

Thermoforming using occludator devices

By Peter Herring, Adv Dip Dent Tech, ACCDP



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Many thermoformed appliances (e.g. mouthguards, occlusal splints) require an imprint of the lower dentition for both functional and comfort reasons.

Adding the bite imprint has been traditionally carried out after the appliance has been formed, adding another separate step to the production process.

Today devices called occludators (Figures 1 and 2) are available that allow the inclusion of the bite imprint at the same time as the thermoforming process takes place, saving both time and effort as well as removing the need to reheat or modify the material for a second time.

Using the occludator

While these devices are simple to use, one point must be reinforced - these devices are not articulators!

Mechanical considerations do not allow for the occludator device to replicate the dimensions of an average value articulator and hence if bite openings are simply determined by increasing the pin length on an occludator device, the result will be a generally unwanted increased bite opening at the molar regions.

The solution to this effect is to use a construction bite. A construction bite is a bite registration, ideally taken intra orally, at the final opening to which the appliance is to be constructed. This bite is then transferred to the models fixed to the occludator and set at this registration for the construction of the appliance.

If no intra oral construction bite is available it is advisable to make a construction bite using an average value articulator. This is a simple process of mounting the upper and lower models in centric relationship, adjusting the articulator to the opening required and making a wax or silicon bite record.

Now that the correct bite registration is positioned in the occludator it is simply a case of imprinting the bite during the thermoforming process. If deep contacts are required the appropriate models occlusion is imprinted directly into



Figure 1. Rapid vacuum thermoforming unit with occludator attached.



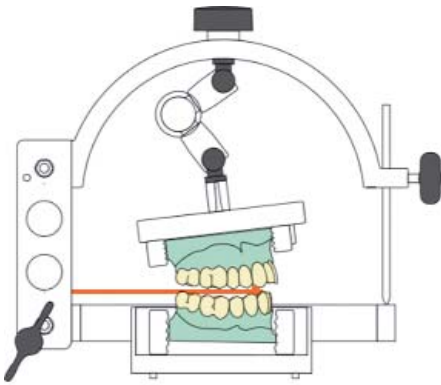
Figure 2. Imprint of lower arch dentition carried out at the same time as thermoforming appliance.

the appliances surface. Flat planes for occlusal splints can be created by interposing a thin (1mm) sheet of separating material between the occlusion and the still plastic splint material, quickly pressing together to form a flat plane then removing the separating foil and re imprinting to create point contacts on the occluding surface.

Allow the appliance to completely air cool in situ before removing from the thermoforming unit and finish as usual - ready for insertion.

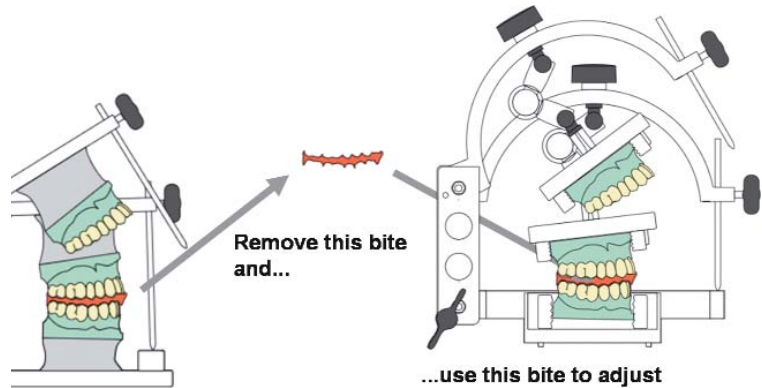
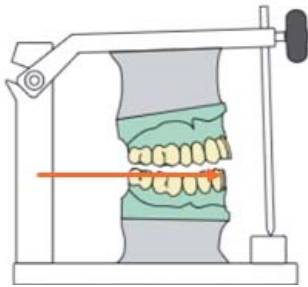
About the author

Peter Herring is a dental technician and prosthetist based in Perth. He is the Australian agent for Erkodent thermoforming machines and also runs a busy lab dedicated to thermoformed appliances. For more info, call 1800-242-634 or pjh@erkodent.com.au



Bite elevation incisal point	Bite elevation molar area 27/37 Articulator	Bite elevation molar area 27/37 Occludator
1,0	0,3	0,7
2,0	1,0	1,4
3,0	1,5	2,2
4,0	2,3	3,0
5,0	2,6	3,5

These specifications are measured and not calculated. The error is about + - 0.2 mm.



The occludator has different dimensions compared to an articulator - with the consequence that a simple lifting at the supporting pin will lead to an additional bite elevation in the molar area.

A construction bite allows the Occludator to be adjusted without introducing bite errors. If there is no construction bite available adjust the average value articulator according to the desired bite elevation and take a wax or similar bite then transfer to the occludator.