Harry F. Bader

Demineralised water causing latex compound instability?

We use de-mineralized water for compounding purposes. After two weeks the water coming from the DM plant shows pH 4.0-5.0. We suspect this water is causing instability of the latex compound. If the water is a culprit we would like to know which residue/component in the DM water is causing the problem? Shall we ask the laboratory to check?

Anil, Thaimed

We have found the same to be true of our distilled water. The pH is 5.8. This meets Reagent Water Type IV of ASTM D 1193.

We have not experienced problems with our development latex compounds. Also, we have found no problems with our chemical analysis. The amount of "material" in the distilled or DI water is so small that its effect, if any, is not noticeable.

For example, when we use distilled water for an extraction of residual chemicals in a latex film, the pH of the water extraction medium changes immediately upon the addition of the small cut pieces of the latex film.

I would expect the stabilizers in the latex, and those which you add during compounding, to be an overwhelming influence.

Your DM water should come with an analysis of the remaining dissolved solids. You can compare that with ASTM D 1193, or the ISO equivalent for Reagent Water. Note that pH measurement of Type I and II Reagent Water has been dropped since it was found that the electrode contamination was an overwhelming effect. That is frequently the case with Type III and IV.

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What is the most effective way to reduce small coagulum in my latex compound?

Anonymous – submitted at the 2001 Latex Conference in Akron

If you are referring to coagulum which appears immediately after the compounding of the latex is completed, I would suggest the latex compound be filtered through a double layer of #90 cheesecloth.

However, if you are referring to coagulum which appears on a continuous basis when the latex compound is in the dip tank, that is likely to be a stabilizer problem. I would need more information about your recipe and your process conditions.

You should check your compound precure, viscosity, temperature and, if possible, the mechanical stability, to determine

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under what conditions the coagulum appears.

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My dipping formers sometimes are not picking up an even thickness of latex. What can I do about this problem?

Revannd

There are several possible reasons for this problem. Some are concerned with process conditions and some with the condition of the latex.

- Your dipping formers may be dirty or they may not be properly rinsed after cleaning. Soap residues can cause uneven pick-up of latex.
- Your formers may be too hot, causing the latex to run.
- Your formers may be too cold, causing slow coagulation in some spots.
- You may have changes in the latex precure or viscosity. High precure and high viscosity will produce uneven deposits of latex.
- You may need more wetting agent in the coagulant. Wetting agents tend to smooth out the latex deposit.
- The same is true for the latex. Wetting agents give smoother deposits.
- You should check your latex and your process conditions on a regular basis throughout the day. Compare your product quality that is being experienced throughout the day.

I would expect a pattern to develop that would indicate the conditions of your latex and your process which produce good product and bad product.

When you have that information, you should be able to ensure that latex and process conditions are always those which produce good product.

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I am a student interested in toys made of latex material. I wish that in 2003 I can make toys from natural rubber latex. Could you please show me how to make good quality toys from latex?

Adrias Asmora,
Semarang, Indonesia

First of all, due to poorly processed natural rubber latex products entering the world market, there is much concern about NR latex protein allergies. Therefore, a child's toy made from that material is likely to meet considerable sales resistance.

However, if you believe that can be overcome, there is no reason not to proceed with your plan.

Toys made from NR latex are generally made by one of two methods. One is dipping, which is probably the most common. The second is moulding. Before I could recommend the method which is most likely, I would need to know the size and configuration of the toys you plan to make.

Typical process and recipe information is readily available in "*Polymer Latices*" Second Edition by DC Blackley, Chapman & Hall, London. Your university library should have a copy.

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Can protein stripped Natural Latex be competitively priced and can useful physical properties be maintained compared to untreated Natural Latex?

Anonymous – Submitted at 2001 Latex Conference in Akron

My answer is yes. This is based on process information and testing data which I have seen. The inventor is currently conducting experiments to make a volume run to evaluate costs and quality.

I would expect the increase in costs to be modest and they should be offset to some extent by lowering of other costs now being borne by the latex products.

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We require a special type of natural rubber of high viscosity which can give tensile strength of 280 kg to 300 kg / cm², 850% elongation and high abrasion resistance of 60 mm 3 to 70 mm³ in DIN Abrador. We would like to make rubber sheets with specific gravity of 0.98. Kindly advise.

K. Koiri

This looks like a project which would take several attempts to get it right. However, to start with, I suggest the following:

RSS-1 natural rubber; 40 parts N110 carbon black; and, a good, fairly hot cure system.

Try this and see how close you get to what you want. We can then consider the next step.

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What causes thin spots in a glove? How to eliminate them?

Question at 2001 Latex Conference in Akron, Ohio

Thin spots have many causes: Too rapid withdrawal of the glove former from the latex; low %TS of latex; poor flow characteristics of latex — not enough Thixotropy; low precure of latex; coagulant stratification; low %TSC of coagulant; glove formers too cold entering latex; badly designed dipping formers; coagulant too hot or too cold; and, excess defoamer in latex or coagulant.

As you can see, there are many possibilities for the thin spots. An examination of the size, shape and location of those thin spots should provide a clue to the source.

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Does nitrile latex require "maturation" after the addition of compounding materials.

Question at the 2001 Latex Conference in Akron, Ohio

The short answer is no. However, the compound used and the process used, greatly affect the need for maturation.

There are some manufacturers who always use a freshly made compound. In some instances, one half hour after compounding and deareation the latex is in the overhead refill tank.

In other instances, the latex compound goes through a heating and cooling cycle of 12 hours or more before it is fed into the dip tank. It depends on the nature of the compound recipe and the process being used.

Good product can be obtained with virtually any level of maturation. ■