

NIOM investigates: do modern dental materials release BPA?


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Despite the general concern about potential adverse effects of Bisphenol-A (BPA), it is still found to be released from some resin-based dental materials. However, the amounts of released BPA are low and most likely represent only a very small contribution to total BPA exposure.

These were the results from a recent study performed at NIOM in collaboration with the Norwegian Institute of Public Health on the leaching of BPA from dental materials. From the results, there is currently little reason for concern about adverse health outcomes due to BPA exposure from dental materials alone.

BPA has, since the 1990's, been reported to leach from resin-based dental materials, in particular from fissure sealants and composite filling materials. Concern has arisen because animal studies indicate that BPA affects liver, kidney and breast tissue. Possible endocrine disrupting effects also contribute to the uncertainty surrounding BPA.

To update previous findings, especially in light of the recent, temporary, lower threshold value for tolerable daily BPA intake, NIOM has investigated the leaching of BPA from four composites, three sealants and two orthodontic bonding materials. Only materials produced from monomer bis-GMA were included in the study. BPA is used in the synthesis of bis-GMA and may be present as an impurity or residue from the synthesis.

The content of BPA was analyzed in both the uncured materials and in water in which cured materials were stored. One composite filling material and one sealant material consistently showed elevated levels of BPA leaching compared to the other materials. There was little difference in amount of BPA released into water within 24 hours compared to 2 weeks. All products in our study released small amounts of BPA, indicating that the BPA leaching may arise from impurities in the component materials.

There is little reason for concern regarding BPA exposure from the dental materials that were investigated. The amounts of BPA leached from bis-GMA-containing materials were low and represented at most a small contribution to total BPA exposure.

Table 1. Materials tested

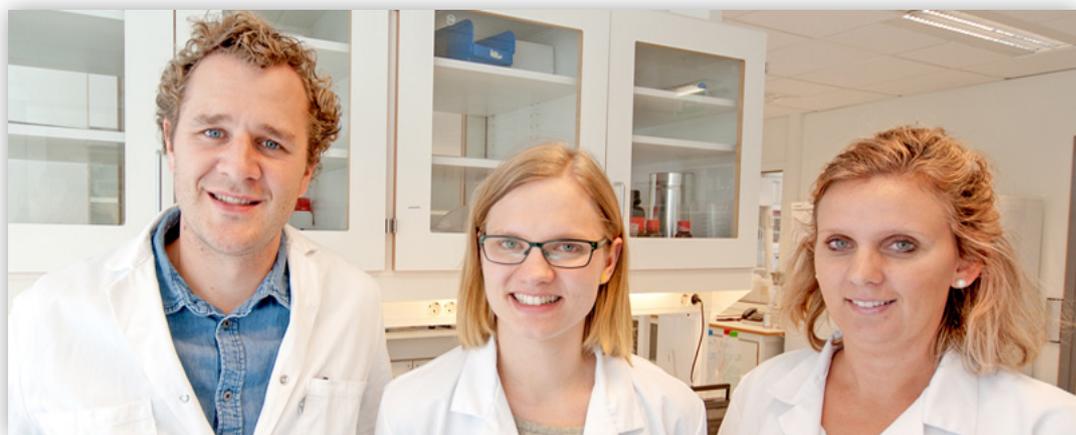
Composites	Fissure sealants	Orthodontic bonding
Ceram.X® (Dentsply DeTrey GmbH)	Clinpro™ Sealant (3M ESPE)	Transbond™PLUS (3M Unitek Orthodontic Products)
Grandio® Flow (VOCO GmbH)	DELTON® (Dentsply DeTrey GmbH)	Band-Lok® (Reliance Orthodontic Products Inc. Part A og Part B)
Filtek™ Supreme XTE (3M ESPE)	Helioseal® F (Ivoclar Vivadent AG)	
Tetric EvoFlow® (Ivoclar Vivadent AG)		

Full text available here:

Article has been accepted and will be published soon in Acta Biomaterialia Odontologica Scandinavia
Read more: <https://www.tandfonline.com/loi/iabo20>

BPA has been reported to leach from dental materials, however, there is currently little reason for concern about adverse health outcomes due to exposure from dental materials alone.

All products in the study released small amounts of BPA; two materials consistently showed elevated levels of BPA leaching compared to the other materials



VACANT POSITIONS AS VISITING SCIENTIST AT NIOM DURING 2019

Positions as visiting scientist in the field of dental biomaterials research are offered at the Nordic Institute of Dental Materials, NIOM, in Oslo, Norway.

The purpose of NIOM's visiting scientist program is to enhance Nordic collaboration on biomaterials research. Positions are available during 2019 for periods between 3 and 6 months. Scientists having documented education and/or research experience in the field of biomaterials are welcome to apply. The institute's research activities are focused on biological, chemical, physical and clinical questions related to dental and medical biomaterials. PhD candidates and young scientists are especially invited to apply. More information about NIOM is available at www.niom.no, from Director Professor Jon E. Dahl and Head of laboratory Dr. Hilde M. Kopperud.

The salary is based on personal qualifications. The visiting scientist has to pay their personal living costs, but for visitors normally resident outside the Oslo area an allowance of NOK 5650,- per month is available.

The applicants shall prepare a research plan containing:

- (a) Aim of the project
- (b) Material and methods to be used
- (c) Budget for the project (salary excluded)

The application, in a Scandinavian language or English, must include the applicant's CV and research plan and should be addressed to: NIOM as, Sognsveien 70A, NO-0855 Oslo, Norway. You may also send it by e-mail to: niom@niom.no.

Deadline for application: June 20th 2018.

Oslo, May 2018

Jon E. Dahl,
Managing director

Don't miss out on our upcoming webinar May 24th!



Håkon Valen
Senior Scientist DDS, PhD

NIOM Senior Scientist Håkon Valen is the presenter in the latest webinar from NIOM, "Killing Biofilm - Mission Impossible?" Click and register for the session that fits your schedule best. For more info, visit niom.no/webinars

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Deadline for application
June 20th

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