

**MASTER ALLOY DIVISION**  
*collection*

**18 Kt Yellow**

Code	Main formulation						Process	Main features	Color shade	Hardness AC/AH (Vickers)
	Ag%	Zn%	Ni%	Pd%	Deox	G.R.				
<b>A182N</b>	64	0	0	0	Min	Med	All-purpose	Compliant to 2N yellow color std in 18 Kt gold Best suitable for casting in closed systems	Light yellow, 2N	18 Kt: 130 / 180 HV
<b>A183N</b>	50	0	0	0	Min	Med	All-purpose	<b>BEST SELLER!</b> Compliant to 3N yellow color std in 18 Kt gold Best suitable for casting in closed systems	Rich yellow, 3N	18 Kt: 140 / 250 HV
<b>C182N1</b>	49	8	0	0	Med	Med	Casting	Suitable for stone-in-place casting in open and closed systems High flowability	Light yellow	18 Kt: 150 / 250 HV
<b>B182N</b>	58	4	0	0	Min	High	Mechanical working	Hollow ware production Best option on all complex processes	Light yellow, 2N	18 Kt: 130 / 180 HV
<b>B183N</b>	47	2	0	0	Min	High	Mechanical working	Hollow ware production Best option on all complex processes	Rich yellow, 3N	18 Kt: 130 / 250 HV
<b>Y142W</b>	35	10	0	0	Min	Med	Mechanical working	<b>BEST SELLER!</b> Very low silver content Good for general processing Best suitable for sheet and wire	Rich yellow	18 Kt: 175 / 255 HV

**9-14 Kt Yellow**

<b>C141US</b>	16	15	0	0	Med	Med	Casting, stone in place	<b>BEST SELLER!</b> Ultracast alloy More compact than OG160A (version for open syst.) Best for stone-in-place casting in closed systems	Light yellow hue	9 Kt: 110/160 HV 14 Kt: 110/150 HV
<b>C142GR</b>	12.5	17	0	0	Med	Med	Casting, stone in place	More compact than OG130A (version for open syst.) Best suitable for stone-in-place casting in closed systems	Rich yellow hue	9 Kt: 110/150 HV 14 Kt: 110/150 HV
<b>OG130A</b>	12	17	0	0	High	Med	Casting	Casting in open systems High reusability thanks to high deoxidizer		9 Kt: 100/110 HV 14 Kt: 120/130 HV
<b>SCA5</b>	18	18	0	0	High	Min	Casting	Very shiny color thanks to high silver content Very forgiving, suitable on all systems	Light yellow hue	9 Kt: 110/170 HV 14 Kt: 130/170 HV
<b>Y143T</b>	21	14	0	0	Min	High	Working	<b>BEST SELLER!</b> Age hardenable, best suitable on complex processes like hollow ware production	Light yellow hue	9 Kt: 150/175 HV 14 Kt: 135/180 HV

**18 Kt Red**

<b>OR133</b>	18	2	0	0	Min	High	All-purpose	Compliant to 5N yellow color std in 18 Kt gold Best suitable for casting in closed systems	Pink	18 Kt: 180 / 325 HV
<b>OR134</b>	6	2	0	0	Min	High	All-purpose	<b>BEST SELLER!</b> Unique deep red color! Minimizing brittleness issues in 18 Kt red gold Best suitable for casting in closed systems	Red	18 Kt: 190 / 330 HV

**9-14 Kt Red**

<b>OR134</b>	6	2	0	0	Min	High	All-purpose	<b>BEST SELLER!</b> Suitable in all titles, very flexible on different processes Best suitable for casting in closed systems	Red	9 Kt: 140/170 HV 14 Kt: 130/150 HV
<b>C145N</b>	16	2	0	0	High	High	Casting, stone in place	Standard Russian red color in title 14 Kt High flowability and good reusability Suitable for casting in closed and open systems	Russian red 585 Pink 375	9 Kt: 140/160 HV 14 Kt: 160/180 HV



**18 Kt White**

Code	Main formulation						Process	Main features	Color shade	Hardness AC/AH (Vickers)
	Ag%	Zn%	Ni%	Pd%	Deox	G.R.				
<b>WG142C</b>	0	20	26	0	Med	Low	Casting, stone in place	BEST SELLER for casting! High whiteness Suitable for casting in closed systems	Standard white 750 Premium white 585	18 Kt: 210/280 HV 14 Kt: 170/200 HV
<b>NF508</b>	62	0	0	31	Min	Med	All-purpose	NICKEL-FREE FORMULATION All-purpose alloy for 14-18 Kt white gold	Off-white 750 Standard white 585	18 Kt: 100/100 HV 14 Kt: 130/130 HV
<b>OB304R</b>	0	13	21	0	Min	Med	Working	BEST SELLER for mechanical working! General mechanical working in 18k	Off-white 750 Standard white 585	18 Kt: 180/230 HV 14 Kt: 145/175 HV
<b>WA1481T</b>	0	13	17	0	Med	High	Working	Extremely workable and compact Best option on all complex deformation processes in all titles	Off-white 750 Off-white 585 Standard white 375	18 Kt: 170/270 HV 14 Kt: 135/150 HV 9 Kt: 115/120 HV

**9-14 Kt White**

<b>NPF301</b>	82	8	0	0	Min	Med	All-purpose	NICKEL-FREE, PALLADIUM-FREE FORMULATION All-purpose alloy for 9 Kt white gold	Premium white 375 Off-white 585	14 Kt: 90/90 HV 9 Kt: 135/190 HV
<b>OB307W1</b>	3	20	20	0	High	Med	Casting, stone-in-place	BEST SELLER! Casting in open and closed systems High reusability	Standard white 585 Premium white 375	14 Kt: 145/180 HV 9 Kt: 125/160 HV
<b>WB140C</b>	15	18	18	0	Med	Low	Casting, stone-in-place	High fluidity, low melting point thanks to high silver Perfect for casting natural diamonds	Standard white 585 Premium white 375	14 Kt: 165/245 HV 9 Kt: 155/210 HV

**Silver**

	Main formulation				Process	Features	Hardness AC/AH (Vickers)
	Ag%	Zn%	Deox	G.R.			
<b>AG108MA</b>	92,5	2	Very high	High	Ready-to-use, De-ox grain	BEST SELLER for De-ox alloy Excellent surface quality Great re-usability and ideal for stone in place Suitable for open and closed casting systems	925: 60/115 HV
<b>S925PTA</b>	93,5	0,5	Min	High	Ready-to-use, All purpose	BEST SELLER! 935 technical title Casting in closed systems and complex deformation processes	935: 60/145 HV
<b>AG925ST</b>	92,5	0	Min	Min	Ready-to-use, All purpose	Classic Sterling formulation with Legor Group quality guarantee	925: 55/145 HV

**Brass and Bronze**

	Main formulation					Process	Features	Color	Hardness AC/AH (Vickers)
	Sn%	Zn%	Ni%	Deox	G.R.				
<b>OTTGR</b>	0	13	0	Max	Med	Casting brass, stone in place	High as-cast hardness Low processing temperatures Excellent on stone-in-place casting in open and closed systems	Light yellow	130/150 HV
<b>OTT77/23M</b>	0	23	0	Med	Low	Casting brass	BEST SELLER! Great color and good anti-oxidant effect Casting in closed and open systems	Light yellow	70/70 HV
<b>BR5</b>	5	0	0	Min	Min	All-purpose bronze	Great red color Casting in closed systems	Pink	80/80 HV
<b>BR10S</b>	10	0	0	Low	Low	Casting bronze	Good fluidity and reusability Good hardness Casting in closed and open systems	Pink yellow	110/120 HV
<b>ALPCAST</b>	0	36	9	Med	Low	Casting alpaca, stone in place	Low processing temperatures Nickel based Not compliant to UNI EN 1811:2015!	Off-white	115/120 HV

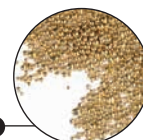
## A183N

### ALL-PURPOSE MASTER ALLOY FOR 18 KT YELLOW GOLD

Designed for lost-wax casting in closed systems. This alloy can also be used for mechanical working processes in general. The **color** of 18 Kt gold made by using A183N **complies with the 3N yellow color definition** according to the UNI EN 28654 standard. The **hardness** of 18 Kt gold alloyed with A183N can be increased by means of a heat treatment. The **absence of zinc** guarantees zero metal loss from evaporation during processing. It makes it also successfully used in fire-enamelling processes.

A183N has a **minimum level of deoxidizers**; this makes it suitable for casting in closed systems. While liquid, the metal is perfectly clean and leaves no residues in the crucible after pouring. It offers excellent fluidity in casting; it has extremely high shininess and lustrous color after finishing.

- Ultracast alloy
- Compliant to 3N yellow color standard in 750‰ gold
- All-purpose formulation
- Zero loss from evaporation
- Suitable for fire enameling

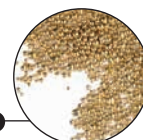


## C142GR

### MASTER ALLOY FOR CASTING OF 9-14 KT YELLOW GOLD

Designed for lost-wax casting in closed systems, C142GR is particularly suitable for stone-in-place casting in closed systems. The **color** of 14 Kt gold made by using C142GR shows a rich yellow hue. In title 9 Kt the alloy has a light yellow hue. The alloy is not suitable for age-hardening. It has a medium level of deoxidizers; this makes it suitable for casting in closed systems. During melting it is clean from dirt and leaves minimum residue in the crucible. C142GR offers **excellent fluidity in casting**; the as-cast tree is clean from oxide scales; it has extremely high shininess and lustrous color after finishing.

- Ultracast alloy
- Suitable for stone-in-place casting
- High flowability
- Minimum residue in the crucible after casting

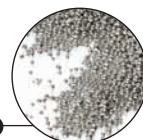


## OB304R

### MECHANICAL WORKING OF 9-14-18 KT WHITE GOLD

Suitable for continuous casting and for ingot casting of semi-finished items such as sheet, wire. The main processes of 18 Kt gold made using OB304R are TIG tube, cladding, CNC and lathe production. In 9-14 Kt the main processes are stamping, hollow tube, cladding, TIG tube and massive chain production. The color of 18 Kt gold made using OB304R shows an off-white color grade (Yellow index: 25.3). In 14 Kt the alloy has a standard white color grade (Yellow index: 21.1). In title 9 Kt the alloy has a premium white color grade (Yellow index: 17.2). In 18 Kt it is mandatory to proceed with rhodium plating deposition on surface in order to ensure maximum whiteness on the final jewel. This operation is recommended also in 14 Kt. This operation is not necessary in 9 Kt. The hardness of 18 Kt gold alloyed with OB304R can be moderately increased by means of a heat treatment. Not suitable for age-hardening in lower titles.

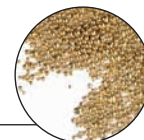
- Mechanical working on massive and hollow processes
- Excellent in sheet production
- High quality/price ratio





## NPF301

### NI-PD FREE ALL-PURPOSE MASTER ALLOY FOR 9-14 KT WHITE GOLD



NPF301 is a **Proderma nickel-free palladium-free master alloy**, designed as an all-purpose formulation. It is suitable for continuous casting and for ingot casting of semi-finished items such as sheet, wire, tube. The alloy can also be used for lost-wax casting in closed systems. The color of 9 Kt gold made using NPF301 shows a **premium white color grade** (Yellow index: 17.4). In 9 Kt title it is not necessary to proceed with rhodium plating deposition on surface in order to ensure maximum whiteness on the final jewel.

Although compatible with 14 Kt production from the processing point of view, the color of NPF301 in 14 Kt gold has a greenish tinge that makes rhodium plating depositions mandatory in 14 Kt title.

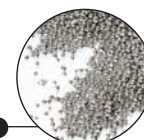
The hardness of 9 and 10 Kt gold alloyed with NPF301 can be increased by means of a heat treatment. NPF301 has a minimum level of deoxidizers; this makes it suitable for casting in closed systems.

- Proderma nickel-free, palladium-free formulation
- Premium white gold color in title 375‰ and 417‰
- Age-hardenable alloy in title 375‰ and 417‰
- All-purpose alloy (general mechanical working and casting in closed systems)



## AG108MA

### READY-TO-USE 925‰ SILVER ALLOY FOR CASTING IN DROPS



Designed for lost-wax casting in closed and open systems. It is particularly suitable for stone-in-place casting. AG108MA is the 925‰ alloyed version of the AG108M master alloy. AG108MA granules are carefully prepared by using high purity silver (99.99%) through a special deoxidizing process, maximizing the alloy quality. The hardness can be increased by means of a heat treatment (technical chart for information on the correct age-hardening procedure is available online).

AG108MA has the **highest level of deoxidizers among the Ag-Q line alloys**; this makes it suitable for casting in open systems, although the alloy can be used with success also in closed systems. It offers **excellent fluidity in casting**; the as-cast tree is clean from oxide scales; it has extremely high shininess, lustrous color and compact surface after finishing.

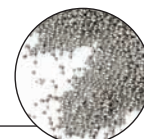
AG108MA has a **very good resistance against tarnishing** from sulphur compounds.

- Excellent surface quality and fluidity even in open casting systems
- Excellent whiteness
- Good resistance to tarnishing



## S925PTA

### ALL-PURPOSE READY-TO-USE 935‰ SILVER ALLOY IN DROPS



Designed as an all-purpose formulation. S925PTA is the 935‰ alloyed version of the S925PT master alloy. S925PTA granules are carefully prepared by using high purity silver (99.99%) through a special deoxidizing process, maximizing the alloy quality. It is suitable for continuous casting and for ingot casting of semi-finished items such as sheet and wire. It can also be used for lost-wax casting in closed systems.

The main processes in which S925PTA can be used are **massive and hollow chain production**, stamping and TIG tube production. S925PTA has the **highest level of grain refining among the Ag-Q line alloys**; this makes it suitable for all those complex processes where machining of hollow tube or hollowing are required.

The hardness can be increased by means of a heat treatment (technical chart for information on the correct age-hardening procedure is available online).

- Zero risk of hot cracks and minimum crucible residues in casting
- Mechanical working on massive and hollow processes
- High level of grain refiners





## **TECHNICAL SUPPORT**

Using the correct processing conditions is vital to obtaining jewels that are resistant to nickel release. Legor Group technical team is at your service for full process consultancies.

## **RELIABILITY**

Legor Group is the only company that has made in its laboratory 4000 nickel release tests on white gold samples delivered from the Market. **The number and the results of nickel release tests demonstrate our statement: with NI1811 and NI1811-RH alloys the percentage of conformity to UNI EN 1811:2015 is of 99,9%.**

# NI1811 HOLD YOUR GUARD UP!

## FOCUS ON: REVISION OF UNI EN 1811:2015 STANDARD AND LOW NICKEL RELEASE LINE OF ALLOYS NI1811 AND NI1811-RH

Starting from January 1<sup>st</sup>, 2016 In the 27 European Union member States, EN 1811:2015 standard is effective. The EN1811:2015 standard is used to determine the nickel release from a jewel after direct and prolonged contact with the skin of the user. This is because nickel has been recognized (REACH regulation 1907/2006) as harmful to human health. Nickel can cause allergies, skin rashes and dermatitis. In Europe the production and commercialization of jewelry that does not respect EN 1811:2015 standard (Ni release > 0,5 µg/cm<sup>2</sup>/week) are prohibited! The standard is very important for the gold manufacturing industry, because more than 30% of gold jewelry today is made using white gold alloys. **It is necessary to reduce the nickel release from jewels: choosing a low nickel release alloy is the most practical and useful choice. In this new revision the “inconclusive” zone of results due to composite measurement uncertainty has been eliminated. Therefore value that are lower than 0,88 µg/cm<sup>2</sup>/week are to be considered as “Compliant”.**

	Nickel release [µg/cm <sup>2</sup> /week.]	Limit [µg/cm <sup>2</sup> /week]	According to UNI EN 1811:2011	According to UNI EN 1811:2015
Items in direct and prolonged contact with skin	≤ 0,28	0,5	Compliant	Compliant
	0,28 ÷ 0,88	0,5	Inconclusive	Compliant
	≥ 0,88	0,5	Not compliant	Not compliant
Items in contact with pierced parts of the body	≥ 0,11	0,2	Compliant	Compliant
	0,11 ÷ 0,35	0,2	Inconclusive	Compliant
	≥ 0,35	0,2	Not compliant	Not compliant

**This small raise in the acceptable values should not make you keep your guard low! Traditional nickel-based alloys for the production of white gold jewelry are not safe in regards to the standard.**

Traditional white gold alloys have low repeatability in nickel release tests, due to several factors among which:

- High nickel content
- Low crystalline grain control
- Surface quality problems
- High content of deoxidizers or of polluting elements

### The solution

NI1811 and NI1811-RH, the patented lines of master alloys for the production of white gold useful to minimize the nickel release on skin. Alloys from NI1811 and NI1811-RH lines are perfectly compatible with all the normal gold manufacturing production processes. NI1811 and NI1811-RH lines are the only ones able to give repeatable results in the nickel release tests, and able to give you safety in your production process.

### NI1811: Nickel-based, low release alloys

#### Characteristics

- Rhodium as grain refiner
- Improved microstructure control in comparison with traditional alloys

#### Benefits

- Low nickel release average values
- High stability of nickel release values
- Excellent on standardizable and controllable processes
- Best ratio price/benefit/release

#### Products

- NI1811-01, All-purpose master alloy for white gold at title 750‰
- NI1811-03, Master alloy for casting with stones of white gold at title 750‰
- NI1811-04, Master alloy for mechanical working of white gold at title 750‰
- NI1811-05, Master alloy for mechanical working of white gold at title 585-750‰

### NI1811-RH: Nickel-Rhodium based alloys with minimum release

#### Characteristics

- Rhodium as whitening element in the alloy
- Minimum nickel title

#### Benefits

- Maximum safety: Lower Ni-release values compared with NI1811
- Warranty contract against claims from end users
- Perfect in complex processes that are difficult to standardize
- Far lower prices than Ni-free alloys

#### Innovation: Rhodium as alloy element

- Reduces nickel content
- Improves corrosion resistance
- Better whitening effect than palladium
- Excellent grain refiner
- Perfectly compatible with existing gold jewelry manufacturing processes

#### Products

- NI1811-RHB, All-purpose master alloy for white gold at title 750‰
- NI1811-RHC, All-purpose master alloy for white gold at title 585-750‰





**New Mexico**  
10590 2nd Street N.W. Suite C Albuquerque NM 87114  
**New York**  
31-00 47th Ave. 2nd Floor Long Island City NY 11101  
Tel. +1 844 428 8335 - Fax +1 505 200 0558

info\_usa@legor.com - www.legorgroup.com

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