

# Bond Strength Comparison of Color Change Adhesives for Orthodontic Bonding

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## Introduction

The introduction of the acid-etch bonding technique by Buonocore in 1955 has led to dramatic changes in the practice of orthodontics (1-3). By the late 1970's, the bonding of orthodontic brackets became an accepted clinical technique (4-6).



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## Abstract

This study investigated whether three different color change light-cured orthodontic bonding adhesives have comparable shear bond strengths to a conventional light-cured orthodontic bonding adhesive. The sample of 240 bovine incisors was divided into four groups of 60 each. Each group tested one of four orthodontic bonding adhesives: 3M Unitek Transbond PLUS, Ormco Gréngloo, Ormco Blúgloo, and 3M Unitek Transbond XT (control). The four groups were further divided into two subgroups of 30 with shear bond strength tested at two different times (15 minutes and 24 hours) post-bond. The shear bond strength was measured on a universal testing machine. The data were analyzed by two-way analysis of variance and post-hoc comparisons (Fisher's PLSD) at the 0.05 level of significance. The average shear bond strength was greater at 24 hours than at 15 minutes for Transbond PLUS, Blúgloo, and Transbond XT. For Gréngloo, the average shear bond strength was greater at 15 minutes than at 24 hours. Gréngloo tested at 15 minutes had the highest average shear bond strength. Gréngloo tested at 24 hours had the lowest average shear bond strength. All four orthodontic bonding adhesives demonstrated bond strengths considered to be clinically acceptable for orthodontic purposes.

KEY WORDS: shear, bond, transbond, gréngloo, blúgloo

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