

Technical Update on Processing

enigmallife⁺ dentures

Removing Plaster & Avoiding Discolouration

Summary

Plaster removal solutions which contain sodium hydroxide (caustic soda) may cause discolouration of both **enigmallife** posteriors and other brands of composite denture teeth. The likelihood and potential severity of this issue is increased by higher concentrations of sodium hydroxide, longer exposure time to the solution, higher temperatures of the solution, the use of an ultrasonic cleaner and having roughened the tooth surface by sandblasting.

The issue can be eliminated by only using plaster removal solutions which do not contain sodium hydroxide (caustic soda). Schottlander Plaster Removal Solution is a suitable product that has been extensively tested with enigmallife teeth.

Background

It had been reported to us by a few customers that they had experienced discolouration on **enigmallife** posteriors after processing. At first we could not reproduce this phenomenon ourselves but it was observed that the problem was eliminated when a customer changed from a plaster removal solution to the use of a detergent. The issue was more common with particular solutions. We therefore set up an internal investigation to determine:

1. Why did some customers encounter the problem whereas most did not?
2. Did it make a difference which plaster removal solution was used and why?
3. What other factors could be involved?
4. Did this occur with all composite teeth or just **enigmallife**?

Conclusions:

1. When solutions containing sodium hydroxide (caustic soda) were used, discolouration occurred with all brands of composite teeth that were tested. The greater the percentage of sodium hydroxide in the solution, the greater the affect on the teeth. Unfortunately many plaster removing solutions on the market do not provide information on composition nor provide directions for use.
2. Even lower percentages of sodium hydroxide become more aggressive when:
 - a. The dentures are left in the solution for extended periods of time, i.e., several hours or even overnight.
 - b. The solution is heated as happens naturally in an ultrasonic cleaner. At 40°C the result could only be seen under magnification whereas at 55°C it was very visible with the naked eye.
 - c. Roughening the surface of the teeth as with sandblasting off remaining plaster before ultrasonically soaking since this increases the surface area for the caustic soda to attack.
3. There was no statistical difference between **enigmallife** and another leading brand of composite teeth tested (**enigmallife** was very marginally less affected). In the more aggressive cleaning regimes, PMMA teeth were also affected but to a degree only readily visible under magnification.

4. Unless soaked under the most extreme circumstances (high concentration sodium hydroxide solution, high temperature and extended time) the affect was only on the surface to a depth of approximately 0.1mm and could be polished off.

Further Action

In response to this issue, Schottlander resolved to:

1. Issuing clear guidance to our customers and to the market at large based on scientific evidence.
2. Develop our own plaster removal solution which is free of sodium hydroxide (caustic soda) and has been tested and confirmed as not affecting the surface of **engimalife** and other composite teeth when used as in line with instructions.

Instructions for Plaster Removal without Discolouring Composite Teeth

To loosen and remove plaster from dentures after deflasking place the dentures into a sodium hydroxide free plaster removal solution such as **Schottlander Plaster Removal Solution** for no more than 30 minutes. Avoid letting the temperature rise above 45°C. For faster plaster removal use an ultrasonic bath.

To minimise the plaster that needs removing (and therefore the time needed to remove it), use Schottlander Isolating Solution or Schottlander Cold Mould Seal before packing. Please speak to the Schottlander Laboratory Sales Team on **Freephone 0800 97 000 79** for advice on which is best suited to your diestone.