Technical Sheet

Argentium® 935 Silver Casting Grain #103-635

Physical-chemical properties:

Precious metal of reference	Ag 93.5%
Density	10.4g/cm³
Temperatures:	
Solidus	1477°F/803°C
Liquidus	1657°F/903°C
Range	212°F/100°C

General characteristics:

As-cast grain size	90µm
Fluidity (grid filling test)	60%

Mechanical characteristics:

Tensile strength (Rm) [N/mm²]	249
Yield strength (Rp0.2) [N/mm²]	111
Elongation (A) [%]	29
As-cast hardness [HV 0.2]	68
Hardness after 70% red [HV 0.2]	167
Hardness after annealing [HV 0.2]	64
Hardness after age-hardening 1 [HV 0.2]	131

Product description:

Argentium® Silver is a premium-quality silver alloy with exceptional tarnish- and firestain-resistance properties that makes it particularly suitable for premium jewelry items. Argentium 935 Silver is a grain-refined 935/1000 silver alloy that offers very white color and high reflectivity. Argentium 935 Silver possesses high as-cast hardness, making items fabricated with this alloy particularly resistant to wear and scratching.

Argentium® 935 Silver casting grain is carefully prepared using high-purity silver (99.99%) through a special deoxydizing process, a pre-requisite for high- quality silver jewelry production.

Recommended applications:

Argentium® 935 Silver is suitable for many applications, including investment casting and mechanical working (for sheet, wire and tube manufacturing).

Argentium 935 Silver can be hardened by means of a single- or double-step heat treatment (see Notes at right).

Instructions for Casting

Graining temperature: N/A

Casting temperature:

Object Size	Metal Temp.	Flask Temp.
Thin (0.2–0.5mm)	1832–1796°F (1000–980°C)	1040–1112°F (560–600°C)
Medium (0.5–1.2mm)	1814–1778°F (990–970°C)	968–1040°F (520–560°C)
Thick (> 1.2mm)	1796–1760°F (980–960°C)	896–968°F (480–520°C)

Flasks quenching:

Leave flasks to cool in the casting chamber for one minute, then set in open air for 20 minutes. Quench in water.

Pickling:

Dip in a 10% solution of sulfuric or phosphoric acid for five minutes at 104°F/40°C.

Recommended age-hardening treatment:

Hold at 572°F/300°C for 2 hours (120 mins.) for 20–30HV.

Instructions for Mechanical Working

Pouring temperature: 1796–1868°F/980-1020°C

Recommended thickness reduction: 70.0%

Annealing treatment:

Sheet thickness	Temp.	Minutes
5–14mm	1076–1148°F (580-620°C)	30
1–5mm	1076–1148°F (580-620°C)	25
0.2–1mm	1076–1148°F (580-620°C)	20

Quenching:

Leave to air cool until 1022°F/550°C, then quench in water.

Recommended age hardening treatment:

Hold at 572°F/300 °C for 2 hours (120 mins.) for 20–30HV.

Notes:

Hardening can be significantly increased by:

- A homogenization treatment in static furnace at 1328°F/720°C for 30 minutes under inert (nitrogen or argon) or slightly reducing atmosphere (5–10% hydrogen, max.), followed immediately by quenching in water.
- Hardening treatment in static furnace at 572°F/300°C for 90 minutes in air. (Rapid quenching in water is not necessary.)

Clean using slightly alkaline detergents (7–9 pH at 104°F/40°C) during ultrasonic cleaning. Never use electrolytic degreasing.

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