United
PRECIOUS METAL REFINING, INC.

Sterling Silver 97NA

Purpose - All purpose
Advantages - Heat treatable, fabricable, good tarnish resistance

Physical & Mechanical Properties

Composition	
Ag	92.50%
Cu	4.50%
Zn	3.00%

Density (g/cc)
10.25

Hardness (HV)	
As cast	90
1 stage hardened	91
2 stage hardened	100

Melting & Casting Instructions

Temperatures		
Pre alloying	1010° - 1040° C	1850° - 1904° F
Casting	960° - 990° C	1760° - 1814° F
Flask	540° - 650° C	1004° - 1202° F

Process parameters	
Quench Time	20-25 minutes
Remelting	50% fresh mix

Heat treatment Instructions

(1) 1 Stage Hardening process for medium to high hardness:
Heat the sample at 450° C for 1 hour and air cool.
(2) 2 Stage Hardening process for super high hardness:
Stage 1 - Anneal the sample at 700° C for 15 - 25 minutes (depending on the size) & quench in water.
Stage 2 - Heat the sample at 450° C for 1 hour and air cool

Note: Cover the object with slurry of Borax / Boric acid paste to protect the surface from discoloration.

General Instructions

- **Fluxing:** It may be necessary to flux these silver melts. We recommend Boric Acid. Do not use Carbon Containing Fluxes or Charcoal. Skim any surface oxides off the surface before stirring.
- **Investment removal:** *Flouric based* investment removers are the best for silicon oxide invisible coating. Use of aggressive acid causes corrosion and surface damage. *United's brite cast* works very effectively.
- To calculate the weight of the metal needed (in grams), *multiply density (gm/cc) with weight of wax (grams)* . Add 10% of the total weight for button.

Note: There are proprietary metals in the formulation which are not included in the composition section.

Technical Assistance: Always available... Call: **1-800-999-3463** / **1-800-999-FINE**
E-mail: **techteam@unitedpmr.com** Web-Site: **www.unitedpmr.com**