

## Sistem pelarut solvolisis dan efektifitas pelepasan adesif breket metal ortodontik = Alternative method of rebonded bracket cleaning with organic solvent

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### Abstrak

#### <b>ABSTRAK</b><br>

Dalam masa perawatan ortodontik, kejadian lepasnya breket sering terjadi sehingga diperlukan metode pembersihan yang cepat, efektif dan ekonomis. Hal terpenting adalah karakter breket yang lepas setelah dibersihkan, kualitas tidak berubah sehingga dapat dipasang kembali. Penelitian ini bertujuan untuk mendapatkan sistem pelarut yang dapat melepas bahan adesif dari basis breket metal berbasis solvolisis tanpa mengubah karakteristik breket metal dan lebih efektif dibandingkan metode yang umum digunakan yaitu sandblasting dan pembakaran. Penelusuran sistem pelarut melibatkan berbagai jenis pelarut dan faktor pendukungnya: termal, katalis dan surfaktan. Kinerja pelepasan bahan adesif dipantau dengan uji Shear Bond Strength SBS pada gigi Reused dan gigi baru, pengamatan topografi permukaan dan komposisi dengan Scanning Electron Microscopy SEM dan Electron Dispersive X-ray Spectroscopy EDAX serta gambaran sisa bahan adesif dengan Modifikasi Adhesive Remnant Index ARI. Spesimen penelitian terdiri atas tujuh puluh breket metal Stainless Steel Mini DynaLock dan seratus gigi Premolar satu dengan adesif Transbond XT. Hasil penelusuran diperoleh sistem pelarut dengan susunan pelarut organik N-Methyl-2-Pyrrolidone, katalis Zn Asetat, surfaktan Triton X-100 dan gelombang mikro. Uji Two Way Anova dari nilai SBS sandblasting, pembakaran dan solvolisis menunjukkan perbedaan bermakna p

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#### <b>ABSTRACT</b><br>

During orthodontic treatment, the bracket loose often occurs so that a fast, effective and economical cleaning method is needed. The most important thing is the character of the cleaned bracket, the quality does not change so it can be reinserted. The objective of this research is to find a solvent that can remove adhesive material from base metal bracket without changing the metal bracket characteristics and more effective than commonly used method i.e. sandblasting and burning. The search for a solvent system involves various types of solvents and their supporting factors thermal, catalyst and surface agent. The adhesive release was monitored by Shear Bond Strength SBS test on reused tooth and new tooth, surface topography observation and composition with Scanning Electron Microscopy SEM and Electron Dispersive X Ray Spectroscopy EDAX as well as an overview of residual adhesive with Modified Adhesive Remnant Index ARI. The study specimens consisted of seventy metal brackets of Stainless Steel Mini Dyna Lock and one hundred first Premolar teeth with Transbond XT adhesives. The result of this research is the solvent system with organic solvent N Methyl 2 Pyrrolidone, catalyst Zn Acetate, surfactant Triton X 100 and microwave. Two way Anova Test of SBS sandblasting, burning and solvolysis values showed significant differences p