In direct restorative dentistry, there is a strong trend towards faster, more efficient placement techniques for resin composite restorations. Additionally, dentists are demanding composite materials that allow simple, yet predictable application in the daily practice. The question is, however, whether an increase in efficiency and simplicity will compromise the quality and aesthetics of the restoration.

The new Tetric N-Ceram Bulk Fill (Ivoclar Vivadent) offers an ideal combination of efficiency, quality and aesthetics. Increments of up to 4 mm can be placed that require a curing time of only 10 seconds (at a light intensity of >1,000 mW/cm²). How is this possible? Tetric N-Ceram Bulk Fill features the patented Ivocerin photoinitiator to boost polymerisation and to ensure complete curing of the entire composite increment. In contrast to conventional initiators, Ivocerin is much more reactive. This means that it is also activated in deep cavities and thus the material can be reliably cured within a very short time. Clinically, this is significantly time-saving and makes direct posterior restoration significantly more efficient (Illustrations 1–3).

Given its smooth consistency and proven Tetric N-Ceram quality, Tetric N-Ceram Bulk Fill can be adapted to the cavity walls easily. In order to avoid excessive shrinkage stresses at the cavity margins upon polymerisation, Tetric N-Ceram Bulk Fill contains a special shrinkage stress reliever. This is a more elastic filler with a specific surface treatment that can absorb the shrinkage stress within the material—similar to a microscopic spring. As a result, less shrinkage stress is transferred to the cavity walls yielding superior marginal quality—one of the prerequisites for a long-lasting restoration.

With Tetric N-Ceram Bulk Fill, it is not necessary to place a separate flowable composite as a base liner. The entire restoration can be completed with the same material, resulting in a uniform restoration with homogeneous strength.

Restorations with Tetric N-Ceram Bulk Fill blend well with the surrounding dental tissue because the translucency level of the material is ideally adjusted to natural enamel. Thus, aesthetic restorations with a natural appearance can be created within a shorter treatment time.

Clinical case
An old composite restoration of a mandibular second premolar in a 28-year-old male patient needed replacement because of marginal staining and an open cervical margin with caries (Fig. 1).

Prior to the removal of the defective restoration the Tetric N-Ceram Bulk Fill shade IVA is selected.
Clinical Masters Program in Aesthetic and Restorative Dentistry
10-14 January 2013 and 24-27 April 2013 in Dubai, for a total 9 days

Session I: 10 - 14 January 2013 (5 days)
- Direct/Indirect composite Artistry in the Anterior Segment
- Direct/Indirect composite Artistry in the Posterior Segment
- Photography and shade analysis

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Didier Dietschi, Francesco Mangani, Panos Bazos

Session II: 24 - 27 April 2013 (4 days)
- Full coverage Anterior/Posterior Restoration
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  Ceramic Restoration

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and verified by applying and cur-
ing a small non-bonded compos-
ite sample on the tooth (Fig. 2).
Upon removal of the old com-
posite restoration and the decay,
all enamel margins were finished
with an oscillating ultrasonically
driven preparation tip (Fig. 3). The
occlusal floor was approxi-
mately 5 mm deep (Fig. 4) and the
proximal box of the cavity was
approximately 6 mm deep (Fig. 4).

In order to optimise the bond
quality, all enamel margins were
covered with a phosphoric acid
gel and left to react for 20 seconds
(Fig. 6). Then the etching gel was
spread over the entire dentinal
surface and left to react for another
10 seconds (Fig. 7). The etchant
was rinsed off with water spray
for 10 seconds and the surface was
then air dried briefly, leaving it
with a glossy, wet appearance.

Tetric N-Bond was applied
using the convenient VivaPen
(Fig. 8). An exact amount of bonding agent was applied di-
rectly to all the etched tooth sur-
faces and agitated for 10 seconds
with the brush cannula (Fig. 9).

A circular stainless-steel ma-
trix was placed on the tooth and
Tetric N-Ceram Bulk Fill was
injected into the proximal box
using the Cavifil Injector (Fig. 10).
The material was adapted to the
cavity floor easily (Fig. 11) with
OptraSculpt (cylinder shape) and
polymerised with an LED high-power curing light (Blue-
phase Style; Fig. 12).

Depth measurement of the
cavity with a periodontal probe
revealed a remaining depth of
5 mm (Fig. 11). Hence, the re-
mainning cavity was filled with
just one layer of Tetric N-Ceram
Bulk Fill in shade IVA using
the Cavifil (Fig. 14). This final
layer was quickly adapted and
sculpted with OptraSculpt (chi-
zel shape) to create anatomical
tooth contours (Figs. 15 & 16).

A final polymerisation of 10
seconds was performed using
Bluephase Style. The 10 mm light
guide facilitates one full curing
cycle because it covers the entire
cavity (Fig. 17). The anatomical
tooth contours were refined and
finished with a football-shaped
fine diamond bur (Fig. 18).

The material was adapted to
the occlusal fissure system to the ad-
jacent tooth, a small amount of
light-curing ochre staining ma-
terial (Tetric Color) was applied
and polymerised (Fig. 19).

The entire restoration was
polished in one step to a glossy
lustre using OptraPol Next
Generation (Fig. 20). The final
restoration directly after high-
gloss polishing is shown in
Figure 21.

Conclusion
With Tetric N-Ceram Bulk
Fill, it is now possible for the cli-
nician to restore posterior teeth
in a much more efficient, yet
aesthetically pleasing way. Ov-
ering to bulk application of up to
4 mm and light polymerisation of
10 seconds, the total treatment
time can be significantly re-
duced without compromising
the overall quality of the final
restoration.

Contact Info
Dr Michael Dieter
is head of Ivoclar
Vivadent’s Inter-
national Center
for Dental Edu-
cation in Liech-
tenstein. He can
be contacted at michael.dieter@
ivoclarvivadent.com.