

**LONG-TERM CLINICAL PERFORMANCE**

*Tokuyama Dental America*

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**Description**

*Estelite Sigma Quick* is a supra-nano filled, low shrinkage, universal composite indicated for anterior and posterior restorations.

*Estelite Sigma Quick* uses the RAP technology (Radical-Amplified Photopolymerization initiator technology) that offers increased working time of 90 seconds under ambient light and decreases curing time to 10 seconds. *Estelite Sigma Quick* is available in both syringes and pre-loaded tips in about 20 different shades.

**Clinical Evaluation Protocol**

- Over 2800 *Estelite Sigma Quick* restorations were placed and bonded with a variety of 6th- and 7th-generation bonding agents.
- 1511 anterior and posterior restorations (Figure 1) composed of one, two, three and four surfaces (Figure 2) were recalled.
- The restorations were in service from less than 3 years to more than 6 years (Figure 3).
- At recall, restorations were evaluated for resistance to fracture/chipping, esthetics, resistance to marginal discoloration, wear resistance, and retention.
- Restorations were rated on a 1-5 scale: 1=poor, 2=fair, 3=good, 4=very good, 5=excellent.



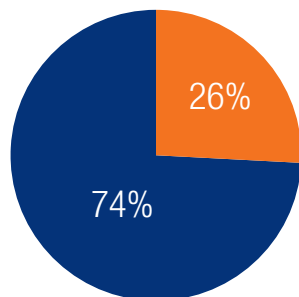
**Consultants' Comments**

*"My material of choice when doing anterior cosmetic bonding."*

*"Definitely a great handling material for both anterior and posterior restorations. Great opalescence and translucency allow it to blend very well with surrounding tooth."*

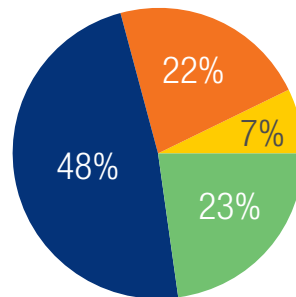
*"Looks great after 5 years, and I am sure it will last much longer."*

**FIGURE 1** Distribution of Anterior and Posterior Restorations.



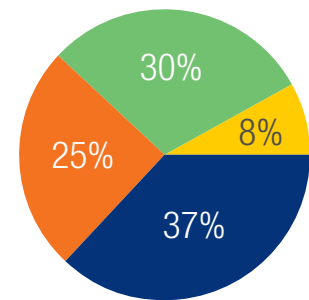
Anterior restorations  
Posterior restorations

**FIGURE 2** Distribution of Restoration Surfaces.



One surface  
Two surfaces  
Three surfaces  
Four surfaces

**FIGURE 3** Time in Service of Restorations.



Less than 3 years  
3 to 5 years  
More than 5 years  
More than 6 years

## Clinical Observations

### Resistance to Fracture/Chipping

*Estelite Sigma Quick* performed extremely well with regard to resistance to fracture and chipping over the five-year period (Figure 4). 39 restorations (2.6%) had small chips, but did not require replacement. Another 18 restorations (1.2%) fractured and were replaced. Many of the restorations replaced were large, and in several cases, the tooth fractured requiring the placement of a crown.

### Esthetics

The esthetics of *Estelite Sigma Quick* was excellent (Figure 4). In many cases the fillings were hard to detect and blended with the teeth perfectly. The availability of many shades and opacities was extremely helpful in achieving long-lasting results.

### Resistance to Marginal Discoloration

Most of the *Estelite Sigma Quick* restorations were bonded with 6<sup>th</sup>- or 7<sup>th</sup>-generation bonding agents. 97% of the restorations exhibited very slight or no microleakage at the margins at recall time (Figure 4).

### Wear Resistance

*Estelite Sigma Quick* maintained excellent wear resistance in both the anterior and posterior regions after five years in function (Figure 4). The wear on the opposing dentition was minimal.

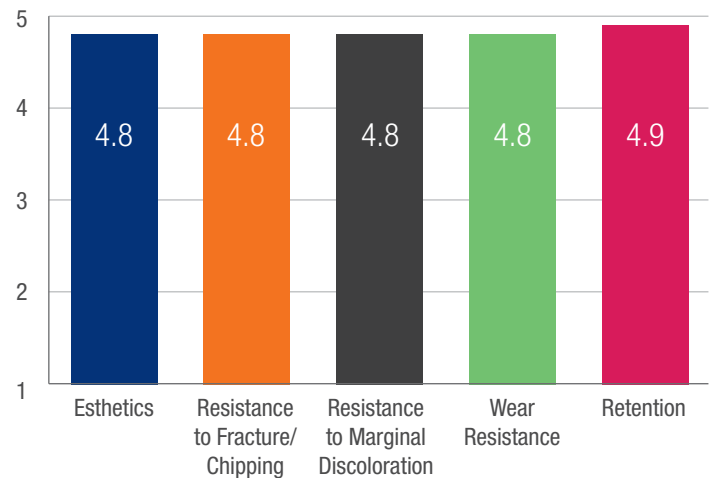
### Retention

Retention was excellent (Figure 4). There were 33 debonds (2.2%) that involved facial/buccal surfaces. Debonding was more a function of the bonding agent and surface preparation and not the composite.

## Summary

Among over 1500 *Estelite Sigma Quick* recalled restorations, the vast majority performed exceptionally well over the 5-year period. The composite has excellent translucency that helps it blend very well with the surrounding tooth structure. The material sculpts very easily especially when cosmetically bonding anterior composites. *Estelite Sigma Quick* received a clinical performance rating of 96%.

FIGURE 4 Results of *Estelite Sigma Quick* at 5 years.



\* Results at 5-year check-up