

# THE DENTAL ADVISOR

*"Improving Patient Care Through Research & Education"*

## 3M ESPE Z100™ Restorative 15-year Clinical Performance + + + + +

3M ESPE  
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www.3Mespe.com

### Description

**3M ESPE Z100™ Restorative** is an all-purpose, light-cured composite with zirconia filler particles averaging 0.6 µm in size. Editors of THE DENTAL ADVISOR placed over 1000 restorations beginning in early 1992. Many of these restorations have been monitored and recalled periodically with the findings published in THE DENTAL ADVISOR.

### Suggested Retail Cost

- \$79.00/4-g syringes
- \$74.50/18, 2-g capsules
- \$37.50/9, 2-g capsules

### Clinical Evaluation Protocol

- 129 restorations that were placed in 1992-93 were recently recalled after at least 15 years in function.
- 104 restorations were in posterior teeth (81%), and 25 restorations were in anterior teeth (19%).
- Among the recalled restorations, 33 were one-surface restorations (26%), 88 were two- and three-surface restorations (71%), and 8 were four-surface restorations (3%).
- Most restorations were bonded with **3M ESPE Adper™ Scotchbond Multi-Purpose Dental Adhesive**.

- The restorations were evaluated on a 1-5 scale: 1=poor; 2=fair; 3=good; 4=very good; 5= excellent.

### Clinical Observations

Figure 1 summarizes the ratings that the 129 restorations received in the categories evaluated: resistance to fracture, esthetics, resistance to marginal discoloration, and wear resistance.

#### Resistance to Fracture

One hundred five of 129 restorations exhibited no fracture or chipping (81%). The remaining 19% showed some minor chipping. None of these restorations required replacement.

#### Esthetics and Resistance to Marginal Discoloration

Very little shade change took place over the 15-year period. Seventy-two percent of the recalled restorations exhibited excellent shade match. About 28% showed slight discoloration, some of which could be due to water sorption. Marginal discoloration is likely related to the bond of the composite to the tooth. In most cases, the composite was bonded with a 4<sup>th</sup>-generation bonding agent. Some of the discoloration at the margins was due to chipping and it was most visible in patients who smoked. Eighty-one percent of the restorations had no discoloration at the margin.

#### Wear Resistance

The wear resistance at 15 years was excellent. In

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## REPRINT

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### Ratings

Excellent	+++++
Very Good	++++
Good	+++

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most cases, wear was almost undetectable, either with an explorer or an intraoral camera. The low wear rate of **Z100** is consistent with the normal amount of wear observed on tooth enamel and amalgam restorations. None of the restorations were replaced because of excessive wear. In fact, in 84% of the restorations, the wear was undetectable visually.

## Summary

**3M ESPE Z100 Restorative** performed exceptionally well over the 15-year monitoring period in both the anterior and posterior

regions. The restorations had long-lasting esthetics, minimal wear and negligible fracture or chipping. This composite received a 96% clinical rating.

Patient satisfaction was very high. In fact, none of the Editors of THE DENTAL ADVISOR would have predicted such a positive outcome of **Z100** restorations 15 years after placement. The clinical performance of **Z100** during this period met or exceeded all expectations. Even though many new composites have since been introduced, **Z100** has proven itself to be in a class of its own. ■

