

TECHNICAL DATA SHEET
NU ALLOY® DP
DPFTPT-014

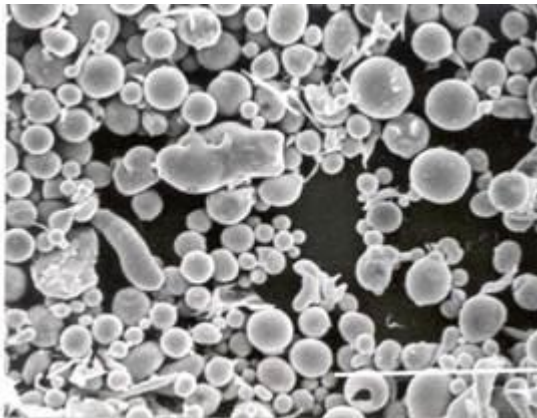
1. GENERALITIES OF THE PRODUCT

Nu Alloy® dp is a mixed particle and high-copper content dental alloy, manufactured with specialized equipments in the field of dental metallurgy. Its fine particles ensure a complete reaction with mercury that result in a dental alloy with excellent properties. The absence of zinc avoids the secondary or tardy expansion problems which are associated with humidity during dental restoration.

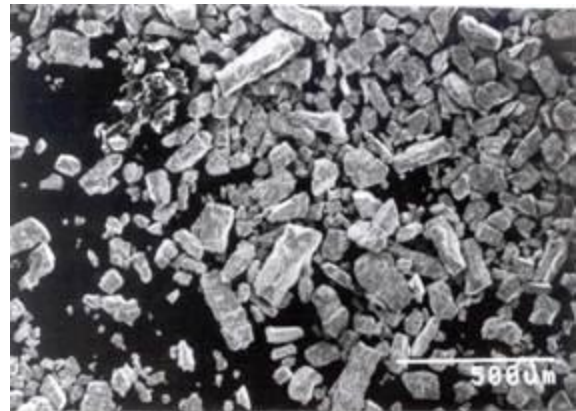
Nu Alloy® dp is a single composition alloy with homogeneity of its particles. Thanks to its optimal chemical composition (45%Ag, 31%Sn and 24%Cu) and its high copper content, the gamma-2 phase is eliminated from the alloy microstructure. As a result of this, fragility and instability problems in corrosive environments decrease.

Its morphology is composed of atomized and lathe-cut particles which results in a fast amalgamation with its optimal mercury content (49.6 - 50%, mercury-to-alloy ratio 1/0.98 – 1/1) and improves the alloy's physical and mechanical properties.

Atomized Particles



Lathe-Cut Particles



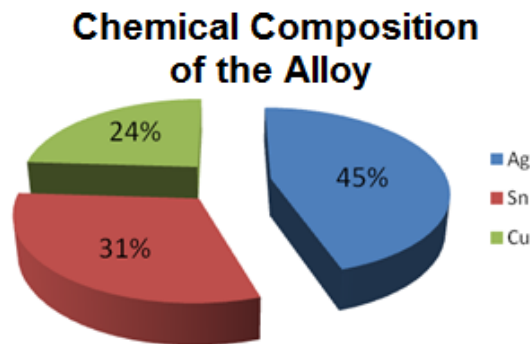
The work time is sufficiently comfortable: 6 to 8 minutes, this allows the use of conventional instruments. The excellent physical properties of *Nu Alloy® dp* ensure a high resistance to marginal fractures, excellent adaptation and marginal sealing, very low corrosion index, and a fine surface finish with a lasting shine.

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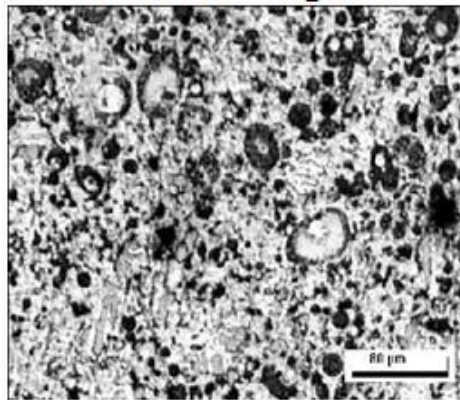
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2. INFORMATION ABOUT COMPOSITION

Its optimal composition avoids the gamma-2 phase from the alloy microstructure, while high mechanical properties are guaranteed.



Metallographic Structure of the Amalgam



Metallography in the above photograph shows the typical microstructure of dental alloys. As it is clearly seen, a matrix (white zones) of gamma-1 phase (Ag_2Hg_3) - which is the most resistant second phase - surrounds the non-consumed alloy particles (round zones). For their part, these particles are surrounded in their surface by the alloying product with mercury, which is phase η (Cu_6Sn_5). The gamma-2 phase ($Sn_{7-8}Hg$) has been eliminated.

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3. PROPERTIES OF THE PRODUCT

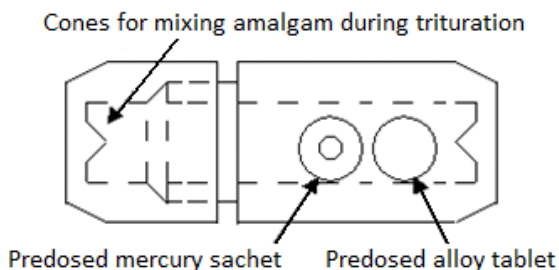
According to international standards, the physical properties of this alloy are measured in the Quality Control Laboratory with specialized gauged equipments. The most relevant physical properties of Nu Alloy® dp are shown in the following chart.

| Physical Property | Requirements by ISO 24234 | Values of the Product |
|------------------------------|---------------------------|-----------------------|
| Creep | 2% maximum | < 0.3% |
| Dimensional change | -0.10% to +0.15% | < +0.15% |
| Compressive strength at 1 h | 100 MPa minimum | > 120 MPa |
| Compressive strength at 24 h | 350 MPa minimum | > 400 MPa |

4. USES AND APPLICATIONS

Dental amalgam prepared with *Nu Alloy* is commonly used as a filling material for restoring the morphology and function of posterior teeth (molars and premolars), mainly in class I-and-II cavities. To do so, the self-activating capsules system can be used because it offers the following advantages:

- Capsules are made of high-density plastic.
- Mercury is hermetically sealed in order to avoid its contamination, oxidation, and escaping of its vapors.
- Each capsule has flat sides and striated surface to allow easy manipulation.
- The use of pistil is not needed.
- The hermetic sealing avoids loss of material during the amalgamation process.



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5. QUALITY ASSURANCE OF THE PRODUCT

Nu Alloy® dp dental alloy is made of the high-quality raw materials through a completely standardized process which conforms to ISO Standard 9001 and ISO 13485. Moreover, with the use of specialized equipment in its Quality Control Laboratory, *New Stetic* continually verifies the fulfilling of quality requisites for the finished product, according to ISO Standard 24234.



Press for the manufacture of test specimens.



Equipment for creep test.



Universal Machine for compression strength test.

6. INSTRUCTIONS FOR USE

A. Trituration:

| Trituration speed | Time (s) |
|-------------------|---------------|
| Low | Not advisable |
| Middle | 14 - 16 |
| High | 12 - 14 |

When using reusable capsules for trituration, and if the use of a pistil is necessary, a small pistil should be used for avoiding the overheating of amalgam, because this affect the working time of the amalgam. However, with high speed amalgamators (> 4000 rpm), the use of pistil is not required.

B. Condensation:

Condensation must be carried out as soon as possible after trituration. Use small quantities of product condensing with each increase until completion of obturation. Apply enough pressure

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to guarantee the correct adaptation of the material and avoid porosity in the restoration. It is normal that some mercury flows toward the surface due to the condensation pressure. Remove carefully the mercury excess when it comes up to the surface. Ultrasonic condensation must be avoided. Do not squeeze the amalgam before condensation, it is not necessary.

C. Carving and Burnish:

The carving process can be started immediately the condensation has finished. The subsequent burnish allows the adaptation of marginal borders and the finishing of the surface previous to the final polishing.

D. Polishing:

Polishing improves the surface qualities of amalgam and protects it from corrosion at the moment of eliminate the mercury excesses, and avoid the adhesions of plaque when a smooth surface is obtained. It always must be done.

7. COMMERCIAL PRESENTATIONS OF THE PRODUCT

Presentations without mercury:

- Powder: Bottle x 30 g.
- Tablets: Box x 1 oz (80 one-spill tablets).

Pre-dosed disposable capsules:

- Bottle x 50, 100, 200, and 500 units of 1, 2, and 3 spills.

| Spill | Capsule color | Alloy (g) | Mercury (g) |
|-------|---------------|-----------|-------------|
| 1 | Blue | 0.395 | 0.388 |
| 2 | Beige | 0.531 | 0.522 |
| 3 | Maroon | 0.790 | 0.776 |

Kits:

- Duo: Box x 80 tablets of 1 spill + 80 mercury sachets + 1 reusable capsule.
- Trio: Box x 240 tablets of 1 spill + 240 mercury sachets + 4 reusable capsules.

8. EXPIRATION DATE

Ten (10) years after product has been manufactured.

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9. STORAGE AND PRESERVATION CONDITIONS

This product must be kept in its original packing in order to protect it from possible contamination. It must be placed in a dry, cool, and clean area, away from both heat sources and direct sunlight.

For boxes-per-80-tablets and kit presentations, avoid excessive manipulation of product or its continuous agitation because it can cause loss of the alloy power from tablets, and consequently the mercury-to-alloy ratio is altered. Equally, avoid taking out all tablets at the same time because this will produce the same negative effect.

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