Harry F. Bader

Use of chemicals in compounding; boosting film colour; for higher CM in mattresses, etc.

Can you tell me why all rubber chemicals cannot be used in latex compounding?

Anand Kulkarni *on e-mail*

Most rubber chemicals can be used in latex compounding if they are properly prepared so that they will be accepted into the latex water-based mixture.

Each material and its method of preparation would be considered separately, to establish how it could be added to a latex compound.

Some methods of preparation for addition are slurries, dispersions, emulsions, dilutions, particle-size reduction, pH adjustment, etc.

The first consideration is "what is the expected benefit of adding a particular rubber chemical to a latex compound?"

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Is there a method of processing natural latex at the centrifuging stage to improve the colour and make the latex films transparent? (Several questions were received on this subject).

Re-dilution and re-centrifuging produces some improvement. However, the clarity of the film is not "window glass clear".

If that property is of major importance, I suggest a switch to another more transparent polymer. However, that is usually accompanied by a sacrifice of physical properties.

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Can you suggest some detailed methods, other than filler-loading, to increase the compression modulus of NR latex mattress products, say from 24 ILD to 40 ILD, keeping in mind the cost and specific gravity?

J.A.J.
E42 Jipmer Qts, Pondy 6

The addition of a filler will increase the compression modulus. However, that usually comes with an increase in the compression set, which is not desirable in a mattress.

One alternative is to increase the foam density. This can be achieved by an adjustment to the mixing head of your foam generator.

A second alternative is to increase the zinc oxide level that is injected into the mixing head.

A third method is to blend a polymer into your NR system which produces a higher modulus.

All these require experimentation to ensure you get the product properties you desire.

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I am working as a quality controller in a latex foam company. I would like to know what is residual accelerator and what is its result of having it in the latex compound. How does it work in a latex compound?.

Anish Peter,
Address not mentioned

Residual accelerators are those which remain unreacted in the latex product after vulcanisation.

Accelerators, of course, fill an essential function in a latex compound, by speeding up the chemical reactions which take place during vulcanisation.

Harry F. Bader, Vice-President, Latex Services, Akron Rubber Development Laboratory, Akron, USA, and a world authority on latex, answers questions and doubts of readers on latex and latex products.

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However, unused portions of the accelerators remaining in the latex product cause several problems. These are product discolouration, poor shelf-life and contact dermatitis to the product user.

Latex product makers have known about these issues for well over 75 years. Good quality manufacturers introduced washing procedures for both dipped and foamed latex products many years ago. These procedures were started to improve the product shelf-life and appearance, but were further extended to eliminate customer complaints resulting from skin irritations that occurred when these products came in contact with human skin.

These same washing procedures also remove the NR latex proteins from dipped and foamed products. The concern about HIV infection in the '80s expanded the use of latex gloves and condoms. Many new and unknown manufacturers came into the business.

Since the products being made were disposable, there was no concern for either shelf-life or deteriorating appearance. Washing procedures were ignored and contact dermatitis and allergies became a major problem.

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

Query at International Latex Conference, Akron, Ohio 2004

Akron Rubber Develop Laboratory (ARDL), a major testing laboratory for the glove industry, has for several years been checking gloves for accelerator residues (ARs). During the past three years not a single week has gone by without the lab performing AR testing.

Most gloves show a below detection result by HPLC methods. The detection limits for contact sensitisers range from 1 to 8 ppm.

There is a major issue to be considered regarding this testing. The reason for the "AR problem" is that a glove wearer's perspiration will extract those ARs and thus they will come in contact with the wearer's skin. This becomes contact dermatitis if the user is sensitive to the accelerators.

The choice of an extraction medium is important if it is intended for that medium to mimic human perspiration.

A number of solvents will break down the latex film so that total accelerator content can be determined. But that is not what happens when perspiration extracts residual accelerator from a glove.

The industry must agree on what to use as a "perspiration substitute" extraction medium.

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When designing compounding and dipping tanks for natural latex, is stainless steel required?

Query at Ohio latex conference

Stainless steel is not required. However, it sure makes life easier. You can use plain iron tanks. However, they must be cleaned frequently and recoated after clea-ning. You can use aluminum but the alloy chosen must be of 0.25% or less copper content.

Considering the likelihood of iron tanks being improperly maintained and thus causing product rejects, I believe that over a long period of time stainless steel is the least expensive.

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Which are the world's top 10 condom and top 10 latex glove makers?

This question came in to ***Rubber Asia***, which passed it on to me. ***Rubber Asia***, as its directory will show, has knowledge of most, if not all, condom and glove makers in Asia. But that information does not indicate which are the largest.

I've checked with *Rubber and Plastics News* editor Ed Noga who tells me they do not have that information and do not know of a possible source.

Twentyfive years ago, I probably could have said which were the top 2-3 in the world. However, the industry has changed so much since then that I would not venture a guess.

If anyone has that information, please write to me about it. ■