

Frequently Asked Questions (Full Arch)

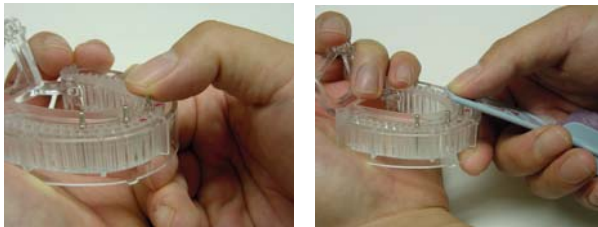
- Technical Advice & Helpful Hints -

1. Q. (Stone Removal) Why are we occasionally finding it difficult or impossible to completely seat the dies?

A. Below is a list of eight topics that play a part in the successful die seating of the models. Look at each topic to see if one or more may apply to your situation. If using a high expansion stone, be especially mindful of topics 4, 6 and 8.

< Initial Pin Placement >

1) Do not push the pin too deep



As seen in the hands-on video, the dowel pins may be pushed down into the pinholes by using a tool such as the back of an impression handle or simply by pushing the pins down with your thumbs. Make certain that you do not push the pins down into the pinholes with excessive force. When the ceramists re-insert the pinned dies onto the articulator throughout the fabrication

process, the pins must go as deep as they were when the model was poured in order for the dies to be completely seated. With this in mind, understand that you can use varying degrees of force to control how far the pins go down so that they are deep enough to be secured but not pushed excessively down into the pinholes.

< Pouring Stage >

2) Do not make the stone runny by using too much water



If the stone is too runny, it is more likely to flow down into the pinholes. If the stone that went into the pinholes breaks off into the plastic tray, it should be cleaned out to allow complete seating. The model from picture 1 was not too runny and therefore did not leave broken pieces of stone in the pinholes. A typical model should have very little stone that goes into the pinholes as seen in picture 2. If the stone is too runny, a meaningful amount may go into the pinholes, causing it to break off during die removal (picture 3).

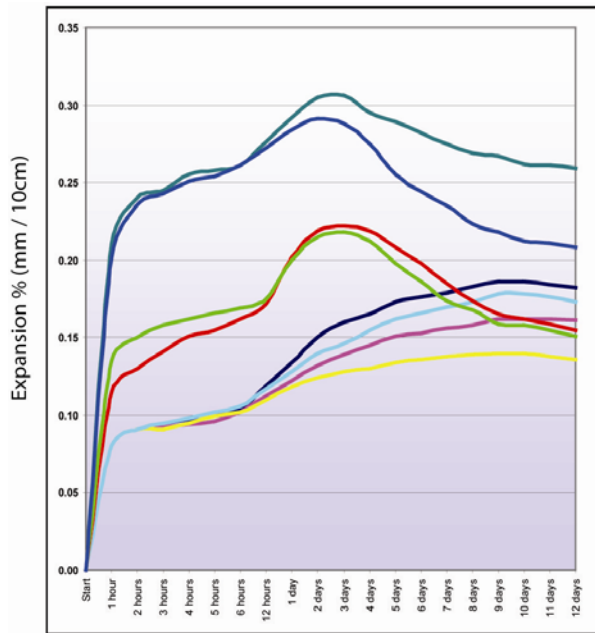
3) Do not vibrate the die stone too much



Vibrating the stone too much may also cause it to flow down into the pinholes, especially if the stone is runny. This may cause stone to break off in the pinholes of the articulator which may prevent the dies from completely seating. Simply tap the articulator tray onto the vibrator a couple of times to allow the stone to flow around the pin heads.

< Before Sectioning >

4) Let the model expand on the tray



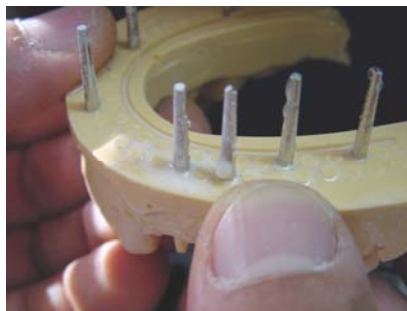
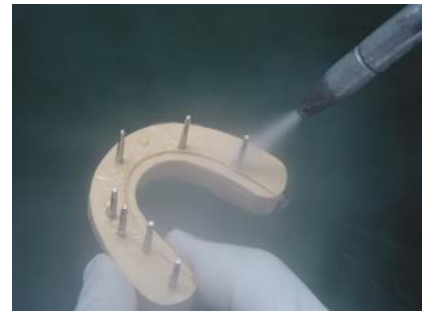
Die stone expansion (%) as a function of time after pouring



As seen in this picture, stone expansion can be very significant. The blue stone is low expansion, the orange is medium and the green is high expansion. The green has expanded enough to crack through this thick glass beaker.

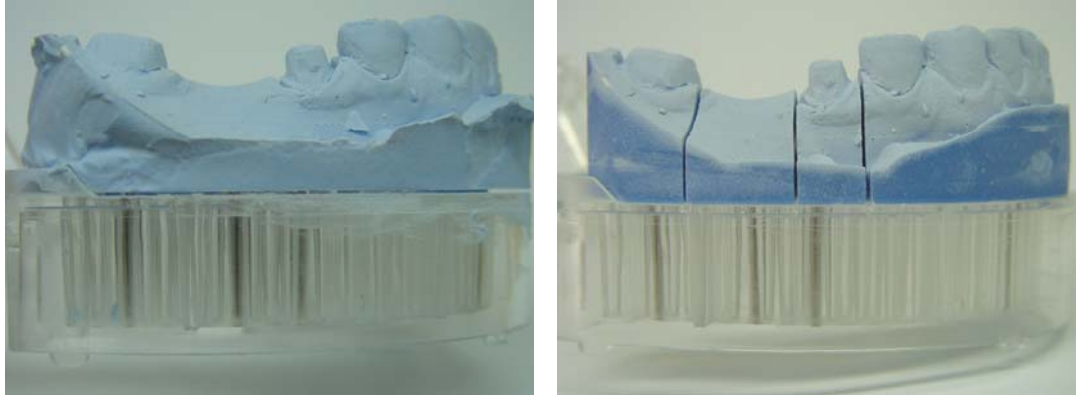
As seen in the graph to the left, die stones vary greatly in regards to their expansion rates and characteristics. Since the model goes through most of its expansion in the first few hours, it is best to keep the model on the tray as much as possible for the first 3 hours after pouring. Allowing the model to expand on the tray during this critical expansion period ensures that there will be no discrepancies between the contours of the plastic tray and the bottom contours of the model. The model can, of course, be removed for short periods of time while grinding, sectioning, and cleaning.

5) Clean the bottom of the model thoroughly



This point can never be over emphasized. When dry grinding methods are used, thoroughly spraying the cast with compressed air or with a steam gun will keep the bottom of the model clean. If wet grinding is used, the best way to clean the model is by using either a steam gun or a wet toothbrush. Compressed air alone is not usually enough because it leaves a lot of stone residue on the model and on the pins.

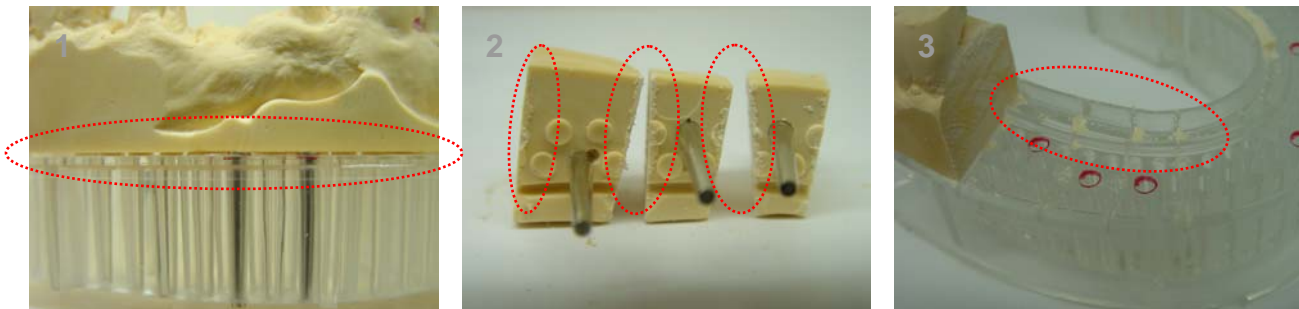
6) Section the dies for complete seating



Due to die stone expansion factors, some models may be difficult to seat completely before sectioning (this is most apparent when using a high expansion stone). The plastic tray holds the pins firmly in the original and correct alignment, but as the stone expands it puts a small amount of tension on the pins as it attempts to push them in an outward position. The model can be pushed down into place with some extra force. Once the model is sectioned, the tension is released, the dies seat completely and the pins remain in their original position.

< Sectioning >

7) Make sure the model is securely seated on the tray when sectioning



If sectioning on the tray, make sure the model is completely seated. If there is a gap between the bottom of the model and the top of the tray (picture 1) it may allow debris to build up on the edges of each die (picture 2) and in the lingual area of the tray (picture 3). This is due to the downward pressure of the saw that causes the bottom of the model to chip off if there is no resistance from the tray. This can be further aggravated if the model is still wet. Avoid this problem by making sure the model is completely seated on the tray. It is helpful to know that while expansion factors may make it difficult to completely seat a certain model before being sectioned (as in topic 6), the model can be pushed down with some extra force to section the dies.

8) Cut large sections into smaller sections



If a certain section is too big, cut it into two smaller sections for complete die seating. If a large piece of the model is left un-sectioned, that piece may be difficult to seat due to the expansion of the die stone and the shape of the arch. In accordance with this suggestion, when placing the pins during the pouring stage, remember to place a couple of pins in the larger sections so that they can be divided up into smaller pinned sections if necessary.