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Development of Metal-resin Composite for Dental Magnet Keepers. Part 1: Effects of Filler and 4-META Contents on Setting and Flexural Properties

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Abstract:
Nine kinds of experimental soft magnetic resin composites containing SUS447J1 stainless steel particles as filler were prepared. A UDMA/MAA resin with an MAA mole fraction of 0.67 was used as a matrix resin. The effects of three levels of 4-META content and three levels of filler content on the setting and flexural properties were studied. Working time and setting time significantly increased with increase of 4-META and filler contents. Flexural strength significantly increased with increase of 4-META content but with decrease of filler content. Elastic modulus simply increased with increase of both 4-META and filler contents. Although the flexural strength obtained was low, results were considered promising being the first step of this novel development.

Key words:
Resin composite, Stainless steel filler, Magnet

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