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**Antonucci et al.**

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(54) **ETCHANT/PRIMER COMPOSITION,  
ETCHANT/PRIMER/ADHESIVE MONOMER  
COMPOSITION, KITS AND METHODS  
USING THE SAME FOR IMPROVED  
BONDING TO DENTAL STRUCTURES**

(75) Inventors: **Joseph M. Antonucci**, Kensington;  
**Frederick C. Eichmiller**, Ijamsville;  
**Gary E. Schumacher**, Gaithersburg, all  
of MD (US)

(73) Assignees: **National Institute of Standards of  
Technology**, Gaithersburg, MD (US);  
**American Dental Association Health  
Foundation**, Chicago, IL (US)

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106/35; 424/55; 424/49; 427/307; 433/216

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216/96; 523/118; 252/79.1, 79.2; 427/307;  
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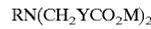
*Primary Examiner*—Randy Gulakowski

*Assistant Examiner*—Shamim Ahmed

(74) *Attorney, Agent, or Firm*—Banner & Witcoff, Ltd.

(57) **ABSTRACT**

The present invention is directed to an etchant/primer composition, an etchant/primer/adhesive monomer composition, kits using the same and methods using the same for improved bonding to dental structures. The etchant/primer composition comprises a compound having the formula:



wherein R=R<sup>1</sup> or R<sup>2</sup>;

R<sup>1</sup>=an aromatic group;

R<sup>2</sup>=a conjugated unsaturated aliphatic group;

Y=a single bond, CH<sub>2</sub>, CHCH<sub>3</sub> or C=CH<sub>2</sub>; and

each M is independently H, an alkali metal, an alkaline earth metal, aluminum, a transition or redox metal or an alkyl group having 1 to 18 carbon atoms, with the proviso that when both M groups are alkyl groups, said compound is capable of being easily hydrolyzed, displaced, or exchanged with other reagents present in the etchant/primer composition, a polar solvent system, and nitric acid. The etchant/primer/adhesive monomer composition comprises a compound having the formula (I) as noted above, a polar solvent system, an acid selected from the group consisting of nitric acid, hydrochloric acid, citric acid, lactic acid, glycolic acid, formic acid, pyruvic acid and combinations thereof, and adhesive monomer resin, and an initiator. The above-noted compositions are applied to dental structures requiring dental restoration for improved bonding of adhesive resins and polymers to dental structures.

**26 Claims, No Drawings**