What is the effect of particle size of compounding ingredients (sulphur, accelerators and ZnO) on the curing characteristics and vulcanisate properties of NR latex product? Can the dosage of chemicals be reduced by the use of smaller particle size chemicals (say, less than 1 micron) since the available surface area is more?

When I took a trial using perl-milled chemical (particle size <1 micron), instead of ball-milled chemical (particle size 6-9 micron), the results were encouraging. Even with a 10% lesser dosage of slurry, I got better ageing properties for rubberized coir mattress.

Pradeep Kumar P. Joy, Kurlon Ltd.

Latex quality and finished products

We are finding differences in our finished product properties when the latex we are using comes from different sources. How and why does this happen?

S.M. Pandey and others, Kolkata

Our chemical testing/analysis experts think that though they can find differences in latex coming from varying sources, much further testing plus experimental compounding and dipping would be needed to match those differences with varying results in finished products. I agree with that opinion.

Also, you should be performing ASTM D 1076 testing on incoming shipments to ensure the latex meets the D 1076 requirements and possibly and more importantly match the suppliers' data sheet indicating their D 1076 results.

Many years ago I experienced problems similar to what you are having when we were making medical-type gloves on automatic equipment having fixed times and temperatures for leaching, drying and curing.

We eventually found that we had to alter compounding and latex maturing processes to ensure that the latex going on the line was the same precure level, percentage solids, viscosity and temperature, regardless of the count of origin of the latex or the time of the year the latex was tapped.

When all conditions were the same, dipped products showed the same properties...
I suggest you evaluate the compound when it is ready to go on line. Any differences will likely result in different outcome of the final physical properties.

Problems in blending two nitrile latex grades

We have made products by blending two grades of nitrile latex because we get good film properties and the modulus is all right. We have a few problems and we want to eliminate them.

1. Tear properties are poor.
2. The dipped product was taken from the trial batch. For the first three days, the product was fine in stripping and the film was perfect. After three days, the film developed cracks on stress points of moulds. How can we make latex more stable and avoid precuring?
3. Also, can tensile strength be improved?

Manoj Goswamy
New Delhi

My experience with nitrile latex is mainly with Dow Reichhold. I've successfully used their Types 65074 and 65075. If you are not using Dow Reichhold, ask your supplier about equivalents to those types.

2. Your experience indicates an overcure problem as you have said. Have you done a precure check using N butyl alcohol instead of chloroform which is used for natural latex? This would be a method for tracking precure. If you reduce the heat history, precure should be slower.
3. If you can control the precure, the tensile strength should be improved.

Residual accelerators in medical gloves

What are the typical levels of residual accelerators in medical gloves?

Anonymous - International Latex Conference

Levels are improving. We now find that most gloves submitted for testing show ‘below detection’ limits. This limit varies on the accelerator system which is used. However, below 1.0 ppm is usual.

Leaching of dipped goods

In dipped products, how do you know if you are leaching, the product well enough or long enough?

Ken Rozario, Manila

The final answer is the testing for residual accelerator content and for residual proteins or NR latex allergens.

However, if you operate your leach system at, say, 65°C; have a high degree of water turbulence; maintain a reasonable water throughput to avoid turbidity and continue the leaching for a reasonable time for the product, you are likely to be successful.

Consult before making a claim

Can a latex compound be considered food grade if the raw materials are listed in the Code of Federal Regulations, Title 21 Food and Drugs?

Anonymous - International Latex Conference

Yes. However, there are many conditions within CFR 21 which must be met. These include the amount of the listed contents; the conditions of use; and the passing of tests for extraction level.

I would suggest that before making a claim regarding a product suitability for food contact use, an experienced source of testing and familiarity with the many sections of CFR 21 be consulted.