Instructions for Non-Precious Alloy for Ceramic - bdm alloy 850

Physical Characteristics

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<table>
<thead>
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<tbody>
<tr>
<td>Density</td>
<td>8.3</td>
</tr>
<tr>
<td>Melting Point</td>
<td>1320-1'420 °C</td>
</tr>
<tr>
<td>E-Module</td>
<td>190.000</td>
</tr>
<tr>
<td>Coefficient of Expansion (20-600 °C)</td>
<td>14.1 µm/k</td>
</tr>
<tr>
<td>Vickers Hardness</td>
<td>275 HV 10</td>
</tr>
<tr>
<td>Elongation</td>
<td>10 %</td>
</tr>
</tbody>
</table>

Chemical Composition

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Cobalt</td>
<td>61 %</td>
</tr>
<tr>
<td>Chromium</td>
<td>28 %</td>
</tr>
<tr>
<td>Silicium</td>
<td>1.65 %</td>
</tr>
<tr>
<td>Tungsten</td>
<td>8.5 %</td>
</tr>
<tr>
<td>Mangan</td>
<td>0.25 %</td>
</tr>
<tr>
<td>Carbon</td>
<td>&lt;0.1 %</td>
</tr>
<tr>
<td>Iron</td>
<td>&lt;0.5 %</td>
</tr>
</tbody>
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Intended use

bdm alloy 850 is a cobalt/chromium alloy, free of nickel and beryllium for the production of crowns and bridges.

An especially suited developer of bonding oxidizes the bond between the metal and the porcelain. Equivalent to EN ISO 22674.

bdm alloy 850 is suited for torch melting procedures as well as for high-frequency (induction) casting.

General Review

This instruction includes important processing steps and recommendations for bdm alloy 850.

bdm swiss gmbh is certified according to EN ISO 13485:2012 / ISO 9001:2008 and with appendix V of 93/42/EEC.

Wax-Up

Wall thickness of the copings should not be less than 0.4 mm in order to ascertain a regular burnout of the wax. Use the usual spruing techniques, however, spruing an additional depot has proven helpful with all-cast crowns or elements of a bridge.

Investment

bdm alloy 850 is compatible with all investment materials that can be preheated up to 1’050 °C, however, we recommend a phosphate based precision investment material with a total expansion of approximately 3,8% together with a normal liquid or with a special expansion liquid which leads to a maximal expansion of 4,2%.

Burnout and preheating have to be done in accordance to the directions of the manufacturer of the investment materials, and especially their waiting periods observed. Preheating to 900 °C is a proven procedure. Check the true temperature of your furnace from time to time with an external digital thermometer.

Casting

Melt bdm alloy 850 in a ceramic crucible, however. Never use a graphite crucible!

Torch melting:

Use propane/oxygen or acetylene/oxygen. Observe the instructions of the manufacturer of the torch.

A neutrally regulated flame prevents the alloy from improperties. Do not use any fluxes. As soon as the cubes of the alloy collapse, and the melt moves well under the pressure of the flame, you can start the casting procedure. Do not fracture the oxidation skin in order to prevent a loss of components of the alloy.

High frequency:

when the last cube of the alloy has collapsed, and the last „shadow“ has moved over the melt, start with the casting procedure. With the HF-melt, as well as with the torch melt it should be observed that the oxidation skin is not fractured!

After the casting the muffle has to be cooled to room temperature and to be out bedded. Do not use water bath.

Reusage of casting cones is not recommended, as with the melt important agents for bonding the porcelain to the metal are evaporated. By melting the metal several times these agents are reduced and an efficient bond between the porcelain and the metal cannot be guaranteed any longer. The framework is fashioned with the help of tungsten-carbide laboratory burs or with aluminium-oxide stones. The minimal strength of the shaped copings can be of 0.2 – 0.3 mm.

Ceramics

Observe the coefficient of expansion of the used ceramic material. When lower than 13, 8 the dentine has to be fused with a long-term period for cooling off.

Fusing the Ceramic

Atmospheric oxidation during 10 minutes at 980 °C, then blast the framework with aluminium oxide of 110 micron, and clean it as usual, with distilled water, ultrasonic or a steam gun. Never pickle a non precious alloy. Wash and opaque are fused in accordance to the instructions of the manufacturer of these materials. The fusion of wash and opaque are cooled off short term. All cooling off procedures of fusions concerning the dentine have to be on a long term basis, if the coefficient of expansion is lower than < 13,8.

Soldering

For bdm alloy 850 regular solders, as obtained in the trade, especially on a Co-Cr-Mo-basis, can be used.

Never use a gold or palladium solder for bdm alloy 850 components.

Cleaning

bdm alloy 850 is efficiently cleaned in the ultra-sound bath or with a steam gun.

Handling conditions / Safety

Metal dust is harmful to health. Use when grinding and sandblasting dust extraction and respirator.

Contraindications and side effects

If the instructions are observed during the production processes, incompatibilities with CoCr alloys are extremely rare. In case of a proven allergy against an ingredient of this alloy, it should not be used for safety reasons.

Storage conditions

Temperature, humidity or light has no effect on the product properties.

Guarantee

The dental alloy is normally not harmful. Persons with an allergic reaction on one of the alloyed materials may show undesired effects.

All recommendations are based on our experience. Correct usage and processing is within the responsibility of the user. Should, nevertheless, damages be claimed, the value of the goods sold only can be subject of such claims.