



Introducing Health Sciences: Visual Impairment

Lens Testing

Int

As far as soft lenses and hydrogels are concerned, what do you as a contact lens manufacturer expect from the suppliers of your materials?

Man

What we're looking for from the manufacturers of the polymers is consistent materials, especially with the soft lenses because the soft lenses of course that so much of it is water that we make the lenses in the dry state and then we hydrate them, we add the water to them so they swell and they become soft and wet, and obviously what we're looking for is the parameters must be forecastable so we do expect and demand from our polymer chemists, if you like, forecastable materials which we can use to make high quality contact lenses from.

Commentary

But being supplied with precision made materials means nothing unless a high degree of accuracy and cleanliness is maintained at the final stages.

So after donning a rather attractive hat I was led to the laboratories, accompanied by Malcolm Adams, Lab Manager.

Malcolm

OK now, this is the start of the software production line, this is the raw product we start with, and we mount them into these plastic inserts.

We know the radius that we're cutting is going to be different dry and wet, but we have expansion factors which we can put in so we know what they are wet and dry.

Int

So you know that when the lens absorbs water it will actually expand to that degree?

Malcolm

That's right.

Int

It's pretty accurate.

Malcolm

Yes, it's very accurate.

Commentary

Accuracy is the name of the game here. The precise cutting of the back surface of the lens is checked and double-checked before continuing.

Int

So what's this now?

Malcolm

Now Steve is producing the final product now where we cut the front curve which gives us the power and the correct thickness. When Steve's cut that and it's going to polish, that'll be almost a finished lens.

Steve

I have a finished lens here and all it really needs doing now is hydrating.

Alright, yeah.

Int

So you drop that in water and it'll take up...

Saline, yes.

Malcolm

OK Mike, there's a before and after. There's a lens that's just been cut, and there's one that's been hydrated for twenty minutes. I think you'll see the difference between the two.

Int

And that degree of expansion has been engineered in right from the word go?

Malcolm

It has, yes.

Int

That is astonishing.

John

Our ultimate prize is the ability to manufacture a material that can be turned into a lens that the wearer can put in on the first of January and take it out on the thirty-first of December. Now that's an awful long way away but I promise you we're working on it.