

NACERA[®] CLEAN LT

INSTRUCTIONS FOR USE

SCOPE OF APPLICATION

Nacera[®] Clean LT serves to clean the sintering furnaces and protect the zirconium oxide from colouring ions.

PROBLEM

During the sintering process of zirconium oxide - in particular ultra- / highly translucent zirconia - it is important to work free from any impurities.

Sintering furnaces are provided with heating elements which mostly consist of molybdenum disilicide. The silicon which is therein contained, forms a protective layer on the surface of the heating elements and prevents oxidation of the molybdenum. Over time, crystals (silicon dioxide, SiO₂ or quartz) are formed in a glass melt which grows to form islands and finally cover the entire surface of the heating element (see fig. 3 + 4).

Another reason for discolourations of zirconium oxide are metal ions which are included in colouring liquids.

These metal ions evaporate during sintering into the furnace atmosphere.

After cooling the furnace, these particles are deposited in the firing chamber and on the sintering tray. During the next sintering process, these ions are mobilised and react with the zirconium oxide to create discolourations or colour deviations on the surface of the restorations (see fig. 1).

SOLUTION

Nacera[®] Clean LT Clean cleaning powder provides a much larger and more reactive surface than the zirconium oxide restorations, on which the impurities (like metal ions) in the furnace atmosphere can settle.

Nacera[®] Clean LT binds the impurities, cleans the furnace and thus offers ideal conditions for clean and constant colouring results after sintering (see fig. 2).



Fig. 1: Result after sintering without **Nacera[®] Clean LT** application



Fig. 2: Result after sintering with **Nacera[®] Clean LT** application

APPLICATION

Please read the operating instructions of your sintering furnace on the topics „cleaning cycle“ and „regeneration of the heating rods“.

BASIC CLEANING

Place a sintering tray filled with **Nacera[®] Clean LT** (approx. 20 g) in the furnace chamber and run the regular sintering program. Depending on condition of heating conductors it is recommended to combine the basic cleaning with the following process „Regeneration firing“ (without sintering objects).

If several sintering trays are used, fill them with **Nacera[®] Clean LT** and place all of them together in the oven for the final cleaning including the lid.

MAINTENANCE / CLEANING

For regular cleaning, “fresh” powder can be positioned right next to the sintered object. Add a coffee spoon of **Nacera[®] Clean LT** cleaning powder (approx. 3-5 g) on the lid that covers the sinter tray.

“REGENERATION FIRING“ FOR HEATING CONDUCTORS

The surfaces of the heating conductors in the sintering furnaces are often covered by a white layer of silicon oxide after long- term use (see fig. 4) Instead, „healthy“ heating conductors are grey and smooth (see fig. 3) and look as if they are covered with a glaze. Often, splintered silicon crystals can be found in the furnace chamber or in the sintering tray. These crystals lead to contamination of the zirconium oxide restorations.

The procedure to remedy this situation is as follows:

1. Vacuum the furnace chamber and clean the sintering trays.
2. Place a sintering tray filled with **Nacera[®] Clean LT** (approx. 20 g) without lid in the furnace chamber.
3. Sintering program: Let the temperature increase to the maximum final temperature that is technically feasible as quick as possible. Hold the maximum temperature for 30 minutes. Let the furnace cool down as usual.

To find the technically feasible heating rate and temperature read the manual or contact the furnace supplier!

Repeat the process if required.

Nacera[®] Clean LT absorbs the particles from the furnace atmosphere, while the silicon crystals on the heat conductors are transferred to the glass phase.

In the case of using old or damaged heating conductors, the molybdenum can oxidize in the heating and trickle on the bottom of the furnace as dark dust. In this case, the damaged heating conductor must be replaced.

DISPOSAL

If the **Nacera[®] Clean LT** powder turns yellowish, it is no longer reactive and can be disposed of via the residual waste.



Fig. 3: Heating element with intact, vitreous protective coating



Fig. 4: Crystals of quartz crystals lead to contamination