



Harry F. Bader

Testing of rubber films – Latest dipping technology – Anti-webbing agent

We are one of the leading manufacturers of rubber goods, balloons etc. Kindly inform the details about the production of rubber.

*M/S Bismilliah Rubber Works
Chennai*

The answer to this question would take several volumes to do justice to the subject. I suggest you start with the books available in the local library. Books which I use as references are as follows:

- The Vanderbilt Latex Handbook
R.T. Vanderbilt Company Inc.
30 Winfield Street
Norwalk, CT 06855
Tel. 203-853-1400
Fax 203-853-1452
- The Vanderbilt Rubber Handbook
R.T. Vanderbilt Company Inc.
30 Winfield Street
Norwalk, CT 06855
Tel. 203-853-1400
Fax 203-853-1452
- Polymer Latexes – Science and Technology
Second Edition – 3 Volumes
D.C. Blackley
Chapman & Hall India –
R. Seshadri
32 Second Main Road
CIT East
Chennai 600 035, India
- Polymers Latexes First Edition
Second Edition – 3 Volumes
D.C. Blackley
Chapman & Hall India –
R. Seshadri
32 Second Main Road,
CIT East,
Chennai 600 035, India

- Latex in Industry – Second Edition
Roya J. Noble
Rubber Age
250 W. 57th Street
New York, NY

If you have any specific question, I would be glad to provide an answer.

In the testing of rubber films (e.g. latex gloves) for tensile properties namely tensile strength, modulus and elongation at break, what's the recommended or allowed tolerance (%) between different operators in the same lab and between different labs with reference to ASTM, BS and ISO?

Revertex Ltd.

D-412 the ASTM specification for tensile testing has a precision and bias statement on the last page which indicates the within laboratory and laboratory-to-laboratory variations you can expect. With latex films the variations may be greater because of equipment and operator related problems.

- The thickness gauges must be calibrated to the 22kPa foot pressure specified in ASTM D 3767.
- The die must be sharp and free of nicks.
- The die must fit the D-412 dimension specification.
- The tensile tester must operate at twenty inches/minute.
- The extensometer must not slip from the test specimen.

*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.*

Send your questions to:

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

- The clamps must not allow the specimen to slip.

Remember, all these will produce lower results. The higher results are the most valid. You can't make the film better than it is. You can, by all the above, make it appear worse than it is.

Could you send your catalogue for the apparatus for analysing the prevulcanised latex and the necessary tests which can be used to analyse the latex chemically and physically?

Ing. Magdy Morsy Aly
Egytrade Company
Alexandria, Egypt

Akron Rubber Development Laboratory Inc. is a testing and development laboratory. We have two or three very specialized pieces of equipment but we are not equipment suppliers. We have no equipment catalogues.

There are several hundred tests for latex and latex products. If you can tell me what you wish to accomplish, I will tell you which tests are needed for that purpose.

There is no special equipment for testing the degree of prevulcanization. There are two simple methods.

- 1) Chloroform coagulation. This is a simple and rapid means for following compounding changes after storage or heat treatment. It consists of mixing equal parts of compounded latex and chloroform (10 ml. of each) and stirring with a glass rod until coagulation is complete. The coagulum is allowed to stand 1 to 2 minutes and numerically rated from 1 to 4. No.1 is judged as uncured, and No. 4 is precured to an advanced stage.

No.1 is a tacky lump which when stretched apart becomes stringy.

No.2 is a tender lump which breaks short when stretched.

No.3 forms non-tacky large agglomerates.

No. 4 forms small dry crumbs.

A picture of these is in the Vanderbilt Handbook.

2. Swelling Diameter Test. This

is a more sensitive test for precure, performed in the following sequence of operations:

- a) Spread a thin film 0.003 to 0.010 inches (dry) on a glass plate.
- b) Dry film with fan for forty minutes and allow ten minutes for the remaining steps. Make sure films are dry before removing from glass plate.
- c) Dust the dry film with talc-both sides.
- d) Die out two 1.5 inch diameter discs from film. Wipe off the excess talc.
- e) Place each disc in a Petri dish half full of 73° Be' naphtha.
- f) Measure diameter of discs after twenty-five minutes and not more than twenty-seven minutes in solvent by placing dish over graph paper with 0.05 inch divisions: Measure diameter in two directions.

Note average of each disc to nearest 0.05 inches.

This diameter is the S.D. (swollen diameter.)

This test is frequently used as a guide to maturing for processing e.g.-S.D. of $3.8 \pm .1$ indicates proper maturing of a latex foam compound.

Please provide us information on the latest technology for latex dipping.

J.D. Deshmukh
Nagpur

I suggest the following sources for state-of-the-art latex technology:

- Chemicals - Check the advertisements in *Rubber Asia* or Contact *Rubber Asia's* office in Bombay.

- Equipment - Bill Howe
ACC Automation
Fax 330-762-1113

ACC is well known for its high volume equipment. However, it also makes smaller automatic and semi-automatic dipping equipment.

- Latex Technology -
Polymer Latexes by D.C. Blackley

Chapman and Hall India-
R. Seshadris, 32 Second
Main Road, CIT East,
Chennai 600 035, India.

Firstly, we have ultrasonic cavitation machine for cleaning of formers. Please suggest which chemical we should use to give best effect of aluminium formers.

Secondly, please suggest a good wetting agent for aluminium formers to put in coagulant. Our recipe is:

CaNO ₃	100
Water	30
Bentonite clay	3
Milk powder	0.6
Glycerine	0.2
Temp. of coagulant	46-48°C
S.G.	1570-1590

Please also advise whether milk powder is to be added or not as I am afraid it might lead to putrefaction after some time even if it's put along with bactericide (ammonia). What is the best anti-webbing agent one can add if not milk powder.

Thirdly, with coagulant as above, it is observed that the lower portion of the former picks less latex. But it was also observed that by adding more parting agent (initial percentage of bentonite clay was 1.5% and later increased to 3%), the problem reduced from 30% to 15%.

Please suggest the right type of coagulant recipe for such products so that the former is wet uniformly up and down for uniform latex pick up

J.K. Jani
Cosco(India) Limited

- The supplier of cleaning solutions which I have used for over 40 years has a wide range of products and I'm sure they can supply a chemical which would be satisfactory for aluminium formers.

Oakite Products Inc.
Surface Treatment Division
Roman Mileczarek
Tel. 908-464-6900
Fax 908-464-6031

50 Valley Road
Berkeley Heights,
NJ 07922-2798

I believe they have an office in Asia.

- A wetting agent which I have found good is:
Triton X-100
Union Carbide
Singapore Contacts
Tel. 65-265-2688
Fax 65-265-6224

1-2% is usually sufficient.

- For de-webbing materials I suggest:
Crusader Chemical Co. Inc.
2330 Severn Street
Baltimore, MD 21230
Tel. 410-752-7602
Fax 410-547-8713
E-mail:
CrusaderCC@aol.com
www.ccwebnix.com

See their advertisement in *Rubber Asia*.

There are many new de-webbers available. The ones I use, must be used very carefully to avoid "fish-eyes". Crusader can recommend a product which will not have that problem.

- Reduced pick-up of latex in the lower portion of the former is unusual. It usually is the opposite. Reduced pick-up could be due to lower former temperature in that area or to slower "out" speed when that area of the former is being removed from the coagulant.

Reduced pick-up, which is different from the normal situation of gradual increase of thickness from the top to the bottom of the former, must be due to a reduced amount of coagulant. I suggest you look at your process conditions to determine the source of that problem.

- Your coagulant recipe seems satisfactory. I would prefer polyethylene glycol to glycerine and a commercial de-webber in place of milk powder. However, milk and glycerine are successfully used by many dippers.