APRIL-MAI – 2019

# NEWSLETTER

NIOM
NORDIC INSTITUTE OF DENTAL MATERIALS

RESEACH | STANDARDIZATION | MATERIALS TESTING | INFORMATION

## Your guide to material selection

Nils Roar Gjerdet
Senior Scientist. prof., dr. odont.

Nearly all dental materials are included in the legal term «medical devices».

**Like it or not – regulatory issues affect the materials and devices offered to us on the European market. Our new webinar, now available on NIOMs YouTube channel, addresses some of the terminology in the regulations that lead to CE-marking of "medical devices".**

The requirements for the mandatory CE-marking are still quite general, so we need to use additional means when selecting a material. That could for example be screening of literature, obtaining in-depth information from manufacturers, or sharing clinical experience, as Gjerdet explains in the webinar.

The CE-mark is basically a trade passport to ensure free movement of goods within the EU.

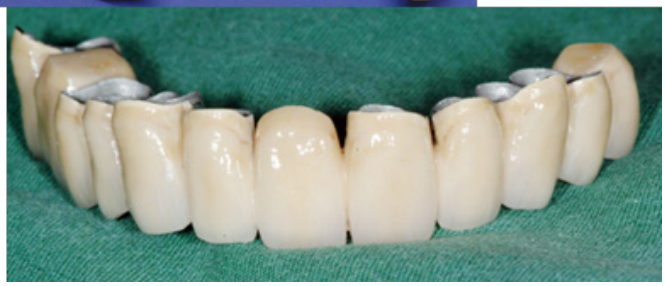
Gjerdet strongly urges all professionals to be conscientious about the following:

- **Report unusual material behavior to the manufacturer**
  IIt is a responsibility to report, by the web pages or otherwise, issues with a material, so the products can be improved.

- **The direction for use is a part of the product**
  The directions for use should be adhered to. It is our responsibility, as clinicians and technicians, to do so in order to maintain material properties as intended by the manufacturer.

**Education points**
As a side note, we'd like to remind all dentists in Norway, Denmark and Iceland that you get continuing educations points if you watch the webinar live. Our webinars are free, and we release approximately three every year.

Examples of Class II materials typically encompass the filling materials and prosthetic materials.



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# Marginal gap of digitally made dental single crowns

Jon E. Dahl
Managing Director, prof., dr. odont., DSc

**No difference in marginal fit was found between crowns made by CAD/CAM techniques from the most used prosthetic materials for single crowns. When averaged, all marginal gaps were in the range 40 – 60 µm.**

These values are comparable to the settings recommended by the manufacturer of the materials and manufacturing systems and much less than 120 µm, which has been regarded as the largest clinically acceptable gap.

The method may also be used to evaluate the overall adaptation of the final restoration.

The tested crowns were made from milled pre-sintered zirconium dioxide, milled hot-isostatic-pressed zirconium dioxide, milled lithium disilicate reinforced glass-ceramic, and cobalt-chromium alloy, which was milled, laser-sintered or cast.

The marginal fit was evaluated by a digitized version of the impression replica technique, namely the dual-scan technique. The method was based on a bench-top scanner used by dental technicians, but can be used also in the clinic if an intra-oral scanner is available. The marginal gap was determined by digitally superimposing scans of the bare master model and of the master model with a silicone layer representing the cement layer.

Combining this technique with digital scanning increased the number of measuring points, and the validity of the measurements.

The impression replica technique has been used for many years, with analogue measurements of the silicone material representing the cement gap. Usually the number of measuring points has been limited. Combining this technique with digital scanning increased the number of measuring points and also the validity of the measurements.

**Clinical implications: The method can be used to evaluate fit of singel crowns.**

**Read more:**
Dahl BE, Dahl JE, Rønold HJ. Digital evaluation of marginal and internal fit of single-crown fixed dental prostheses. Eur J Oral Sci 2018; 00: 1–6.

# Vacant positions as visiting scientists in 2020

The purpose of NIOM´s visiting scientist program is to enhance collaboration on biomaterials research in the Nordic countries. Positions are available during 2020 for periods between 3 and 6 months. Scientists having documented education and/or research experience in the field of biomaterials are welcome to apply. Ph.D. candidates and young scientists are especially invited to apply. See www.niom.no for more information.

Deadline for application: June 20th 2019.

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