

New Dual Cure, Multipurpose, Adhesive Resin Cement,
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At Itena, an investigation related to a new adhesive resin cement designated TotalCem was carried out.

The objective of the study was aimed at developing a new dental cement which is characterized by superior adhesion to dentine, enamel, precious and non precious cast alloys, porcelain, acrylics and amalgam. Furthermore, the newly developed adhesive composition was designed to be simple to use. When bonding to cast alloys no primers are necessary. Since the cement is dual cured, it can also be used to veneer alloys. When bonding orthodontic brackets, etching of the enamel is not necessary. Thus, upon removal of the bracket, no damage is caused to the enamel surface.

TotalCem is comprised of acrylic multifunctional monomers, coupling agents containing both hydrophilic and hydrophobic groups, which provide high shear bond strength, sufficiently high durability and high bio-compatibility. The system also contains a variety of fillers responsible for the high compressive and hardness properties. The shear bond strength was measured using the Bencor Multi-T system (Danville Engineering Inc.). The force required to fracture the samples was determined using a Lloyd mechanical tester (model LRIOK, Lloyd instruments Ltd.). Each cement or metal cylinder was placed under continuous loading at 5 micron grit blasted Ni-Cr-Be metal (Rexillum III) was $45.245.7$ (S.D.) MPa, to 600 grit polished Rexillum III 29.2 ± 6.9 MPa, and to unetched enamel 15.6 ± 4.7 MPa. The control group Panavia 21 (Kuraray America Inc.) gave 45.6 ± 7.1 MPa 12.8 ± 4.9 MPa and 10.9 ± 2.8 MPa respectively. The results of this study indicate that the TotalCem adhesive resin cement has the potential to be an easy to use and effective adhesive resin cement. However its clinical performance is still to be determined.