Introducing Health Sciences: Visual Impairment
Lens Testing

Commentary
Before any of these formulations can go into production they're extensively tested in their final hydrogel form to ensure they'll behave as they should in the rather unique environment of the eye.

Simulating these conditions and measuring the response of the materials is vital before a formulation can be passed for use.

Int
What's going on here then, John?

John
Well following the formulating of the material – the mixing of the monomers, the cross-link as the catalysts - we take the material, we put about 400ml of fluid into each one of the moulds, the air is ejected from the mould, the excess fluid drained off, the mould is sealed up and then put into the racks over here prior going into the polymerisation bath.

Int
So it's still fluid at this stage?

John
Yes, it'll take quite some time to go from the fluid stage to the hard polymer in the polymerisation bath.

Int
So the racks being dropped into the water – what's that for?

John
We're going to use the water in the bath as the heat transfer medium to control the temperature of polymerisation. This is absolutely critical. Half a degree either way and you won't have the polymer that you really need.

Int
How long is it in there for?

John
It depends upon the material, but the shortest polymerisation is sixteen hours and the longest is forty-six hours.

Int
And that's it?

John
No, there's a final stage after that which is annealing where we take the blanks from the moulds, we put them into the ovens, and we will cure the material and remove any possible traces of stress or unreactive material.

Commentary
So after passing four quality control measures our hard polymer disks are trimmed to size and sent out to their final destinations.