# Researchers develop dental polymer technology licensed to 3M

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An advanced polymer technology developed at the University of Colorado Boulder was recently licensed to 3M, a diversified technology company based in St. Paul, Minn. The licensed technology, developed by a team led by CU-Boulder Distinguished Professor Christopher Bowman, enables formation of very low-shrinkage composites, improving performance of many materials currently used in dental fillings and sealants, dentures and dental implants.

Current dental restoration methods use light-cured polymer materials fitted by a dentist or oral surgeon. Eventually, the internal stresses built up within the material by the curing process cause it to shrink, which decreases the effectiveness and durability of the restoration.

For example, as the material within a dental filling shrinks, the seal binding the filling to the tooth surface is compromised and recurrent decay may occur beneath the fillings. This can cause serious damage to patients' gums and teeth damage until repaired.

The process pioneered by Bowman uses a unique light-cured material that reduces the physical stress within dental composites, avoiding shrinkage and other physical changes in the restoration. Dental restorations using this new composition will prove more durable, require fewer replacements, and improve patient comfort and dental health.

Bowman is in the Department of Chemical and Biological Engineering in the College of Engineering and Applied Science.

"We are delighted that 3M has licensed Dr. Bowman's polymerization technology, and we believe that the technology presents the 3M team with numerous opportunities for product development not only in dental applications but in any product category that would benefit from reduced polymer shrinkage," said MaryBeth Vellequette, a licensing manager at CU's Technology Transfer Office.

Provided by University of Colorado at Boulder