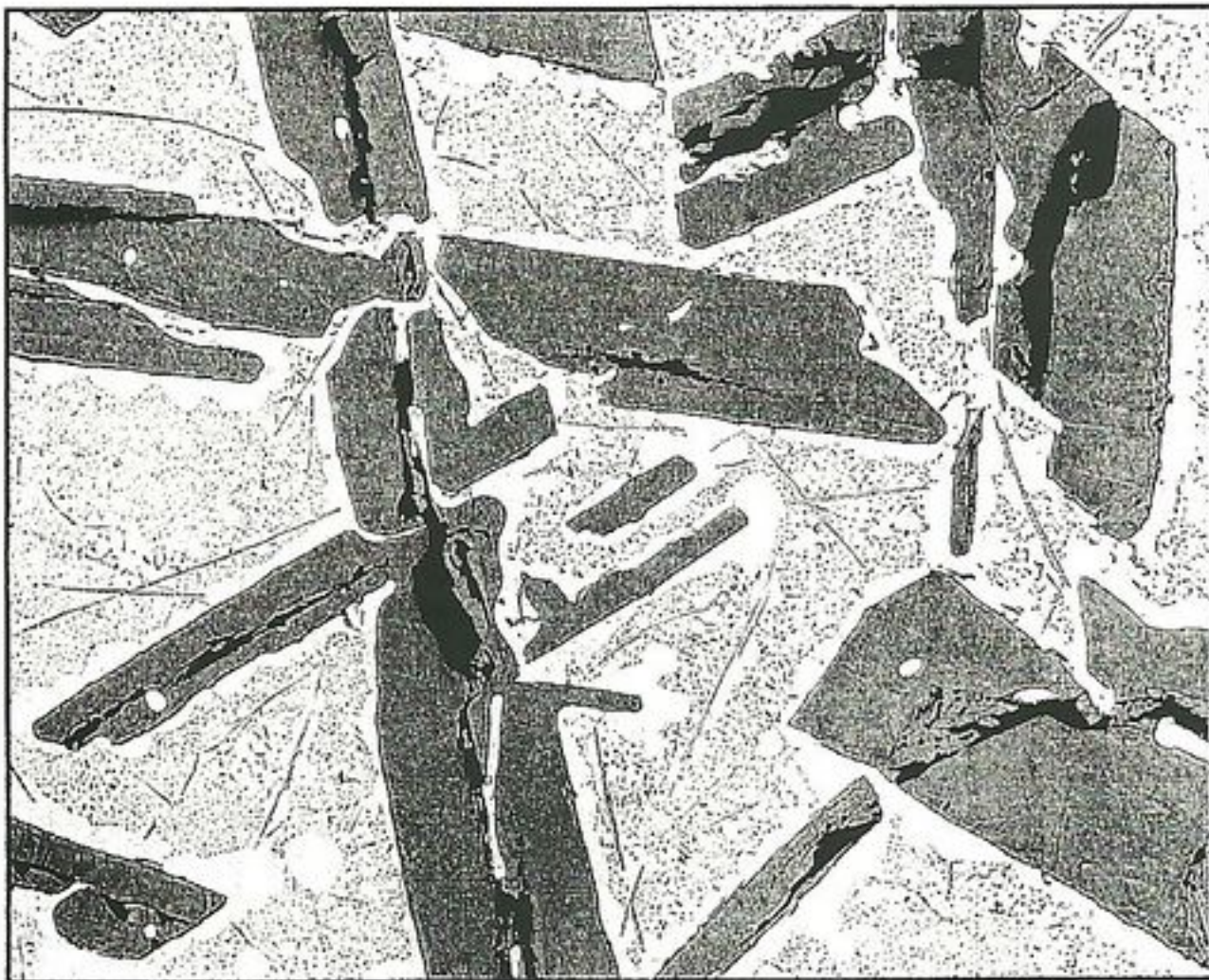
Density 2.50 g/cc

Dissolution Rate

50% silicon aluminum master alloy is fully dissolved within 10 minutes, as compared with pure silicon, which is not fully dissolved after 30 minutes.

Chemical Properties

H2350	Composition Element (in percent)										
	Si	Fe	Ca	Mg	Mn	Cr	Ti	Ni	B	Zr	Zn
Maximum	54.0	0.50	0.05	0.05	0.05	0.05	0.07	0.06	0.01	0.05	0.05
Minimum	47.0	—	—	—	—	—	—	—	—	—	—
Typical	50.0	0.14	0.006	0.001	0.006	0.001	0.043	0.009	0.005	0.009	0.003



50% silicon aluminum, 100x, unetched. Typical field consisting of large primary silicon particles (dark gray) and eutectic silicon particles in aluminum. Silicon depleted zones appear next to the primary silicon particles (areas of white). The long, light gray needles are Fe₃Si₂Al₁₅.

Forms Available

- 16 lb. Notch Bar Ingot
- 16 lb. Waffle Ingot (1 lb. segments)
- 54 lb. Bar Ingot

Milward Alloys, Inc.

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500 Mill Street, Lockport, NY 14094-1712 USA • (716) 434-5536 • FAX (716) 434-3257