TECHNICAL ISO/TS

First edition
2023-05

Dentistry — Test methods for tensile bond strength to tooth structure

Médecine bucco-dentaire — Méthodes d'essai pour l'adhérence par traction à la structure dentaire

Reference number
ISO/TS 4640:2023(E)

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Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 1, *Filling and restorative materials*.

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Introduction

Adhesion in restorative dentistry is an important topic. It is the intention of this document to describe various laboratory procedures of tensile bond strength tests whereby the effect or quality of a bond between a dental material and tooth structure can be substantiated.

Adhesive materials are used in many types of restorative and preventive treatments. Even if the stress on the bond in most circumstances can be defined as either tensile, shear or a combination of these, there are no specific laboratory tests which can be valid for all the various clinical applications of adhesive materials.

The relative performance of materials that are claimed to bond to tooth structure is usually evaluated by laboratory assessment of bond strengths. While bond strengths are unable to predict clinical behaviour or performance, they are useful for comparing adhesive materials.

ISO 29022[1] prescribes the notched-edge shear bond strength test.

Annex A lists several published laboratory methods for tensile bond strength measurement.

Tensile bond strength testing is also common in general materials science, and a publication listing many test methods is provided for information in Reference [2].