



Using granules

By Peter Herring, Adv Dip Dent Tech, ACCDP

Using granules to position models is not a new feature in the thermoforming world, but it does tend to polarize people distinctly into two factions - users and non-users. From conversations with the people we've worked with, it becomes clear that people simply either love granules or hate them.

For sure, using granules requires learning a new set of skills and a different mindset but the ongoing benefits far out way the time it takes to become familiar with manipulating the granulate medium. Once mastered, it makes little sense to revert to using the model trimmer to specifically prepare models for thermoforming.

For height and angulation adjustment

In their most fundamental application, granules save the time and effort of trimming models to the desired height and angulation for thermoforming. But apart from this, using granules this way benefits us by leaving the model intact which then also makes it much easier to remove the thermoformed foil for finishing. We also gain more precise control of the area to be thermoformed over with granules as we are free to follow the contours of the anatomy rather than be restricted to the plane of a flat model base and forming to this.



* The most obvious and common use for granules - The model can be quickly embedded to the optimum height and angulation without trimming.

For varying material thicknesses

As an example, if we compare, say, an occlusal splint to a bleach tray, we have different requirements for palatal thickness. For the bleach tray, it is desirable to maintain as even and greatest material thickness as possible over the appliance for stability of the thin material. In this case, we can embed the model to the maximum degree (the appliance extension plus material to allow for finishing) and reduce the materials thinning from stretching to a minimum.

With an occlusal splint, we usually want the material thickness to be maintained on the buccal and occlusal surfaces and for



Differential positioning of the granules allows us to manipulate the thermoformed foil and produce varying degrees of material thickness across the same thermoformed foil.

patient comfort, we want a reduced thickness in the palatal region. To help achieve this, we can embed the model to within 4-5mm of the finished appliance on the buccal and labial region and then clear the palatal area. This will cause the material to stretch and thin as it forms into the palatal area requiring a lot less work to achieve a comfortable profile here, yet still maintain the occlusal and labial thicknesses.

About the author

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For selectively thermoforming over areas

When forming one foil over another, say, when producing triple laminated mouthguards or bracket transfer trays, we do not want the second layer to form over the entire first layer and so we can quickly position the granules to cover the areas of the first layer which we want to remain free of the subsequent layer and thermoform over this.



* Here we're using granules to "block out" the areas where we do not want the second "hard" layer of a laminated mouthguard to bond. This makes for accurate placement and fast finishing.

Controlling granules

The main resistance towards using granules that we encounter usually relates to the issue of controlling them, i.e., they go everywhere.

But four simple tools are all that are needed to work effectively and cleanly with granules: the lipped tray, scoop, on-off magnet and brush. With the correct tools in place, using granules becomes second nature and easy.

The art of using granules is to work between the machine and the open tray so few granules "escape". Then we can either pour granules from the lipped tray or use the scoop to administer the quantity we require. The brush is then used to refine and shape the granule position around the model and form the pot and the on-off magnet makes it easy to collect any errant granules and return them to the tray.

Once these skills and back and forth work flow is acquired, you have a much quicker and more flexible method for positioning and preparing models for thermoforming at your disposal.



Four simple tools to tame granules: Lipped Tray, Scoop, On-Off Magnet and Brush.



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