

**SAFETY DATA SHEET**

**PRODUCTS RELATED TO THIS MSDS**

| <b>PRODUCT</b>                  | <b>MATERIAL</b>               |
|---------------------------------|-------------------------------|
| BRACKETS METAL                  | SS 17-4 PH                    |
| TUBES BONDABLE                  | SS 17-4 PH + 316L (MESH BASE) |
| TUBES WELDABLE                  | SS 17-4 PH                    |
| BUTTONS BONDABLE                | SS 17-4 PH + 316L (MESH BASE) |
| BUTTONS WELDABLE                | SS 17-4 PH                    |
| BT2                             | SS 17-4 PH + 316L (MESH BASE) |
| TS2                             | SS 17-4 PH + 316L (MESH BASE) |
| LINGUAL CLEAT BONDABLE/WELDABLE | SS 316 L                      |
| CRIMPABLE HOOK                  | SS 316 L                      |
| CRIMPABLE STOP                  | SS 316 L                      |
| LINGUAL SHEATHS                 | SS 316 L                      |

**IDENTIFICATION OF THE MATERIAL**

Raw materials used are basically stainless steel alloy (Aisi 300/600 - 316L, 17 - 4Ph).

**CHEMICAL COMPOSITION**

1. Up to 0.07% C
2. Up to 18% Cr
3. Up to 14% Ni (316L only)
4. Up to 5% Ni (17-4PH only)
5. Up to 2% Mn
6. Up to 3% Mo (316L only)
7. Up to 1% Si (depending from carbon's level contained)
8. Up to 0.45%Nb (17-4 Ph only)
9. Up to 5% Cu
10. Balance Fe

**PHYSICAL - CHEMICAL PROPERTIES AND FLAMMABILITY**

|                         |           |               |                |
|-------------------------|-----------|---------------|----------------|
| Appearance              | Solid     | Colour        | Silver-grey    |
| Odour                   | Odourless | Safety Data   | None           |
| Ph-value                | None      |               |                |
| <i>Change of status</i> |           |               |                |
| Bowling point           | n.a.      | Melting point | 1400 – 1550 °C |
| Combustion rate         | n.a.      | Flammability  | n.a.           |
| Ignition temperature    | n.a.      | Auto-ignition | n.a.           |

**ORTHODONTIC MANUFACTURER SIA SRL**

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|   |           |                 |                             |
|---|-----------|-----------------|-----------------------------|
|   |           | temperature     |                             |
| Comburent capability                      | n.a.      | Explosion limit | n.a.                        |
| Vapour pressure                           | n.a.      | Density at 20°  | 7,7 – 8.1 g/cm <sup>3</sup> |
| <i>Solubility and scattering features</i> |           |                 |                             |
| Soluble in water                          | Insoluble | Soluble in fat  | Insoluble                   |
| Scattering coefficient                    | None      |                 |                             |

**REACTIVITY**

**Stability and reactivity:** stable and not reactive

⇒

**HAZARDS IDENTIFICATION**

**Information on toxicity:** no toxic effects caused by the material in massive form or during the usual orthodontic process have been noticed.

**Possibile hazards during the working process:**

⇒ **Effects of overexposure:** inhalation is very serious. A prolonged excessive exposition to dust, mist and fumes of this alloy may contribute to chronic respiratory ailments.

⇒ **Possibile cancer hazard:** Nickel is treated as a potential agent, being included in the NTP and IARC lists. Some scientific studies have found an excessive incidence of cancer of the respiratory tract among workers involved in certain steps of nickel refining processes. However, several studies on workers exposed to various forms of nickel and its compounds have not shown any increased risk of cancer.

⇒ **Primari routes of entry:** inhalation of dust and fumes.

According to the Directive 67/548/EEC all products with a minimum Nickel content of 1% are classified in the same way as suspect carcinogen (category 3) and irritating for skin. Products which these sheets refer to, have form of massive metal alloy, therefore nickel cannot develop as possible hazardous material. No toxic effects caused by the material in massive form or during the normal orthodontic practices have been noticed. A prolonged and frequent contact may cause skin irritation and other allergic reactions in subjects sensitive to nickel.