Harry F Bader

Ozone attack - Exam glove compound - Balloon colour

In the July-August issue of *Rubber Asia* you have mentioned that ozone attack (in latex gloves) can be from sunlight or factory fluorescent lighting. What would be the average ozone concentration in the atmosphere in the vicinity of the fluorescent tubing? Would you recommend switching over to other lighting systems in rubber/latex factories and storage areas to overcome the possibilities of ozone attack?

Bhimrajka Impex Ltd
Mumbai

I have never measured the ozone concentration under fluorescent lighting. However, I have often experienced ozone cracking of gloves on the top layer of tote boxes left uncovered under factory lights.

A medical device manufacturer in California found the ozone level in its manufacturing assembly area to be 5PPhm. They have fluorescent light as well as potential ozone sources from motors and switchgear. Ozone cracking was present in their devices.

Temporary storage containers should always have opaque covers and latex products should not remain on the work table overnight.

I would not recommend changing from fluorescent lighting. It is easier and less expensive to provide covers for tote boxes and other temporary storage containers.

Ours is a small-scale unit manufacturing latex foam products. We are the suppliers to major coach builders in Tamil Nadu. Our products are good in quality and are competitive. But of late we see that the competitors are ready to supply at heavily reduced prices with good quality. We are told that they are following non-deammoniating process and using some latest trend in foam technology. We want to update our technology. Could you please arrange for that?

Ahammed Nazeer
MNK Industrial Products Ltd.

I have no experience with using ammonia preserved latex for foam latex products without deammoniation. However, making foam latex products with latex preserved with materials other than ammonia has been done for over 45 years. Natural latex preserved using Monsanto "Santobrite" became available in the 1950's. The International Latex Corporation began making pillows with Santobrite preserved latex in 1952. There was no major change in the recipe, the stabilizer system, or in the amount of SSF required for gellation. This latex was used until I.L.C. shut down its pillow operation in the late 1950's.

Non-ammonia preserved latex is available today. It is unlikely that "Santobrite" is still used since it is a suspected carcinogen. I suggest that you get non-ammonia preserved latex from your latex supplier.

We understand that the use of Hevea plus M.G. latex in the production of foam rubber will improve its hardness.

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

Send your questions to:

'The Latex Doctor'
Rubber Asia,
Dhanam House,
Cochin - 682 -020,
Kerala, India Fax: 94-484-317872

Kindly inform us as to how this could be used and the name of manufacturers of this chemical.

George L. Mathew
Duroflex Ltd.

M.G. latex is acrylic latex and many are compatible with NR latex and would provide stiffness.

I contacted B.F. Goodrich and was told that their product numbers 26091, 26106, and 26391 would possibly perfrom satisfactorily. they had no experience regarding the percentage of addition, cure systems or stabilizer systems that would possibly be needed.

The idea seems sound. However, it would require some compound development work to arrive at the proper recipe to achieve the desired stiffness along with good processability.

High stryeme SBR such as Rovene 4106 from Mallard Creek Polymers (a subsidiary of Ameripol Synpol) could also perform as a stiffener. Their technical service fax is 704-547-8849.

I am a regular subscriber to your magazine, and running a household glove manufacturing plant in Sri Lanka. We are now in the process of setting up a plant to produce exam gloves. Do you know how I could get standard timing for each station, such as coagulant, glove compound and so on, for examination gloves?

Dr. Gunawardana
Colombo

The latex compound could be virtually the same as your household glove compound. Remove the colour and the titanium dioxide or clay; reduce the % TSC and it should be quite satisfactory.

The coagulant strength would be reduced so the latex pick-up would be as required for an examination glove.

As to the dipping speeds and timing, they are very much dependent on the design of your equipment. For example a single continuous chain would move much more speedily than a travelling bar system. The vertical speeds are dependent on the design of your dipping forms. Some forms permit faster vertical in speeds without trapping air in the finger crotches. Others must go into the latex much more slowly.

Some machine designs are easily converted from household gloves to exam gloves by changing the coagulant strength and the latex % total solids. However, that versatility usually will not allow you to achieve the optimum productivity that can be obtained from a machine specifically designed for examination gloves.

In short, I couldn't begin to give you specific times, speeds, coagulant concentrations, latex % TSC, etc without first having the machine defined. Even with that information dipping experiments will be required to give to balance between coagulant concentration, latex % TSC and dwell time.

We are balloon manufacturers at Madurai. We are facing the colour shining problem. We expect your valuable advice for our balloon quality improvement.

1. **We blow the balloon at night time. The colour shining is more than 5 to 6 hours.**
2. **We blow the same batch of balloons, and put them in sunlight, and the colour shining is reduced within ten minutes.**

Which chemical or oil is suitable for our balloon maintaining colour shining during sunlight?

Shri Krishna Rubber Product
Madurai

The dulling of balloon colour in sunlight can be helped to some extent by coating the balloon with a very dilute solution of silicon emulsion (2% or less), such as union carbide LE36.

The dulling is essentially ozone attack. A good antioxidant will also help. BHT and AO2246 are used by some balloon manufacturers.

Please find enclosed 6 nos. lightly powdered latex examination gloves produced in 2 of our dipping lines. As indicated on these gloves, we are experiencing a defect (brownish coloured stain) which tends to arise from the formers after running the dipping lines from 4 to 5 days.

Data with regard to the dipping lines are:

TSC% 32-32.5 (Latex) 4-5% (Powder)

CaNo3 conc. In coagulant (g/lit) 40-50

Caco 3 conc In coagulant (g/lit) 40-55.

Acid (HNO3) washing (on line) 1.86% 20-30x.01

Hot water tank temp. deg. cent.90-95

Leaching tank temp. deg.cent. 88-92

Oven temps. Range (curing & drying) deg. cent. 80-120

Latex dipping tank temp.deg.cent 25

Coagulant dipping tank temp.deg.cent 65-70

This stain is causing a few problems with our production process and quality. Please advise.

Roshan Gooneratne
Hanwella Rubber Products
Colombo

The "stains" on the sample gloves are rubbed off without much effort, which indicates they are attached to the glove surface rather than being an actual staining of the latex film. Also the "stain" is on the inside as dipped.

That plus the fact that they occur after 4-5 days of running the line, points to a dirty form issue. Possibilities are:

- The acid tank is accumulating an oily scum on the liquid surface. The scum is clinging to the forms and is not being completely removed in the hot water.
- The scum is on the surface of the hot water rinse tank and is clinging to the forms as they come from the rinse.
- The acid has become weak and is not dissolving the build-up entirely.
- A possible but less likely source of the problem could be an accumulation of dirt in the drying areas after the form rinse but before the latex dip.

I hope the above will help in your investigation. ■