NA-P

NOBLE PREMIUM ADDITIVES

This additive creates Silver Alloys that possesses superior tarnish resistance of the series at a purity of 92.5%.Setting the most impressive record among tarnish resistant silver alloys in the market. Suitable universally for versatility in manufacturing of various purity of silver in 80-97% Containing 1% Palladium for superior casting properties and improved appearance; brighter and whiter.

Product Code	NA-P	NS-P
Product Name	NOBLE PREMIUM ADDITIVES	Noble SIlver 925 Premium Alloys
PHYSICAL PROPERTIES		
Density, g/cm³	9.7	10.4
Grain Size, µm	160	180
OPTICAL PROPERTIES		
Colour		
L*		98.41
a*		0.08
b*		8.92
THERMAL PROPERTIES		
Liquidus, °C		890
Coefficient of Thermal Expansion 10-6 / °C		
MECHANICAL PROPERTIES		
Ultimate tensile strength, Mpa		220
Elongation, %		44
Hardness, as cast, HV		100
Hardness, annealed, HV		50
Hardness, age- hardened, HV		120
Hardness, after reduction (70%		154
Electrical Resistivity Ω-m		
CHEMICAL PROPERTIES		
PROCESSING & TECHNICAL PROCEDURES		
General Technical Understanding	Noble Silver Premium Additives is suitable for various caratage of silver alloys. It contains special ingredients that are tarnish resistant and fire scale resistant. Manufacturing Silver with this silver additive is similar to conventional casting, rolling, wire-drawing and post processing treatments.	
Mixing Temperature, °C	1040	990
Instructions/ Directions for Use	1) Add this Noble Silver Master Alloys NS925-MA in pellet form for making Noble Silver of purity 80-97%. To manufacture silver alloys of 92.5% purity, use 92.5 weight % of fine silver & 7.5 weight % of Noble Silver Master Alloys NS-925 MA. To provide for an extra allowance for better purity. Example: 1000 grams of 2) Place the Noble Silver NS925-MA master alloys into the crucible first and top up the crucible with 99.9% Fine Silver. 3) sprinkle borax flux or silver soldering flux on top of the pre-mix 4) Melt this mixture, preferably in a vacuum system and ensure that the mixing temperature is not more than 1040 °C 5) Stir this molten mixture with a carbon rod before pouring. 6) Noble Silver will scavenge for any impurities. Remove any residues.	

Unique Characteristics	Superior Tarnish Resistance. Brightest & Whitest Colour Universal & Versatility for various purity Fire Scale Resistance Superior Castability
Purpose	Additives for manufacturing Silver alloys of 80-97% into sheet metals and cast metals and wire drawing
Category	Premium
Supply Forms	Pellets
Manufacturability	Casting/Sheet Production/ WIre-Drawing
Patent	PCT/SG2010/000435 Patent Pending
Content, Wt%	Copper (5-10), Zinc(50-90), Palladium(0-1), Proprietary
ROHS compliance	Yes
Substance Free	Nickel
Industry Standards/ Testing	Tarnish Resistance SN EN ISO 4538:1978 Thioacetamide corrosion test *48 Hours of exposure exhibit best resistance properties among commercially available silver alloys* Fire scale resistance SN: EN ISO 1463: 2003 "Measurements of coating thickness-microscopically method, to determine the minimum depths and maximum attacks by oxidation. *Exhibited the least loss in weight difference among commercially available silver alloys*

	7) To ensure homogeneity in alloys after casting, always quench quickly. 8) This mixing process will form the final product of Noble Silver 925 Alloys	
Recycling/ Remelting	For recycling of the silver, add 25% fresh mixture of Noble Silver 925 Alloys	
Casting		
Systems Type		Any, preferably Vacuum
Casting Temperature °C		960-1020
Investment/Lost Wax Casting Temperature, °C		960-1020
Flask/Cylinders Preparation Temperature °C		500
POST PROCESSING PROPERTIES		
Investment Removal Instructions		soak in hot water
Pickling		Most standard investment removers will successfully remove the investment powder. The best solutions are the sulfuric and hydrofluoric based products. It is better not to use acid solutions, which do not contain sulfur. You can use citric acid at 10%-15% At 60°C changing the solution frequently.
Quenching		
Age Hardening		Age -hardening at 300 °C for 20 mins
WORKING PROPERTIES *Sheet Rolling*		
Pouring Temperature		1000
Maximum Reduction,%		30-40
Wire-Drawing		
Pouring Temperature		1000
Maximum Reduction,%		30-40
Soldering		As per normal methods
Flux		As per normal methods
Weldability		As per normal methods
Finishing Properties		
Tumbling		As per normal methods
Polishing		As per normal methods
Plating		As per normal methods