The following two clinical cases were treated with all-ceramic crown and bridge restorations. The first case involved a single tooth restoration with IPS e.max CAD/IPS e.max Ceram crowns. The second case was restored with an inlay/crown-retained bridge made of IPS e.max ZirCAD/IPS e.max ZirPress.

**Case 1: 16-year-old patient**

**Single crowns with lithium disilicate glass-ceramic copings in the maxilla**

**Pre-operative situation**

The endodontically treated teeth 21 and 22 that had been reconstructed with post and core build-ups had to be replaced by new prosthodontic restorations. 15 years after insertion due to aesthetic shortcomings. The following aspects were particularly noteworthy: the crown margins were located in the supra-gingival area with the dark root surfaces exposed, and the overall colour of the two crowns was grey compared to the contralateral natural incisors (Fig. 1). The gingiva of teeth 21 and 22 was located symmetrically to the gingiva of the contralateral teeth 11 and 12. The endodontic and periodontal state did not give any cause for concern (Fig. 2).

**Planning**

Before abutment, teeth 21 and 22 were restored with the dark root surfaces exposed as the gums had receded. In addition, the ceramic showed a grey colour compared to the contralateral natural teeth.

**Pre-op situation:** Fig. 1: Pre-op situation: 13-year-old crowns on teeth 21 and 22. The root surfaces were exposed, as the gums had receded. In addition, the ceramic showed a grey colour compared to the contralateral natural teeth.

**Figures 3A & B:** X-ray of teeth 21 and 22 in the pre-op state. Opacities according to the endodontic and prosthetic restoration of teeth 21 and 22 with composite post and core build-ups and crowns. — Fig. 4: Temporary restoration of teeth 21 and 22 with composite materials, showing situation after four weeks of treatment.

**Fabrication of the restoration**

Temporary restorations were provided in the form of resin crowns made of Systemp.c&b plus, which were fabricated directly on the patient. The temporary crowns were fabricated using a polycrystalline vacuum formed foil after the wax-up was prepared. The crowns were inserted with the eugenol-free temporary luting cement Sys-temp.cenn (Fig. 6).

After a non-inflamed gingival situation was achieved after four weeks, the location of the preparation margins in relation to the course of the gingival margin was checked and an impression of the abutment teeth taken. The sucre management entailed a thorough display of the preparation margin by means of the double contrast technique. An electrosurgical extension of the sulcus was not required. Iron-illuminated was used as an astringent.

**Figures 10 & 11A & B:** Completed crowns 21 and 22 made of IPS e.max CAD/IPS e.max Ceram. Labial view (A). Palatal view (B). — Figs. 12A–C: Situation after insertion of crowns 21 and 22 using glass ionomer cement. The crowns have been in situ for 4 weeks. Overview (A). Close-up (B). Final X-ray examination (C).

**After fitting and finishing, the framework was fired in a ceramic furnace.** The use of the stipulated temperature profile had to be achieved and thus the accurate shade and opacity attained. Figure 7 shows the tempered crown copings. Different firing programmes are available, depending on the ceramic furnace in use.

**Before the IPS e.max Ceram materials are applied, the framework is cleaned with steam or in an ultrasonic bath (Fig. 8). The IPS e.max CAD framework must not be blasted with aluminium oxide.**

**Before dentine and incisal materials are generously layered, a thin wash layer must be applied with any layering material and fired (Fig. 9). Subsequently, the restoration can be completed as usual (Figs. 10 & 11A & B).**

**The restoration must not be sandblasted with aluminium oxide prior to seating.** The inner aspects of the restoration were treated with IPS Ceramic Emax Grf for 20 seconds. This etching procedure is conducted both with adhesive and conventional cementation.

**Figures 11 A and B show the completed crowns after the second firing.**
Lights off. LEDs on!

Be lightyears ahead: with innovative LED technology in innovative products such as the Synea Turbines, the new Alegra contra-angles, the new surgical instruments or our new piezo scaler, Pyon 2. From now on work in daylight quality and look forward to longlasting lightsources that outshine everything else. Welcome to a new technological era: welcome to W&H.

For more information please ask your local dental dealer.
The IPS e.max system currently offers ceramic materials for the fabrication of single tooth restorations (crowns, partial crowns, veneers) and 5- to 6-unit bridges. The press and CAD/CAM techniques, dental technicians can work with only one layering ceramic in the different framework materials and thus cover virtually all indications in all ceramics. Dental technicians will appreciate the benefit of having to handle only one veneering ceramic, which will enable them to facilitate predictable restorations more efficiently.

Conclusion
The IPS e.max system currently offers ceramic materials for the fabrication of single tooth restorations (crowns, partial crowns, veneers) and 5- to 6-unit bridges. The press and CAD/CAM techniques, dental technicians can work with only one layering ceramic in the different framework materials and thus cover virtually all indications in all ceramics. Dental technicians will appreciate the benefit of having to handle only one veneering ceramic, which will enable them to facilitate predictable restorations more efficiently.

Contact Info

Dental laboratory work was done by Franz Perkon and Annya Mezan.

Harald Kerschbaumer can be reached at harald.kerschbaumer@ivoclarvivadent.com.