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# The treatment of implant surfaces with rotating fiber-reinforced resin instruments

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## Introduction

The French company **Carbotech** has developed and patented fiber-reinforced resin burs (**Stainbuster**) for removal of stains and calculus from teeth and restorative materials. According to the manufacturer, due to the special zirco-

nium-glass-fibers included as longitudinal bundles, the working surface of these burs removes very gently even severe stains without scratching the underlying surface. The exposed ends of the glass-fibers are the abrading elements. As they abrade the cutting ends are chipped into small pieces and the epoxy resin matrix is degraded simultaneously. Thus, they are self-sharpening since new fiber ends are continuously exposed. In this indication the Stainbusters have been used successfully in our department for more than a year.



## Aim

The aim of this *in vitro* study was to investigate the suitability of these fiber-resin instruments for removal of resin remnants from implant and full-ceramic crown surfaces.



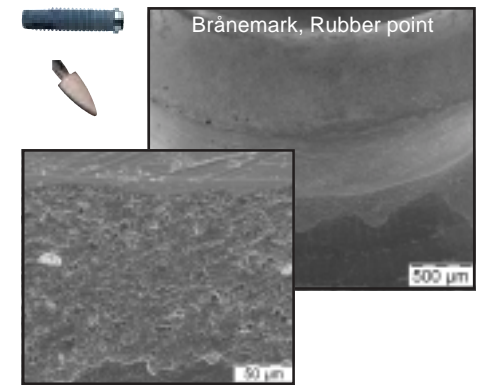
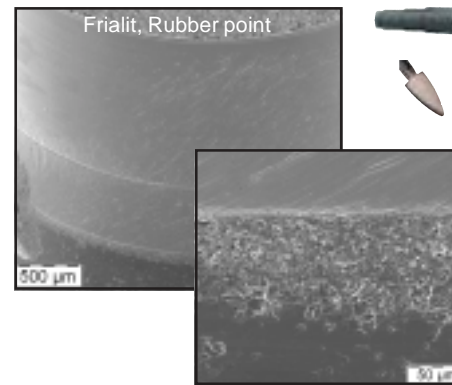
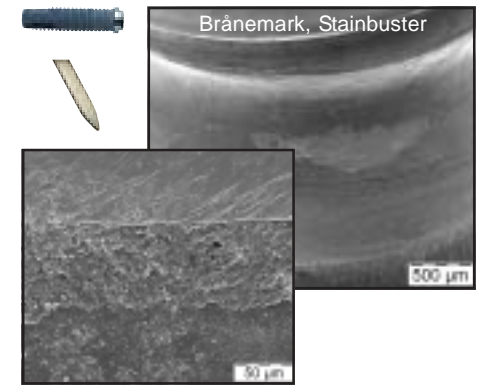
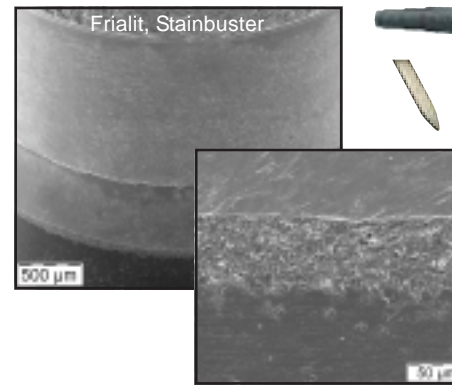
## Results

When controlled with the naked eye both Stainbusters and rubber points were considered equally effective in terms of resin remnant removal.

None of the two instruments has left compromising scratches or roughness on the ceramic or implant surfaces when inspected by SEM.

Stainbuster burs cleaned ceramic crown surfaces more thoroughly than rubber points.

Particularly in difficult to reach undercut areas Stainbuster cleaning was more efficient than use of rubber points.

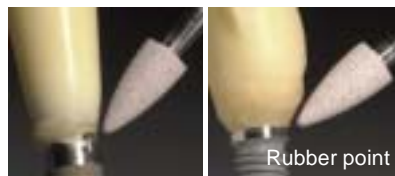
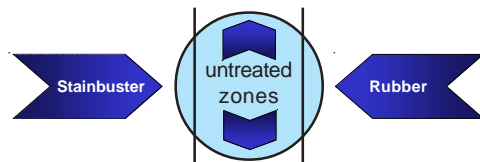
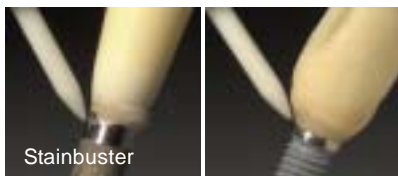


## Materials and Methods

Ceramic abutments were fixed onto four implants each of the two implant systems Frialit 2 (Friadent, Germany) and Brånemark (Nobel Biocare, Sweden)



All-ceramic crowns were seated on the abutments with a dual-curing resin luting cement Panavia F (Kuraray, Japan).



In each of the two opposing target locations of each assembly the surface morphology after resin excess removal was qualitatively assessed by SEM.

## Conclusions

Removal of resin luting cement remnants with Stainbuster burs is highly effective and very little invasive.

Compared with rubber point cleaning, the main advantage of the Stainbuster instruments is the consistently good access even to narrow undercut areas.

The results indicate that Stainbuster burs are presumably also well-suited maintenance tools for gentle removal of calculus deposits from implant surfaces.