Improvements in adhesive technology have fostered attempts to use adhesive material and techniques while obturating root canals. Total-etch adhesives have been tested with resin cements as alternative root filling materials. Self-etching primers have also been used for bonding to root canal dentin. However, these techniques were hampered by the lack of copolymerization between the methacrylate-based dentin adhesives, the conventional root canal sealers, and gutta-percha. The use of resin cements alone for root canal obturation results in difficulties during application and retreatment, lack of radiopacity. The recent introduction of thermoplastic synthetic polymer core material Resilon (Resilon Research LLC, Madison, CT, USA), as an alternative root filling material, offers the promise of adhesion to root dentine when used in conjunction with a dual-cured resin type sealer such as Epiphany Root Canal Sealant (Pentron Clinical Technologies).

The aim of this article is to review the contemporary studies evaluating the mechanical, biological behaviors and biocompatibility of Resilon.

Keywords: Bond strength, biocompatibility, Epiphany, microleakage, Resilon