Data sheet / IFU

Product Name LiSiFuse

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Intended use

Esthetic restaurations made of ZrO^2

Type, classification, marking

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

Field of application

LiSiFuse is a ready-to-use and easy-to-apply lithium silicate glass ceramic for finishing the surfaces of monolithic restorations made from zirconium oxide. The surfaces do not need to be prepared in any way prior to use; no bonder, no solvents and no pre-firing is required before coating the restoration surfaces with LiSiFuse. The zirconium oxide parts must be clean and free from dust and grease in order to guarantee a uniform layer on the surface. LiSiFuse is suitable for all dental zirconium oxide materials.

General working instructions

LiSiFuse is intended exclusively for use in dental laboratories by trained personnel.
- Only use in well ventilated rooms.
- It is not permitted for intraoral use.
- Do not inhale the spray mist.
- Wear a dust protection mask and a suitable workplace suction unit.
- The aerosol container is under pressure and must be protected from sunlight and temperatures above 50°C/122°F.
- No smoking.
- Keep away from sources of ignition.
- Do not spray in the direction of open flames (e.g. Bunsen burners) or on hot surfaces.
- Keep out of the reach of children.
- After use, do not force open or burn.
- Always empty the spray can completely.

Preparing the ZrO^2 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** is required to cover the surface. In particular, when creating full anatomical monolithic restorations, the functional and aesthetic features, such as occlusal surfaces, contact points, color gradient and individual effects, should be taken into account before the zirconium oxide is sintered. The occlusal surface, crown margins and marginal fit are barely changed by a single application. We recommend that you apply **LiSiFuse** only after the dental try-in and any necessary corrections.

Use

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. 1 minute.

Step 2: 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

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

During use, hold the spray can in a best possible upright position. Unlike applying a lacquer, it is suggested to apply LiSiFuse 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.

Layer thickness

Apply the spray so that the ZrO^2 surface still shimmers through the white 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 away, the same applies if too much material has been applied. After drying with compressed air, the Carry out the ceramic firing according to the instructions (firing parameters) for **LiSiFuse**. During the ceramic firing, components of the zirconium dioxide and the **LiSiFuse** spray diffuse together close to the surface to form a strong bond when cool. At the same time a smooth surface is formed. can be sprayed 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 (firing parameters) for **LiSiFuse**. During the ceramic firing, components of the zirconium dioxide and the **LiSiFuse** spray diffuse together close to the surface to form a strong bond when cool. At the same time a smooth surface is formed.

Diffusion firing:
If the spray has been applied correctly, you will achieve a strong, smooth and homoge-nous surface quality with an optimal bond to zirconium oxide after the first firing already.

Use of stains:
LiSiFuse is a universal, transparent, thin layered veneering ceramic. It can either be used alone or in combination with high-fusing stains and ceramic materials. If the restoration is to be characterized with stains, these are applied immediately after the 1st firing (diffusion firing).

Individualization firing:
After the stains dried, the restoration is sprayed again thinly with **LiSiFuse** and then fired for a second time (Individualization firing). After this firing, the surface should be shiny, pore-free and homogenous. During the second firing, the holding times can be reduced in order to decrease the thermal stress on the stains.

Alternative firing recommendations:
For older ceramic furnaces, we have included a simplified firing program with a heating rate, which has been proven to be helpful for many customers. Please give it a try before using it for the first real case.

Troubleshooting

With an edaquate application the **LiSiFuse** coat creates a 10-15µm thin layer only. 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.

Cleaning

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

During a professional tooth cleaning treatment (prophylaxis), **LiSiFuse** treated surfaces must not be blasted with powder materials. Roughened glass ceramic surfaces are permanent and will lead to an accumulation of plaque. It is essential to follow the firing parameters specified in this instruction manual.

Firing Instructions

1. Firing
Diffusionfiring

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	ja	20...80	max. 30%

2. Firing
Individualization firing

1	400	50	920	1-3	-	-	-	ja	20...80	max. 30%

Alternative 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	920	2-5	ja	20...80	nein

Explanation of hazmat and warning signals