

Edition

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SR Nexco[®]

Light-curing composite



Redefined esthetic standards that offer added value

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SR Nexco®

Esthetic gingiva with a lifelike appearance – fabricated with ease

SR Nexco is a light-curing lab composite for fixed and removable dentures. Denture teeth and gingiva portions can be individually characterized with SR Nexco to achieve lifelike esthetics.

In light of demographic shifts and improved financial means, older patients are placing greater emphasis on natural-looking dental prosthetics. In addition, high-quality dental prosthetics with a lifelike, esthetic appearance are increasingly becoming an expression of lifestyle for active and dynamic seniors. This development presents dental laboratories with new challenges and increased complexity – but it also offers new opportunities for value creation in prosthetic restorations.

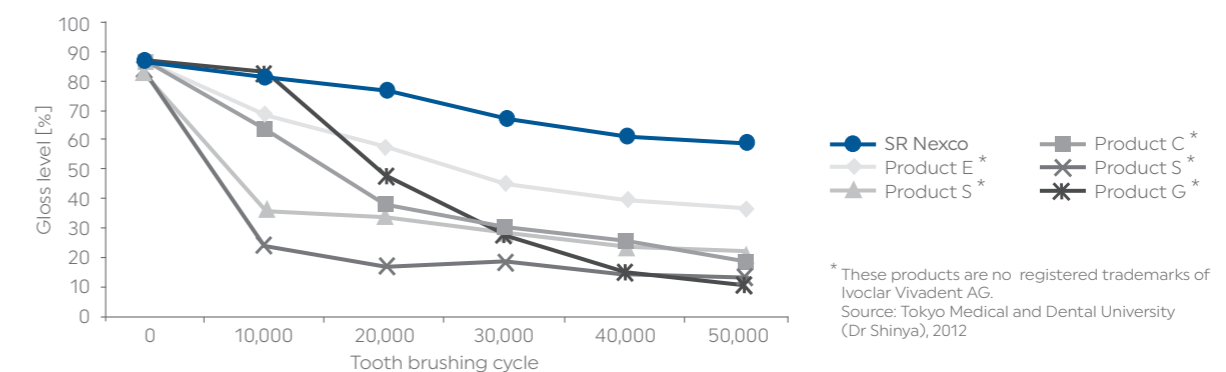
The SR Nexco laboratory veneering composite from Ivoclar, used worldwide, is ideally suited for this field of prosthetic dentistry. Its versatile options for characterization and individualization make it an ideal choice for addressing the evolving needs of patients.



Denture individually characterized with SR Nexco.

Long-lasting high gloss

With SR Nexco, the desired shade can be achieved with just a thin layer. Thanks to its matte appearance, the veneering composite is easy to work with and can be applied to various materials, such as zirconia, metals and PMMA. SR Nexco provides for exceptional, long-lasting lustre and outstanding esthetics.

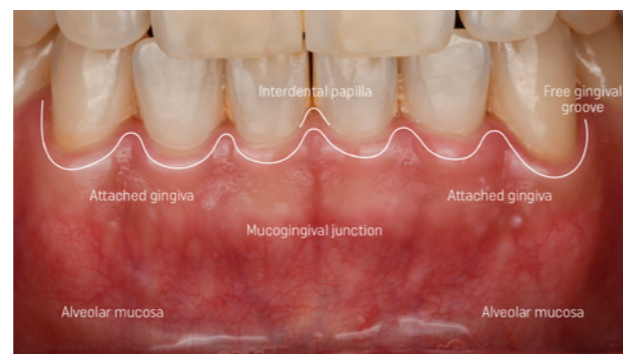
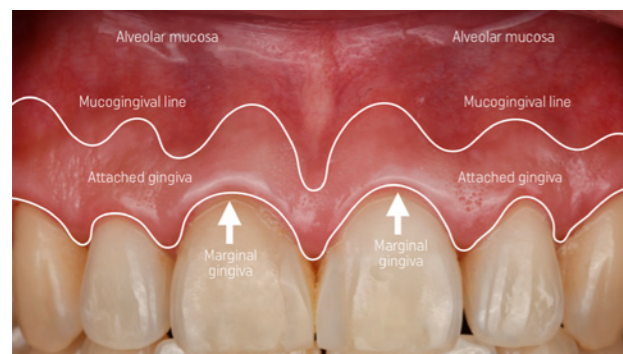


Gingiva

Understanding gingival morphology: Three-stage classification

Replicating gingiva with lifelike esthetics requires a fundamental understanding of the natural gingival morphology.

1. In the cervical area, you will find the marginal gingiva (=sulcus gingivalis) and the free gingiva, both of which contain microscopic spaces. The tissue in this region is flexible and is partially compressed or stretched during procedures such as implant placement, for example, when performing a sinus lift.
2. The attached gingiva is a dense tissue firmly anchored to the alveolar bone, creating a stable connection to the teeth.
3. Below this, the gingiva extends along a wavy line, the mucogingival line. This is followed by the alveolar mucosa, the movable oral mucosa.



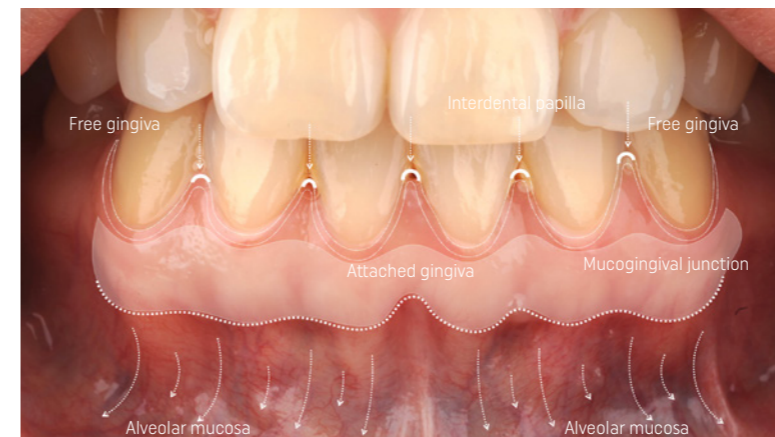
The areas of the marginal gingiva (sulcus gingiva) and the free gingiva, which surround the tooth like a band, appear slightly curved and light reddish in colour. The interdental papilla, the slightly curved, rounded ridge between the teeth, may have receded to varying degrees depending on the patient's gingival condition. It is essential to adequately recreate the interdental papillae and preserve a healthy shape to prevent food particles from getting trapped.

Understanding gingival colour

With SR Nexco, the natural colour of the gingiva can be reproduced with lifelike accuracy. For this, it is important to understand the shade concept of SR Nexco. The gingiva shade guide offers assistance.

The shade guide covers the transparent gingiva shades (G 1-5) for the outer gingiva regions as well as opaque Intensive gingiva shades (IG 1-5) for the inner regions. A lifelike gingiva reproduction requires several layers. If steps are simplified or omitted during the layering process, this can lead to noticeable deviations or a less natural overall appearance.

The creation of a natural-looking esthetic gingiva with SR Nexco involves three layers: First, an inner base layer of opaque material is created, followed by a thin layer of stain and finally a thin layer of translucent material is applied. The result is a three-dimensional gingiva with a subtle internal colouration that is easy to create.



The attached gingiva below appears as if the bone is pushing it outward. The tissue appears slightly tense and curved and it looks somewhat whitish. The alveolar mucosa extends below the gingival line (mucogingival line). Its movable tissue has a slightly increased colour saturation in a reddish tone. Due to the thin tissue, fine blood vessels or violet colourations may also become visible.



In contrast to the mandible, the maxilla has no clear or pronounced features. Still, a similar colour concept is applied.

Step by step

Lifelike and esthetic reproduction of the gingiva

SR Nexco is suitable for characterizing high-quality dentures, ensuring harmonious esthetics in the patient's mouth. The following section describes the procedure in which the gingival surface is lightly ground back to then apply selected materials and stains. This approach enables the reconstruction of a lifelike morphology that closely resembles natural gingiva.



Step 1
Initial situation

- ✓ This is the IvoBase-injected denture after tooth alignment and other processes have been completed.



Step 2
Surface reduction

- ✓ The areas of the gingiva to be individualized are ground back by approximately 1 mm. Next, the surface is sandblasted with aluminium oxide (Al_2O_3) of 80–100 μm at 2 bar.
- ✓ To avoid compromising the stability of the denture, at least 2 mm of the denture base material is left at the edge.



Step 3
Light-curing conditioner

- ✓ To achieve a chemical bond between the PMMA denture base material and the light-curing composite SR Nexco, a thin layer of light-curing MMA-based conditioner must be applied.



Step 4
Light polymerization:
First cycle

- ✓ The conditioner can be cured in standard polymerization units with an exposure time of 5 minutes. The light spectrum must include at least two peaks: one at 405 nm (86 mW/cm²) and one at 460 nm (68 mW/cm²).
- ✓ The surface of the material that comes into contact with oxygen may have an unpolymerized layer.



Step 5
SR Nexco Paste Dentin A2

- ✓ After polymerization of the conditioner, the attached gingiva is reproduced.
- ✓ The root area of the denture teeth is replicated using Dentin A2 paste. This is done by applying the material evenly to the denture base in small portions. The root of the first molar is replicated in the upper jaw as two vertically separated ridges, while in the lower jaw, the ridges are applied horizontally, extending distally. A slight asymmetry enhances the natural appearance.



Step 6
SR Nexco Paste Intensive Gingiva IG5

- ✓ Some opaque yellowish IG5 paste is applied to the gingival areas highlighted above.
- ✓ This customization is used to create three-dimensionality. Next, a translucent paste is applied to differentiate the shade of the convex areas from the other regions. In general, the areas around the canines exhibit the greatest gingival convexity. Therefore, this area is primarily covered with IG5 paste.



Step 7
SR Nexco Paste Basic Gingiva BG34
SR Nexco Paste Intensive Gingiva IG3

- ✓ The contouring of the attached gingiva varies between the upper and lower jaw: in the upper jaw, it has a vertical shape, whereas in the lower jaw, it forms a horizontal, continuous structure. Therefore, in the upper jaw, the interdental spaces are accentuated with the orange BG34 paste to visually emphasize the separation of the teeth. In the lower jaw, the opaque pink IG3 paste is applied to the upper and lower areas. Additionally, horizontal ridges are shaped using Dentin A2 paste to create a natural asymmetry in both shape and shade between the upper and lower jaw.



Step 8
OptraSculpt

- ✓ The SR Nexco pastes are carefully contoured with OptraSculpt to remove any air entrapments that may be present during the working process. OptraSculpt is ideally suited for working with composite materials thanks to its anti-stick properties.
- ✓ The SR Nexco pastes are pressed into the interdental spaces with a silicone brush, and the final shaping of the gingiva is done with a small brush. For the following layer, only a thin, single application is performed, so the entire design must already be finalized at this stage.



Step 11
SR Nexco Stains blue

- ✓ Stains blue is used to create the purple blood vessels at the margin of the alveolar mucosa, fading towards the edge. The stain is applied to the appropriate areas discreetly, taking the properties of the gingiva into account.



Step 12
Light polymerization:
Second cycle

- ✓ The applied pastes and stains must be precured with a hand-held curing light or a polymerization unit, e.g. by intermediate curing in a PrograPrint polymerization unit for 40 seconds. The intermediately cured surface forms a slightly tacky, incompletely polymerized layer that serves as an adhesive interface for the subsequently applied composite.



Step 9
SR Nexco Stains red

- ✓ Now the second layer is created using Stains red. The red stain is applied to the free gingiva and distributed along the border between the attached gingiva and the mucogingival line.



Step 10
SR Nexco Stains chili

- ✓ Stains chili is a stain with more reddish pigments and higher saturation than Stains red. This stain enhances the representation of the alveolar mucosa.



Step 13
SR Nexco Paste Gingiva G1

- ✓ After the second intermediate polymerization, a final thin layer of the transparent orange G1 paste is applied. Since the basic appearance has already been completed in Step 8, only the shape and surface texture of the free gingiva are designed here.



Step 14
SR Nexco Paste Gingiva G1
SR Nexco Stains chili

- ✓ The paste is applied into the interdental spaces using a silicone brush and shaped convexly to replicate the natural gingival contour. It is then evenly distributed with OptraSculpt, ensuring that air entrapments are removed. A small brush is used to create a finely detailed stippled surface texture.
- ✓ The wavy gingival line between the attached gingiva and the alveolar mucosa is reproduced using a line of Stains chili.



Step 15
Light polymerization:
Third cycle

- ✓ The applied G1 and Stains pastes are intermediately cured again.



Step 16
SR Nexco Paste Gingiva G1

- ✓ To complete a natural-looking gingiva, the frenulum between the two central incisors in the maxilla is applied using the G1 paste and sculpted.



Step 19
Final polishing

- ✓ Careful final polishing of the denture surfaces will improve the durability and long-term quality of the dentures. After the final contouring of the gingival morphology, the surface is pre-polished with various rubber polishers and silicone polishing wheels. Finally, the surface is polished to a high gloss at low speeds using goat hair brushes, cotton or leather buffs and universal polishing paste.



Step 20
Final denture

- ✓ Lateral view of the final dentures: From a functional perspective, the upper lip support in the maxillary area was designed convex, while areas in the mandibular region has been shaped relatively concave to accommodate jaw muscle interference.



Step 17
Light polymerization:
Final cycle

- ✓ SR Gel is applied before the final polymerization. Then, the final polymerization is performed in the polymerization unit. SR Gel is applied before the final polymerization to minimize the formation of an oxygen-inhibition layer on the composite surface.
- ✓ After the final polymerization, completely remove the SR Gel and finish the dry, non-sticky surface.



Step 18
Surface check

- ✓ After the final polymerization, the dentures display a natural morphology and esthetics due to the individualized gingival areas.
- ✓ The quality of the individualized gingiva, achieved through final light polymerization, significantly impacts the grinding and polishing process as well as the final outcome of the dentures. If gloss is lacking after polishing or the process takes too long, the polymerization steps may not have been performed correctly. Final surface finishing is limited to minor morphology adjustments using tungsten carbide burs.

With some effort, high-quality, esthetic prosthetic restorations can be fabricated, meeting the requirements of treatment, care and production for everyone involved. The light-curing veneering composite SR Nexco offers the opportunity to tap into new markets in the evolving field of prosthetics and enhance the competitiveness of dental laboratories.

