LAB APPLIANCE FABRICATION REQUIREMENTS
Retainers and Aligners

General Guidelines

Prescriptions
Please provide complete and signed Rx with every case.

Impressions

- Accurate impressions with any kind of impression material are acceptable.
- Impressions must adequately reflect **all relevant** anatomy.
- Impressions material **must not** be separating from the impression tray.
- Consider pouring your models right away if your impressions are moisture, temperature or time sensitive.
- Impressions sensitive to moisture content should be wrapped in a damp paper towel and placed in a sealed plastic bag if models are not poured immediately.
- Only metal impression trays and those with PVS impression material will be returned.
- The nature of impression materials currently on the market may contribute to common model problems encountered in the laboratory. Have you ever encountered porosity (bubbles, voids) or poor surface quality? Plaster or stone mixes are water based and they interact with impression surfaces in a water-like manner. Liquids placed on solid surfaces will be either attracted to, or repelled from that surface in varying degrees. Please be aware when selecting impression material if it is hydrophilic or hydrophobic:

  - Hydrophilic: is attracted to or can be wetted by water.
  - Hydrophobic: is when liquid is repelled, or fails to bond with liquids.

Polyvinyl siloxane (PVS) options can be hydrophobic or hydrophilic. Alginate is hydrophilic.

- There are advantages and disadvantages to these impression options but there are products on the market to help reduce the disadvantages. Surfactants and debubblizer sprays can be used to lower surface tension between surfaces making the impression material more hydrophilic and assure a better impression result.
- Great Lakes carries ACU-Flow™ a PVS impression material which is hydrophilic and requires NO surfactant spray for surface tension reduction, eliminating bubble formation. Surfactants must be used properly and excess surfactant should not be allowed to pool in the cusp tips. This can cause loose, sandy-like cusp tips. Excess surfactant needs to be blown out leaving a wet look only before pouring.

Models

- Plaster or stone models are acceptable. Generally, the durability of the stone is preferred.
- Models should be reasonably trimmed, yet sufficiently thick for strength considerations.
- No horse shoe shaped models; all models should have bases of at least 7mm in the thinnest area.

- Bases will be added as necessary for an additional fee to the models without bases, or lacking adequate base thickness or strength.
- Please indicate if your model must be duplicated, as work models may get damaged during appliance fabrication process.

Bite Records

- Please package bite registrations carefully.
- Bite records **must not** be left between models for shipment to the lab.
- Dedicated packaging should be considered for brittle materials such as Delar wax.
- Please identify the nature and the intent of each bite record, if more than one is being supplied.
- Please consider mounting the maxillary model, before sending it to the lab, for those cases requiring mounting. Sending such items as face bows, bite forks and mounting jigs through the mail often results in unreliable mountings.

Articulators

We use the following articulators and their accessories in our laboratory:

- SAM 1, SAM 2, SAM 3
- Danar
- Panadent
- Whip Mix
- Hanau
- Stratos 200
- Artex
- Kavo

Please consider that fully mounted models may not transfer perfectly from your articulator to the one in the lab.

Materials and Components

- (*) Biocryl resin: Cold Cure Acrylic MMA (Methyl methacrylate)
- Clear Biocryl: Thermo formable PETG (Polyethylene terephthalate glycol)
- Colored/patterned Biocryl: Thermo formable PVC (Polyvinyl chloride)
- Splint Biocryl: Thermo formable PETG
- Triad® (Visable Light Cure)
- Mouthguard material: Thermo formable EVA (Ethylene vinyl acetate)
- (*) Duraloy: Cobalt/Chromium Alloy
- (*) Stainless Steel: Chromium/Nickel Alloy
- (*) NiTi: Nickel Titanium Alloy
- TMA: Titanium/Molybdenum Alloy
- Menzanium: Nickel-free Stainless Alloy
- (*) Silver Solder

(*) Material is potentially allergy causing in sensitive patients.

Retainer and Active Plate

Technical Requirements

- Stone models are preferred.
- Opposing model is required for cases with inter-occlusal plastic (bite plates) or potential inter-arch interferences (clasp, habit breakers, pontics, reset teeth, deep overbites).

- Centric occlusion or treatment specific bite record is suggested when supplying the opposing model.

Default Materials

- Clear Biocryl
    - We will use Triad® (Visible Light Cure material); Biocryl resin (Methyl methacrylate) or PVC based thermo formable materials when requested or when technologically necessary.
- Duraloy
- Stainless Steel
- Silver Solder

Practical Considerations

- Be sure to indicate design specifics and/or treatment objectives, color/pattern preferences and pontic shades.

<u>Spring Aligner</u>

Technical Requirements

- Stone models are preferred.
- Opposing model is required when any desired corrections may cause a traumatic occlusion.
- Centric occlusion bite record is suggested when supplying the opposing model.

Default Materials

- Clear Cold Cure Acrylic (adjacent to anterior teeth)
- Clear Biocryl or Cold Cure Acrylic (appliance body)
- Stainless Steel
- Duraloy

Practical Consideration

- Some IPR (interproximal reduction) is frequently necessary to achieve desired corrections.
    - Specific IPR details are provided by the lab in writing for each case, involving resetting of teeth.
    - Most commonly 0.25mm is removed cumulatively at a proximal contact area.
- Ideal correction is not always possible due to space availability, occlusal interferences and appliance capability limitations.
- Only mild misalignment of **incisors** can be corrected with these appliances.

<u>Inman Aligner</u>

Technical Requirements

- Stone models are preferred.
- Opposing model is required when any desired corrections may cause a traumatic occlusion.
- Centric occlusion bite record is suggested when supplying the opposing model.

Default Materials

- Cold Cure Acrylic
- Stainless Steel
- Duraloy
- Nickel Titanium Coil

Practical Considerations

- Some IPR (interproximal reduction) is frequently necessary to achieve desired corrections.
    - Specific IPR details are provided by the lab in writing for each case, involving resetting of teeth.
    - Most commonly 0.25mm is removed cumulatively at a proximal contact area.
- Ideal correction is not always possible due to space availability, occlusal interferences and appliance capability limitations.
- Only **incisors** are generally corrected with these appliances. Capacity to move canines is severely limited.

<u>Invisible Inman Aligner</u>

Technical Requirements

- Stone models are preferred.
- Opposing model is required when any desired corrections may cause a traumatic occlusion.
- Centric occlusion bite record is suggested when supplying the opposing model.

Default Materials

- Cold Cure Acrylic
- Splint Biocryl
- Stainless Steel
- Duraloy
- Nickel Titanium Coil

Practical Considerations

- Some IPR (interproximal reduction is frequently necessary to achieve desired corrections. Specific IPR details are provided by the lab in writing for each case, involving resetting of teeth. Most commonly 0.25mm is removed cumulatively at a proximal contact area.
- Only **labially** directed rotations or movement are possible.
- Ideal correction is not always due to space availability, occlusal interferences and appliance capability limitations.
- Only **incisors** are generally corrected with these appliances. Capacity to move canines is severely limited.