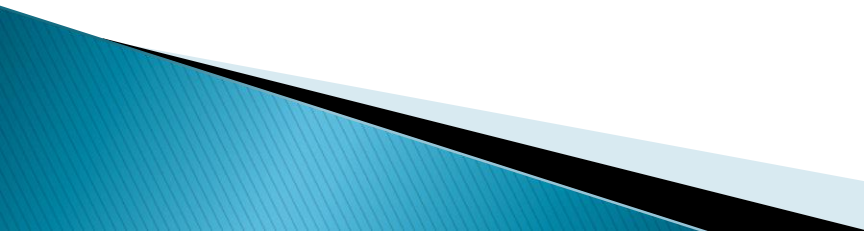




Cast of bones, eg. Ossicles

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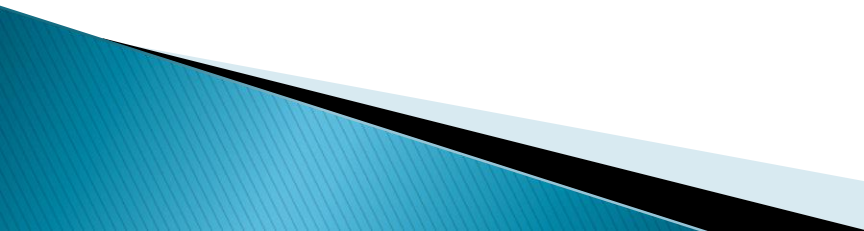
Background

- **“Plastic “** is an inexact term referring to a class of synthetic manufacturing materials that can be shaped and **moulded**.
 - Certain plastics have no definite melting points and are called **resins**.
 - **Thermoplastic** resins are softened by heat and they include epoxys, silicones and other polyesters.
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Embedding

- Ossicles, small fragile casts eg, casts of the coronary arteries, bronchial tree, cleared alizarin stained foetus are protected by **embedding** them in clear resin.
- Clear **cystic** resin is most suitable for this purpose.
- The resin is activated by use of 1% catalyst. It maybe tinted to any desired colour.

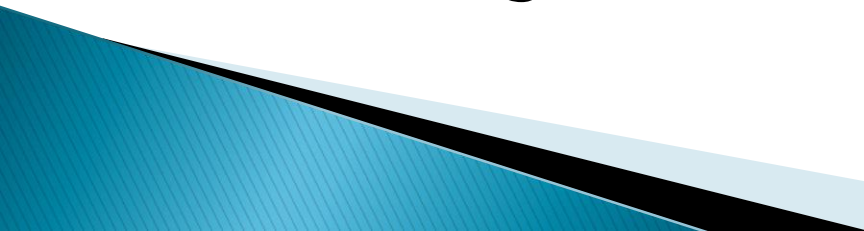
Embedding, cont.

- Virtually any small specimen can be embedded in a block of clear resin where its protected from breakage, **dessication** and dust.
 - Resin embedded mounts are clean, convenient to handle, view and easy to store.
 - Suitable specimens include delicate specimens that are opaque and dry egg ossicles and small specimens that have been stained.
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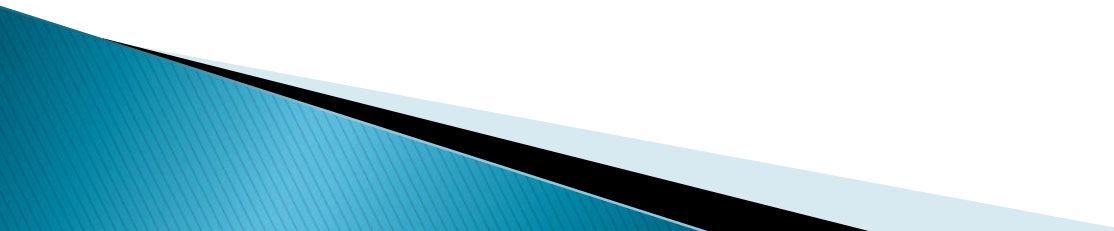
Epoxy clear casting Resin System

- Two resins (LR151 and LR155) and three **hardeners** (EH39 fast, EH42, and EH45 slow)
 - can be mixed together ratio (2:1) in any combination to adjust setting times.
 - Small castings maybe cast with faster resins.
 - Larger and thicker casts must be slowed down to avoid heating and discoloration.
 - **Thermosetting** resins are appreciably softened by heat.
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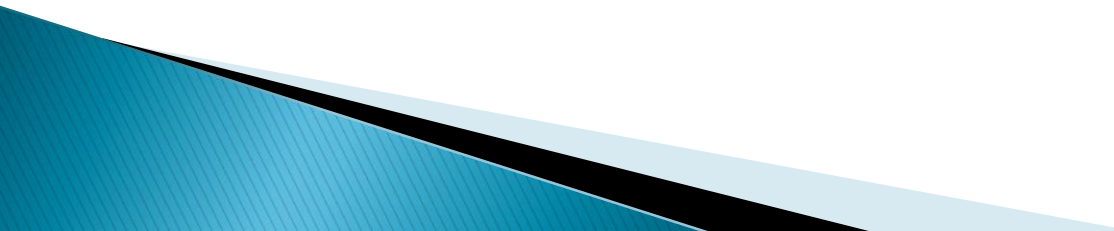
Resin casts

- This is a method of plastic casting where a mould is filled with a liquid synthetic resin which hardens.
 - Primarily used for small specimens eg. ossicles and other prototypes.
 - The synthetic resin for this process is a **monomer** for making a plastic thermosetting polymer.
 - During the setting process the liquid monomer polymerizes into a **polymer** thereby hardening into a solid.
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Method of resin casting eg.ossicles

- ▶ Step 1
 - ▶ A plastic container suited to the size of the specimen is chosen.
 - ▶ As a base, prepare resin and tint with a colour which is in contrast to the specimen being embedded.
 - ▶ Having removed air bubbles the base is poured and the setting time is about 12–18hrs.
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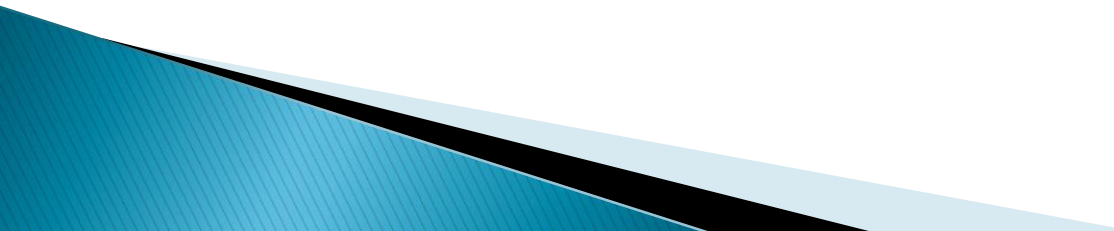
Step 1, continued

- ▶ It is vitally important that at any time the layer of cast should not be more than 2–3mm thick.
 - ▶ Any thicker than that has chances of it cracking due to heat generated during the **clearing** process.
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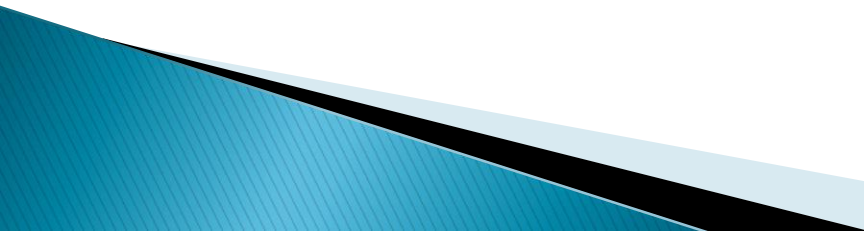
Step 2

- Prepare another quantity of resin in another container (sufficient to submerge the specimen) and place the item in it.
- Introduce **negative pressure** to remove bubbles trapped around the specimen

Step 3

- Place the specimen on the prepared base and pour clear mixed resin until the height of 2–3mm is reached.
 - Allow this process to now **cure**.
 - After curing continue layering clear resin 1 stages till the entire specimen is covered to about 4mm above it.
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Step 4

- ▶ When the resin has hardened , place the resin embedded block in warm water (60 deg C).
 - ▶ After 10min remove and immediately place in cold water (10 deg C).
 - ▶ The sudden exposure to difference in temperature will release the resin block from its container.
 - ▶ Wipe dry and the block formed is now ready for the final stage.
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Step 5

- The block is now ready for **sanding** and **polishing**.
 - Commence sanding the upper surface(which maybe we wavy due to setting cure) with a sandpaper of 60 grit.
 - Gradually increase and bring to 1000 grit and sand all areas needed.
 - With a motorised polishing pad polish till gloss.
 - Specimen is now ready for display and usage.
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