

NF505 585‰

NICKEL-FREE ALL-PURPOSE MASTER ALLOY FOR 585-750‰ (14-18 KT) WHITE GOLD

GENERAL INFORMATION

General information

Typology	Master alloy for gold
Color	White, nickel-free
Color shade	Off-white
Production process	All-purpose
Grain refinement level	Medium
Deoxidation level	Medium

Commercial composition (%)

CU	56.2
AG	20.0
PD	13.8
ZN	10.0

Melting Temperatures

Solidus [°C]	850.0
Liquidus [°C]	905.0
Melting range [°C]	55.0

FULL CHARACTERIZATION DATA

Color coordinates

L *	a*	b*	c*	Yellow Index
85.4	5.2	12.5	13.6	29.0

Mechanical characteristics

As cast hardness [HV 0.2]	185.0
Hardness after 70% area red. [HV 0.2]	280.0
Hardness after annealing [HV 0.2]	180.0
Single step age-hardening hardness [HV 0.2]	280.0
Tensile strength (Rm) [Mpa]	683.0
Yield strength (Rp0.2) [MPa]	468.0
Elongation at rupture (A) [%]	29.0

Physical characteristics

Density [g/cm³]	14.0
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Product applications

Stone-in-place casting
 Casting in closed systems
 Casting in open systems
 Casting without stones
 Wire production
 Sheet production

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CASTING PROCESSING PARAMETERS

Pre-melting temperature

Temperature [°C] 1040

POURING TEMPERATURES

	Flask from [°C]	Flask to [°C]	Metal from [°C]	Metal to [°C]
< 0.5 mm	660	720	1020	1050
0.5 - 1.2 mm	580	650	1000	1020
> 1.2 mm	460	600	980	1000

Trees without stones

Let the flask cool down for 10-15 minutes, then quench it in water.

Stone-in-place casting trees

Let the flask cool down for 45-60 minutes, then quench it in water.

Pickling

Dip in RADIAL solution (50 g/l concentration at 60°C) for 5-10 minutes, or in sulphuric acid (10% concentration at 50°C) for 10 minutes.

MECHANICAL WORKING PARAMETERS

Pre-melting temperature

Temperature [°C] 1040

Reductions

Wire - diameter (%)	45
Sheet - area or thickness (%)	70

POURING TEMPERATURES	Countinous from [°C]	Countinous to [°C]	Ingot to [°C]	Ingot from [°C]
Temperatures	1005	1085	985	1025

MECHANICAL WORKING ANNEALING	Temp. from [°C]	Temp. to [°C]	Time [min]
< 1 mm	680	720	25
1 - 5 mm	680	720	30
> 5 mm	680	720	35

Mechanical working quenching

Quench directly in 50%/50% water/alcohol solution or in water.

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AGE HARDENING PROCESSING PARAMETERS

SINGLE STEP	Temperature [°C]	Time [min]	Quenching
AGE HARDENING	350.0	90.0	In air or in furnace