



Harry F. Bader

Making a better industrial glove

Our factory has been manufacturing household and industrial gloves for nearly five years and has developed an important knowhow about the glove production technology.

At present one of our main customer segments, namely, coffee growers, are demanding an outstanding performance industrial glove that requires high tensile strength and excellent abrasion resistance properties.

Up to the moment we have not been able to succeed in this, not withstanding that our products have tensile strengths over 300 daN/cm². In fact, our gloves are normally broken in less than two days of use.

One of our competitors has actually succeeded in manufacturing a glove that lasts for nearly 10 days despite the fact that their products have tensile strengths just slightly higher than ours.

Could you possibly give us some advice in this respect? Can you tell us if there is a way to determine chemical differences between our rivals' products and ours? How do we obtain a silky thin sheet of natural latex?

Andrew Tan
Margma

Testing is available which would highlight the differences between your glove and your competitor's. I suggest a complete analysis of the recipe reconstruction of the competitor's glove, its degree of cure (free and combined sulphur, besides cross-link density), physical properties (original and aged tensiles, original and aged tear, permanent set, etc.), chemical properties (oil resistance and chemical resistance). The same testing needs to be done on your glove except for

recipe reconstruction, if you do your own compounding and, therefore, know your recipe. If you do not do your own compounding, recipe reconstruction would be required.

This information would enable a direct comparison to be made which should highlight the reasons why your competitor's gloves are superior.

Note: For the oil and chemical resistance testing, your guidance as to what oils and chemicals are present in coffee berries and beans would be needed.

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Please let us know what time should be given for stirring of latex after the accelerators are mixed into the latex.

Ashwani Magon
Paradise Rubber Industries

Accelerators and other materials should be added slowly in a stream no bigger than a wooden pencil (7 mm). The latex should be vigorously agitated during that addition for 15-20 minutes after the last material is added. Agitation should not generate excessive air bubbles in the latex.

Materials should be added to the latex in this general order: Stabilizers, fillers/tints, anti-oxidants, sulphur, zinc oxide, accelerators, and water. All these are frequent in a master dispersion.

Agitation should be reduced to a low level for a further 20-30 minutes. If the latex compound is to be "pre-vulcanized", mild agitation should be continued throughout that time.

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Does your company make any formers (moulds) for using in making disposable-type latex or plastic gloves? If not, is there any

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latex and latex
products.*

Send your questions to:

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

one you know who makes them?

Andy Lin
PM Gloves

ARDL is a testing and development laboratory. We do not make glove-dipping formers. I suggest you contact advertisers in Rubber Asia as a source of formers.

I've had personal experience with the following suppliers:

Ceramic formers:

* **SNKO Ceramics (M)**
Black A, Lot 8282, Jalan 32,
Kawasan 16, Sungai Rasa Light
Industrial Area, 41300, Klang,
Selangor, Malaysia.
Tel: 03-3429231

* **General Porcelain Mfg. Co.**
951 Pennsylvania Avenue,
Trenton, NJ 08638 USA,
Tel: 609-396-7588
Fax: 609-989-9343

* **Hoechst Ceramtec, P.O. Box 87-97,**
11th Floor, Min Chi Building,
746 Ming Shen East Road,
Taipei.
Tel: 2-7169933, Fax: 2-7168814

Metal formers:

* **David G. Meyer**
1375 Black Oak Drive
Dayton, OH 45659 USA
Tel: 937-512-2175

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We make electrician's gloves. Please let us know how to make good quality hand gloves that can be efficiently used to work in high-voltage situations. What type of chemical has to be used in our formulation for latex gloves?

Jaulesh
Shukla Polymers

A significant problem with making electrician's gloves by a standard latex process is that the salts from the coagulant tend to remain in the latex film. These salts will conduct electricity and will, thus, be unsatisfactory protection. Rigorous, high-temperature, long-time leaching at the gel state after drying, vulcanization and off line can resolve this problem. But 100 per cent testing is essential.

Alternatives are: Use straight dipping rather than coagulant dipping. If you use creamed latex with high per cent solids, you can reduce the number of dips needed to get the proper thickness. Use a heat sensitizer for latex coagulation.

Polyvinyl methyl ether in a 15% solution can be added to the standard latex compound at about 2.3 parts on the dry rubber. Heated forms dipped into the latex compound will build up coagulated latex.

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What is the best suitable chlorination process to improve the life of latex products?

A.M

Paradise Rubber Industries

Chlorination does not usually improve the life of latex products, except that it does greatly reduce the surface tack, thus relieving the problem of latex film sticking to itself during storage. A major problem with the chlorination process is that many latex product makers do not properly control the process. It is essential that:

- * The percentage of chlorine be controlled so the concentration needed for optimum chlorination is always used; 0.06% to 0.10% is a likely concentration.
- * The process time for chlorination neutralizing and rinsing is always the same.
- * Temperature of the gloves, the Cl₂ solution, the neutralizing solution and the rinse water must always be the same.
- * The temperature of the gloves while being dried should never exceed 50°F.

The process that gives the best control of chlorine concentration is a gas system of the type used for a city water supply or for large swimming pools. ■

Correction: Mr. Bader clarifies that his company charges \$3 per glove for testing and not \$300 as wrongly mentioned in these columns in the January-February 2002 issue of *Rubber Asia*. He has also called attention to an error in the September/October 2001 issue. In answer to a question, he had stated that chlorinated gloves should not experience more than 20°C after chlorination. The correct temperature in that statement should have been 50°C.