

MARKETPLACE

Creating a natural restoration

Tony Beale describes a new composite that has the same level of wear found in natural teeth

It is recognised that the use of modern dental composites has significantly improved the overall aesthetic quality of both direct and indirect restorations. Composites' ease of use and inherent properties of chromaticity, opalescence, and vitality have allowed clinicians and technicians to reproduce truly natural looking crowns and bridges. Their ideal aesthetic properties can be seen in a range of composites that has been introduced by the Italian company, Micerium.

Optident introduced Micerium's original material, Enamel Plus HFO, to the UK dental market more than 12 years ago. Continual improvements to Micerium's composite range have been made progressively over the last decade.

Italian restorative specialist, Professor Lorenzo Vanini, the originator of the HFO composite product range, continues to work with Micerium. He more recently introduced variations that include HRI Enamels – a range of highly aesthetic dental composites that have the same refractive index as that of natural enamel. This product succeeds in creating a truly realistic reproduction of all the naturally occurring characteristics found in actual tooth enamel.

Tooth wear and composites

Professor Vanini's concepts have contributed to the development of the ideal dental composite, and this has led to the introduction of Enamel Plus HRI Function, a new composite that has been specifically developed to replicate the ideal wear properties that occur in natural teeth. Its introduction enables composite restorations to be placed with the knowledge that they will exhibit the same levels of wear as those found in the natural teeth.

There are now many different restorative materials available, and they all exhibit considerable differences in

The Enamel Plus HRI Function trial kit contains four dentine shades with a universal enamel shade and Function enamel EF3.



The Enamel Plus HRI Function kit contains all three Function enamels, EF1, EF2 and EF3.

their levels of hardness, with some being too soft, and showing wear levels way above that of natural teeth, while others can act as antagonists when coming into contact with opposing teeth.

Being relatively hard, some ceramic-based materials, (more specifically dental porcelains), tend to act antagonistically, and in more extreme cases can contribute to the creation of excessive wear facets or damage to both natural teeth and other non-ceramic restorations that may be present in the patient's dentition.

Enamel HRI Function composite now enables clinicians and technicians to use enamel shades that possess a low rate of abrasion, being comparable to that of natural enamel

It is well known that wear of natural teeth does take place, although this can be relatively minor and may only be measured in microns. However, it is estimated the average annual rate of wear can be approximately 30-40 microns, with antagonistic restorative materials tending to exacerbate this, and when placed in a situation where they are in contact with opposing occlusal tooth surfaces, this may create excessive wear or damage. Therefore, an ideal restorative material should be capable of matching the wear rate of that found in natural teeth, but failure to recognise this possibility may result in destabilisation or damage of the occlusion. This, in turn, can create other intraoral problems with the possibility of the clinician having to re-equilibrate, or restore the patient's occlusion.

A clinical article stated: 'The wear resistance of newer aesthetic materials has generally improved and the damage caused by several materials to the opposing dentition has been reduced'. It also said: 'The extent and rate of wear are influenced by many intraoral factors.' Presumably, this statement relates to the fundamental principles of occlusion.

Although it does not specifically state that the authors' comments refer to composite materials, it can also be

assumed that the aesthetic materials mentioned are composite products.

Material information

Enamel HRI Function composite now enables clinicians and technicians to use enamel shades that possess a low rate of abrasion, being comparable to that of natural enamel. There are three different Function enamels available; EF 1, 2 and 3. They follow the same shade coding as found in both the original Enamel Plus HFO, and the Enamel Plus HRI range, with EF1 being intended for older patients, EF2 for most other adult restorations, and EF3 being the lightest shade and most suitable for young patients. The Enamel Plus composites' inherent aesthetic properties permit the production of truly aesthetic restorations, together with a guarantee of complete harmony with the patient's occlusion.

Optident can provide complete information on the full range of Enamel Plus HFO, Enamel Plus HRI and Enamel Plus HRI Function composites on request.

The two-volume textbook *Conservative restoration of anterior teeth*, by Professor Vanini, Francesco Mangani and Olga Klimovskaia, is a must for those clinicians that wish to know all about the creation of excellence in aesthetic composite.

Details of limited attendance courses in Italy with Professor Vanini are also available from Optident. 

Reference

1. Yip HK, Smales RJ, Kaidonis JA, 2004. Differential Wear of Teeth and Restorative Materials: Clinical Implications. *International Journal of Prosthodontics*. 17: 350-356.

FOR MORE INFORMATION contact Optident at Optident Ltd, International Development Centre, Valley Drive, ILKLEY, LS29 8AL.
Tel: 01943 605050
Email: sales@optident.co.uk
Visit: www.optident.co.uk

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