

## Study Casts: Pouring up

- Timing.** Alginate is approximately 70% water and loss of water to the atmosphere occurs as soon as the relative humidity is below 100%. If the impression is stored under water, imbibition (uptake of water) occurs which results in swelling of the impression. Either will cause unacceptable distortion in the final cast.
  - It is optimal to **pour an impression within 10-15 min** after it has been made. Even during that period, the impression must be wrapped in a damp paper towel.
  - If you cannot pour it up immediately, wrap in a damp paper towel, put in a plastic headrest cover, and pour up as soon as possible.
- Pour up in stone** (usually choose gold or yellow color- Microstone™ is one brand) for the smoothest surface and detail capture. *If this model is to be used for a final impression rather than study casts, use “die stone” and vacuum spatulation.*
  - Measure out the correct amount of water and add water to the bowl first, then add powder.
  - Wet the powder, and then mix to a creamy consistency. Put the bowl on the vibrator for 30-40 seconds until large bubbles largely stop coming to the surface.
  - Holding the impression firmly against the vibrator, start adding stone on one side (molars), slowly allow small amounts of stone to flow from tooth to tooth around the arch, adding stone in approximately half-teaspoonfuls as it flows around.
  - Once the teeth are all filled, add enough stone to fill the impression and cover the borders by a few millimeters only. Add three small blobs of stone to the surface, two in the posterior, and one in the anterior. Hang the impression tray by the handle and allow to set.
  - Once the stone is set, on the mandibular, fill the tongue space with a wet paper towel so there won't be so much to remove later. You may want to lightly flatten the retentive blobs from the first mix on the model trimmer so the casts will sit flat in the bases.
  - Mix another bag of stone for the bases per procedure above. Carefully place stone around the retentive blobs of stone from the first pour, then place the rest of the stone into a patty on a tile or plastic square. Reverse the impression tray onto the patty and smooth the sides up onto the first pour. Common errors:
    - Allowing the impression to sink into the patty too deep. The thin areas are too thin and the land areas are too tall and have to be extensively trimmed.
    - Allowing gaps in between the first pour and patty. When trimmed, this leaves unesthetic voids in the final casts.
- Removing Impression.** Again, timing is critical. You need to allow the stone to allow approximately 1 hour for maximum strength of stone. If you try to remove it too soon, you are likely to break off teeth. However, if you allow the impression material to remain in contact with the stone for more than a few hours, it becomes chalky, and as the alginate dries out, it becomes stiff and will tend to break off teeth as well.  
Bottom line: The casts should be removed, **ideally, between 1-3 hours after pour-up.**