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# Immobilization of Simulated Reducing Agent at the Surface of $SiO_2$ Fillers in Dental Composite Resins

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**Abstract:**
To reduce the leachability of reducing agents from composite resins, immobilization of a simulated reducing agent at the surface of $SiO_2$ fillers was examined. $SiO_2$ plates were immersed in 2% 3-aminopropyltriethoxy silane/ethanol solution, and then immersed in dimethyl sulfoxide with 0.25 wt% 4-dimethyl amino benzoic acid (DMABA), 2.0 wt% 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide hydrochloride, and 0.5 wt% *N*-hydroxysuccinimide. Wide-scan spectrum of X-ray photoelectron spectroscopy did not detect carbon contamination. However, narrow scan detected an O=C-N peak at 399.8 eV, suggesting that DMABA could be immobilized on silane-coupled $SiO_2$ plates. Further, surface plasmon resonance analysis indicated the adsorption of MMA at the surface of reducing agent-immobilized plate.

**Key words:**
Immobilization, Simulated reducing agent, $SiO_2$ fillers

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