

**BluWhite (FG 557)**  
Kerr Corp.  
800-537-7123  
www.kerrdental.com

**Brasseler (557 FG)**  
Brasseler USA  
800-841-4522  
www.brasselerusa.com

**Henry Schein (FG 557)**  
Sullivan-Schein  
800-372-4346  
www.sullivanschein.com

**Midwest (FG557)**  
Dentsply Professional  
800-989-8826  
www.professional.dentsply.com

**Miltex (DFG557)**  
Miltex, Inc.  
866-854-8300  
www.miltex.com

**NTI (H557-FG)**  
Axis Dental Corp.  
800-355-5063  
www.axisdental.com

**SS White (FG-557)**  
SS White Burs, Inc.  
800-535-2877  
www.sswiteburs.com

**Tri Hawk (FG 557)**  
Tri Hawk Corp.  
866-Tri-Hawk (874-4295)  
www.trihawk.com

# Carbide Burs

We reviewed eight brands of straight, fissure carbide burs (557) : BluWhite (Kerr Corp.), Brasseler (Brasseler USA), Henry Schein (Sullivan-Schein), Midwest (Dentsply Professional), Miltex (Miltex, Inc.), NTI (Axis Dental Corp.), SS White (SS White Burs, Inc.), and Tri Hawk (Tri Hawk Corp.). In addition to laboratory testing, we collected input from 407 dentists about these products.

## Lab Notes

We purchased burs of each brand for testing in the ADA laboratories to determine run-out, permanent set, corrosion resistance, cutting rate, and loss of cutting rate. In developing some of our tests and determining whether products passed or failed, we referred to the standards published by the American National Standards Institute and the ADA.<sup>1</sup> A full description of our test methods can be found on the ADA's web site at "www.ada.org/goto/ppr".

### BASIC TESTS

Our Basic Tests challenge products against a performance standard, which products can either pass or fail. The Basic Tests for carbide burs were Dimensions, Run-Out, Permanent Set, and Corrosion Resistance.<sup>1</sup> All of the brands we tested passed these tests. Here's how these tests relate to clinical performance:

- The diameter of 557 burs should be 1.0 ( $\pm 0.08$ ) mm at the working end.<sup>1</sup> We confirmed these measurements by checking the Dimensions.
- Run-Out gives you a sense of cutting accuracy, indicating whether the bur will make a cut that is the same as the bur's diameter.
- Permanent Set tests the bur's ability to resist permanent deformation or fracture and provides an indication of the bur's durability.
- Corrosion Resistance demonstrates the bur's resistance to corrosion after steam autoclave sterilization. For infection control, burs should be heat sterilized between patients.<sup>2</sup> Tri Hawk is the only bur we tested that is supplied sterile; the others should be processed before use.

### CUTTING RATE

**Clinical Significance:** Indicates how much material a bur will remove within a given time and how that value might decrease with use.

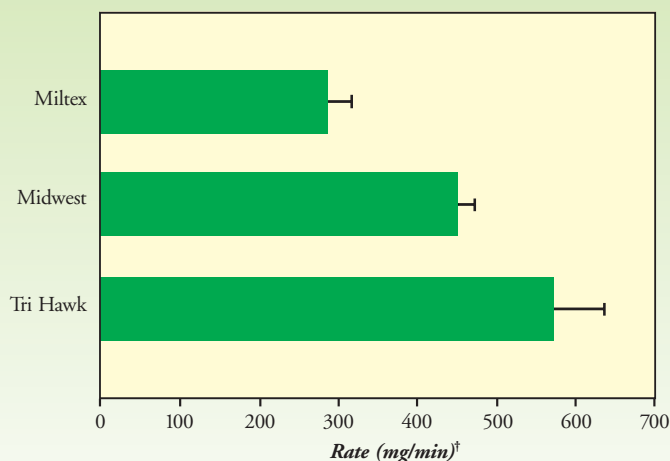
**Results:** Tri Hawk and NTI burs had significantly better cutting rate than the others. Among the multi-use burs, only NTI showed no statistically significant loss of cutting rate between the first and second cuts, having been autoclaved between cuts. The mean Cutting Rate results, along with the Loss of Cutting Rate for multi-use burs, are shown in the Figures 1 and 2.

**Comments:** For this test, we cut blocks of a machinable glass ceramic (Macor, Corning Inc.) under standardized load, air pressure, and water flow rate conditions. Admittedly, Macor is not tooth enamel and the results you would get through clinical use would not be the same as those obtained when cutting Macor; however, it often is used in laboratory testing to collect comparative data because it has similar physical properties to tooth enamel.

### REFERENCES

1. American National Standard/American Dental Association Specification No. 23—1982, Dental Excavating Burs. Chicago: American Dental Association.
2. Centers for Disease Control and Prevention. Guidelines for Infection Control in Dental Health-Care Settings—2003. MMWR 2003;52(no. RR-17):20, 22-23.

**Figure 1. Mean ( $\pm$ SD) Cutting Rate for Single-Use Burs.\*†**

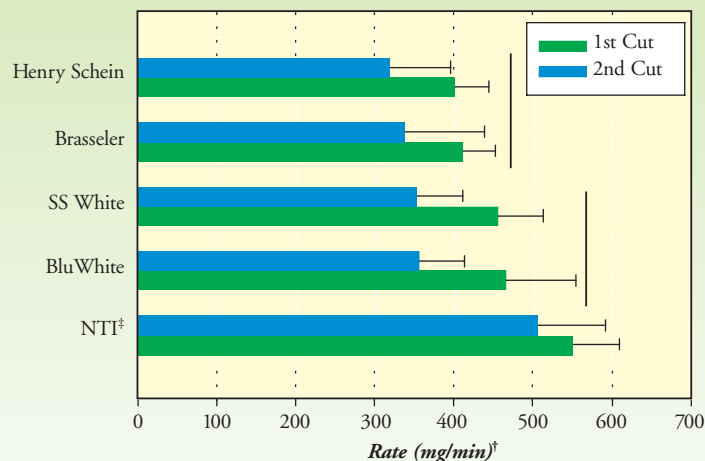


\* Mean based on n = 10

† Measured in milligrams of machinable glass ceramic (Macor, Corning Inc.) cut per minute.

‡ All of these products performed differently based on statistical analysis (one-way ANOVA,  $p < 0.05$ ).

**Figure 2. Mean ( $\pm$ SD) Cutting Rate and Loss of Cutting Rate for Multi-Use Burs.\***



\* Mean based on n = 10 specimens. Vertical black bar designates products that performed equally for Cut 1 based on statistical analysis (one-way ANOVA,  $p > 0.05$ ).

† Measured in milligrams of machinable glass ceramic (Macor, Corning Inc.) cut per minute.

‡ NTI performed equally well between Cuts 1 and 2 based on statistical analysis (one-way ANOVA,  $p > 0.05$ ).