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Product Name LiSiFuse connect

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Intended Use

Esthetic long term restorations made of ZrO²

Type identification, classification, marking

according to DIN EN ISO 6872: Dental ceramic type I, Class 1a; Ceramic raw material for manufacturing dental restaurations

Application area

LiSiFuse connect is a ready-to-use and temporarily applied lithium silicate ceramic for conditioning the surfaces of monolithic restorations made of ZrO2. Adhesive fixation of zirconium oxide: LiSiFuse connect is used to produce micro-rough retention surfaces on the ZrO2 surface, so that restorations made from ZrO2 can be directly adhesively cemented. The surfaces do not need to be prepared in any way prior to the application of ZrO2; no bonder, no solvents and no pre-firing is required. The ZrO2 parts must be clean and free of dust and grease, in order to guarantee a uniform layer on the surface. LiSiFuse connect is suitable for all dental ZrO2 materials. LiSiFuse connect is intended exclusively for use in dental laboratories by trained

General instructions

LiSiFuse connect is intended exclusively for use in dental laboratories by trained personnel

- Only use in well ventilated rooms.

 Do not inhale the spray mist.
- Wear a dust protection mask and a suitable workplace suction unit.
- It is not permitted for intraoral use.
 Please observe the safety data sheet.
- The aerosol container is under pressure and must be protected from sunlight and temperatures above 50°C / 122°F.
- Keep away from sources of ignition. No smoking. Do not spray in the direction of open flames or on hot surfaces.
- After use, do not force open or bum,
- Always empty the spray can fully.

Preparing the ZrO2 restoration

In order to achieve optimal surface results, the fully sintered and fitted zirconium oxide restoration must be dry, clean, free from dust and grease. Only a small application of LiSiFuse connect is required for the build-up of conditioning layers. Crown margins, marginal fit and occlusion are barely changed by a single application. We recommend that you apply LiSiFuse connect only after the try-in and any necessary corrections.

Step 1: Before attaching the spray head for the first time, shake the spray can strongly in order to activate the spray composition, so that the ceramic particles mix entirely with the liquid in the spray can. The mixing beads can be heard after just a few seconds, but still shake the spray can for approx.

Now, attach the spray head with the spray nozzle and shake again briefly. The spray is now ready-for-use. Even after short periods of non-use, shake the spray up again using circular movements. This procedure is essential. A good preparation ensures of optimal spray results and prevents failure of nozzles, tubes and the valve system.

Before initial use

Use

We recommend to test the spray on a glass pane first. Make sure you spray with the correct distance of approx. 15–20 cm from the object. With short shots of spray, you will achieve an optimal layer application. Only use the spray head provided. Wet spots or "drips" are an indication that the spray distance was too close. Uneven powder deposits indicate that to much has been sprayed or the can has not been shaken sufficiently and the powder has not been mixed properly.

Spraying techniques +Layer thickness

During use, hold the spray can in a best possible upright position. Unlike applying a lacquer, it is suggested to apply LiSiFuse connect in small short spray shots. This ensures that only small amounts of powder are distributed, at the same time the nozzle system cleans itself during the procedure.

Apply the spray so that the ZrO2 surface still shimmers through the pink powder. The carrier fluid evaporates completely after a few seconds and leaves a thin powder layer that adheres well to the surface and does not run away.

Errors during spraying

Incorrectly sprayed parts can be easily washed off with water or steam cleaned, the same applies if too much material has been sprayed. After drying with compressed air, LiSiFuse connect can be applied once again. If small areas are damaged during the handling of the sprayed dental restorations, these can be easily re-sprayed thinly.

Ceramic firing

Carry out the ceramic firing according to the instructions (table firing parameters). During the ceramic firing, components of the ZrO² and the LiSiFuse connect diffuse close to the surface to form a strong bond when cooled down. For older ceramic furnaces, we have included a simplified firing program with a heating rate, which has proven to be helpful for many customers. Please test the best possible firing program for your furnace.

Instructions of surface conditioning

LiSiFuse connect is used to produce adhesive surfaces and is indicatd for all ceramic restorations made of ZrO². Minimally invasive restorations made of ZrO^{*} such as veneers, inlays/onlays and flat crowns are ideal. For this purpose LiSiFuse connect is applied thinly to the inner crown surfaces or the wing surfaces of a Maryland bridge and fired according to the specifications for diffusion firing. The extremely thin, firmly adhering glass layer will not affect the fit in any way. Generally ZrO2 restaurations coated with LiSiFuse connect are either

1) Etched: the classic attachment protocol for glass ceramics with ceramic etchting gel applies, (e.g. IPS Ceramic Etching Gel. /20 Sek) creates retentive adhesive surfaces on the all-ceramic restoration in preparation for integration. It strengthens the adhesive effect between the luting composite and the ceramic adhesive surface. The manufactrurer's instructions for use must be followed exactly.

2) Alternatively, the glazed attachement surface is completely sandblasted with fine aluminium oxide and only blown off, the glazed preparation edges should remain as intact as possible. Do not steam off the fastening surfaces, if necessary, clean in alcohol.

In the case of adhesive cementation of zirconium oxide restorations coated with LiSiFuse connect we recommend universal one-component bonding agents to create an adhesive bond of cementation composites to glass and oxide ceramics (e.g. Monobond Plus / 60 sec.).

A Composite like Variolink Esthetic is particularly recommended for permanent cementation, as the excess can be removed without any problems even after it has hardened. The color concept enables the almost invisible integration of restorations.

Trouble shooting

The LiSiFuse connect layer is very thin. If small pores are visible in the surface after firing, you might have applied to little amount of powder. Re-spray the restoration, without any additional surface treatment, and fire once again. Please check the firing parameters and /or furnace calibration. After using the spray can, immediately clean the spray nozzle (e.g. by rinsing with hand-warm water and cleaning with compressed air, if necessary, also in an ultrasonic bath). Then, dry the nozzle with compressed oil free air.

Tips for dentists

Cleaning

Zirconium oxide restorations, which have been conditioned for adhesive fixation with LiSiFuse connect, are ready for cementing. This means that therestorations do not need to be etched with hydrofluoric acid. After the try-in, clean the surface with isopropanol and blow dry, then apply the ad-hesive cement directly and proceed according to the manufacturer's specifications. LiSiFuse connect has a wide range of excellent properties and canbe used in a variety of ways depending on the indication.

Firing Cycles

Conditioning firing for adhesive surfaces

Closing time	Standby temperature	Heating rate	Firing temperature	Holding time	Heating rate	Firing temperature	Holding time	long-term cooling	Cooling rate	Vacuum
min.	*c	°C/min.	°C	min.	°C/min.	°C	min.	dep. on frame size	°C/min.	400 °C
1	400	40	820	5	20	900	2-5	yes	2080	max. 30%

Alternative conditioning firing for older furnaces

Closing time	Standby temperature	Heating rate	Firing temperature	Holding time	long-term cooling	Cooling rate	Vacuum
min.	°C	°C/min.	°C	min.	dep. on frame size	°C/min.	=
1	400	40	900	3	ia	20.80	no

Explanation of hazmat and warning signals

















