



all in one

... unbelievable? But true!



Picture: Dr. Thanos Kristallis



**E** **LIPSE**<sup>®</sup>  
**radica**<sup>™</sup>

A well-made provisional  
is the basis of a success-  
ful restorative treatment

It is desirable that a provisional system is strong and durable, and adapts well to a tooth for marginal fit. The appliance needs to be comfortable to wear and the aesthetics need to be acceptable at the very least. Color stability and translucency are important contributing factors here. The material does need to be biocompatible and non irritating. Low exothermicity is also desirable.

The provisional restoration plays an important role in maintaining the aesthetic and functional aspects of a patient's dental health, and has a significant impact on the final restoration placement as well. The demand for provisionals is increasing as well as the material requirements for provisional restorations. The popular use of implant therapy has significantly increased the service lifetime of provisional restorations from the conventional one to two weeks, to the six months and longer term use. In addition, provisionals have multiple other functions such as preserving periodontal health, preventing movement of abutment teeth, or protecting pulpal tissue and teeth from carious impairment. They have diagnostic functions as well, in helping to evaluate occlusal function, phonetics and vertical dimensions.

All of these ideas guided the design of Eclipse<sup>®</sup> radica provisionals.





Picture: Dr. Thano Kristallis



## Eclipse® radica sets a new standard

Eclipse® radica is a revolutionary, lab-processed provisional material that combines exceptionally high flexural strength characteristics with outstanding aesthetics. This unusual combination enables you to insert Eclipse® radica temps in a variety of roles. From try-in application to long-term provisional appliance\* – Eclipse® radica offers unexpected options.

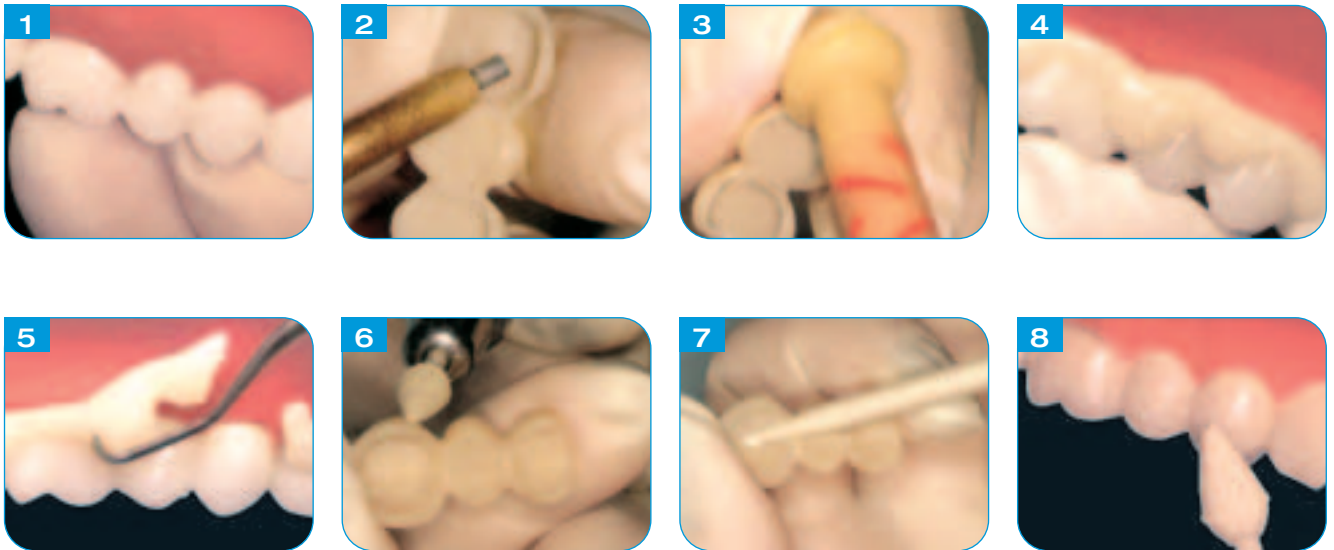
You will quickly discover that Eclipse® radica is easy to use and work with for all relines, placement and repair procedures. In addition Eclipse® radica is a tissue friendly and biocompatible system. As it is extra orally cured you will observe less incidences of sensitivity.

Thanks to its enormous durability and its good wear resistance Eclipse® radica is also indicated for long-span bridges and implant cases.

The surface gloss is very long-lasting, thus radica temps resist staining and have very low affinity to plaque.

DAs the Eclipse® radica assortment includes not only dentine and enamel shades, but also several effect dentine's and stains, provisionals made of radica can easily be characterized and individually shaded. No matter if an average restoration or high-end temp is requested, Eclipse® radica meets the demand regarding aesthetics.

\* Indicated to stay in the mouth for up to 6 months



## Placement technique (diagnostic restoration)

1. Test fit of the restoration onto finished tooth preparations. Evaluate and adjust for complete seating with acceptable occlusion.
2. Clean the internal surface with aluminium oxide or lightly grind with  $\frac{1}{4}$  round bur.
3. Reline and replace restoration with an MMA acrylic or bis-GMA. Consult manufacturer's instructions for proper relining technique.
4. Reseat the case and allow excess material to express.
5. Remove excess material.
6. Upon removal of the restoration, finish and polish margins only.
7. Apply a temporary cement and seat restoration.
8. Finish the case and polish.



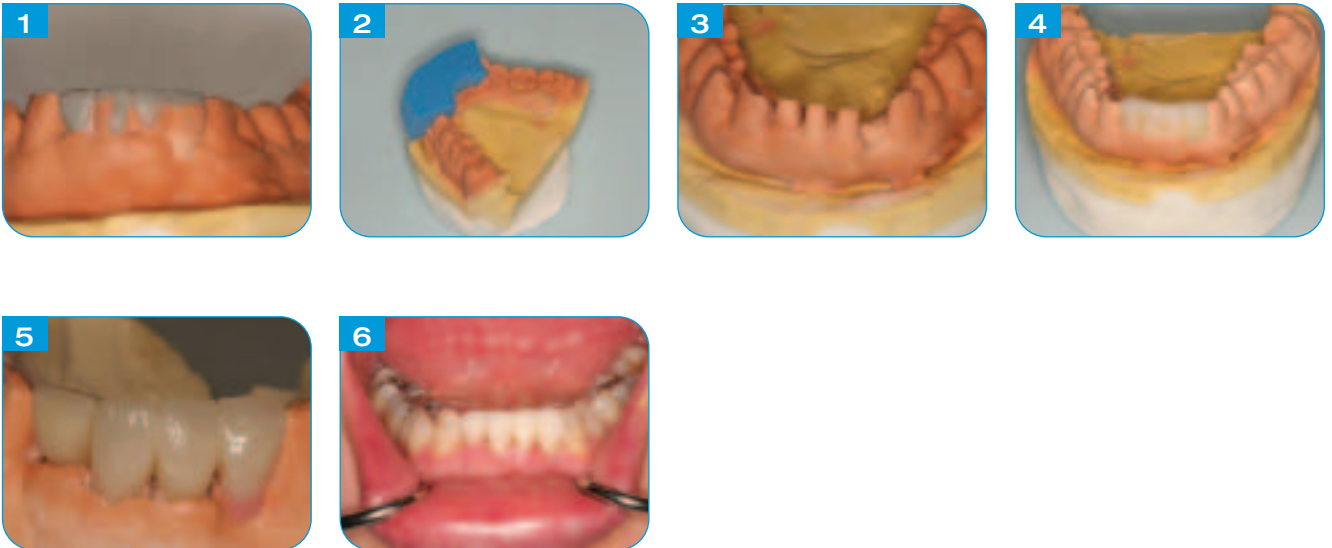
## Repair technique

If in rare cases the restoration fractures in use, several repair methods are possible.

The restoration may be repaired with the parent Eclipse® radica material. The fracture surfaces must be cleaned and roughened with a medium bur to remove any sealer. The appliance has to be replaced on the model and covered with a thin layer of sealer. A small amount of dentine or enamel needs to be applied as required, with the electric wax pencil to the roughened surface.

After a short cooling phase the surface needs to be covered with a thin layer of sealer and the appliance needs to be cured.

Repairs may also be made using other repair materials. The fracture surface needs to be cleaned and roughened as well. Next, Prime and Bond NT (Dentsply) priming agent is applied to surfaces. It is important to apply adhesive on roughened tooth surfaces only. Finally the repair material can be applied and the restoration can be cured.



## Diagnostic procedure

The shape stability and aesthetics of Eclipse<sup>®</sup> radica also lend themselves to its use as a diagnostic system. Patient communication has significantly more impact using a tooth colored diagnostic restoration that is simple to fabricate. Upon acceptance of the treatment plan, the Eclipse<sup>®</sup> radica diagnostic can double as the provisional itself.

After two minutes the matrix is removed (picture 4), excess material is removed, the sealer applied and the diagnostic is then cured.

The light-cured diagnostic, in dentine and enamel shades, enhances patient communications and establishes expectations for patient outcomes (picture 5 and 6).

To use as a diagnostic, the desired final dental contours are created in wax, on the model of the patient's current oral situation (picture 1). A silicone matrix is created of this ideal contour (picture 2). Next, the model is prepared (picture 3) to simulate the tooth reduction (according the DFU). Eclipse<sup>®</sup> radica enamel and dentine are placed appropriately in the matrix, and this is placed on the model.

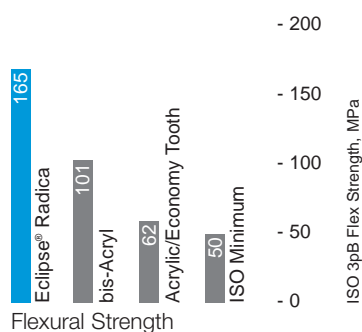


Fig. 1

## Clinical studies

The Eclipse® radica system has been extensively tested in-vitro and in-vivo, to ensure its performance.

### Flexural Strength

The international standard ISO 10477, recommends a minimum strength of 50MPa (3 point bend, flexural strength) for provisional systems. Flexural strength measurements showed that Eclipse® radica exhibits a significantly higher flexural strength than the other systems for provisional restorations which were tested (Figure 1). Practitioners can use Eclipse® radica confidently in both routine and long-term restoration cases.

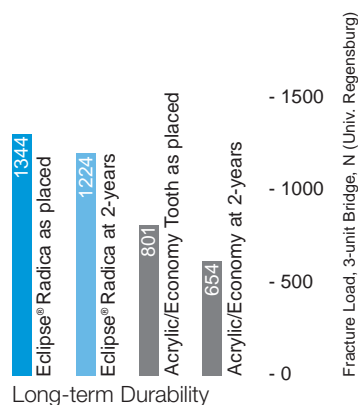


Fig. 2

### Long-term Durability

Some materials are initially strong, but can lose load-bearing capability over time under stress, thermal cycling and wear of the oral environment. A test developed independently by the University of Regensburg was used to evaluate durability of Eclipse® radical restorations. Three-unit bridges of Eclipse® radica and acrylic materials were fabricated to predetermined dimensions using a clear silicone matrix. A control fracture strength was obtained after water storage (14 days, 37°C).

The bridges were then fatigued for a simulated two-year service term (TCML:2400x5°C/55°C, 2min/cycle; 480.000x50N, 1.66Hz, human molar antagonist), and fracture tested again. Test results are summarized in figure 2. Pair-wise parametric analysis reveals that Eclipse® radica provisionals do not show a statistically significant loss of strength after two years of simulated service, while acrylics do. In addition they retain significantly more load-bearing capability.

### Wear Resistance

Wear during function is a leading concern. Eclipse® radica is significantly more wear resistant than common temporary materials, in a 3-body wear test using a modified Leinfelder method (Figure 3). Long wear greatly reduces the risk of provisional perforation, and the risk of provisional perforation, and the risk of saliva, bacteria and thermal irritants reaching the tooth, especially in longer term use.

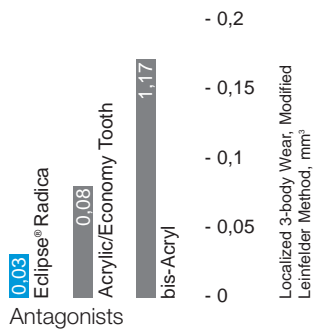


Fig. 3

### Clinical evaluation

Eclipse® radica was also tested in a multi-center, multi-practitioner clinical evaluation by four clinicians. Over a hundred teeth were restored in thirty patients. Over 80 % of restorations placed were bridge units. The restorations ranged from laminate veneers and single crowns through three- and four-unit bridges, to even six and nine-unit bridges. One bridge fractured after 20 days due to undersized connector dimensions. With that exception, all other provisionals performed successfully through the term of service.

Evaluation criteria included surface lustre, attainability and preservation of occlusal and proximal contacts, aesthetic translucency, shade match, and marginal adaptations. Practitioner approval ratings were either 95% or higher for each positive criterion.

### Comparison of Eclipse® radica to other provisional systems<sup>1, 2</sup>

Property	MMA-based*	EMA-based	Bis-GMA-based	Eclipse® radica
<b>Strength</b>	Good	Good	Very good	Excellent
<b>Wear</b>	Moderate	Good	Very good	Excellent
<b>Color Stability</b>	Good	Acceptable	Very good	Excellent
<b>Polishing/Repair</b>	Good	Very good	Acceptable	Excellent
<b>Marginal Fit</b>	Good	Acceptable	Very good	Excellent
<b>Pulp Irritation</b>	Moderate	Good	Very good	Excellent
<b>Minimal odor</b>	Moderate	Acceptable	Very good	Excellent
<b>Stain Resistance</b>	Good	Very good	Moderate	Very good
<b>Oral exotherm</b>	Acceptable	Good	Very good	Excellent

\* Note: Provisional restorations consisting of MMA backing with ground in economy denture teeth improve upon the aesthetics of MMA alone. However, the performance parameters are unchanged.

<sup>1</sup> Burns DR, Beck DA, Nelson SK, A Review of selected dental literature on contemporary provisional fixed prosthodontic treatment, J Prosthet Dent. 2003 Nov; 90(5): 474-97

<sup>2</sup> Wang RL, Moore BK, Goodacre CJ, Swartz ML, Andres CJ, A comparison of resins for fabricating provisional fixed restorations. Int J Prosthodont; 1989; 2:173-84

The overview compares classes of provisional materials, and their advantages and limitations. Eclipse® radica fulfils many characteristics of an ideal provisional material.

## Summary

The advantages of Eclipse® radica are clear – Eclipse® radica provides high strength and wear resistance, as well as durability, with a significant improvement in aesthetics.

The capability to efficiently layer enamel and dentine materials, in combination with characterization, provides for patient satisfaction when serving both a diagnostic and a provisional restoration.



## Eclipse® radica components

- 9 Dentine shades:  
bleach, A1, A2, A3, A3,5, B1, C2, C4, D2
- 2 Enamel shades:  
light and medium
- 3 Effect-Dentines:  
red-orange, yellow-orange, pink
- 5 Stains:  
brown, blue, white, orange, olive
- Sealer/glaze and  
model separator
- Matrix putty
- Syringe warmer
- Accessories
- Optional: electric  
wax pencil



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