



Harry F. Bader

Synthetic polyisoprene – Neoprene latex

Allergic reactions to NR latex medical gloves continue to be a concern. However, synthetic polymers have problems of chemical resistance to materials commonly found in the medical environment, and reduced tactile sensitivity. I understand synthetic polyisoprene (the same polymer as NR latex) is now available as a latex.

Is synthetic polyisoprene latex a satisfactory substitute for NR latex? Does it have equivalent physical properties and chemical resistance and does it avoid protein allergy problem?

H.M. Patel
Mumbai

Synthetic polyisoprene latex is available and it is a substitute for NR latex. However, "satisfactory" is a subjective term and you will have to decide that for yourself.

There are two sources of polyisoprene latex with which I am familiar. I'm sure there are other suppliers as well.

- Aqualast™ PIP300
Lord Corporation Chemical Products
2000 West Grandview Blvd
P.O. Box 10038
Erie PA 16514-C038 USA
Tele: 814-868-3611 X-3277
Fax: 814-864-3452
- Kraton™ 1R-RP401 Latex
Shell Japan Ltd.
Daiba Frontier Building 2-3-2

Daiba Minato-ku
Tokyo 135-8074 Japan
Tele: 81-3-5500-3018
Fax: 81-3-5500-3098

I suggest you contact these sources for literature and specific information in reference to the product you wish to make.

Synthetic polyisoprene latices contain stabilizers which can inhibit vulcanization or can prevent normal coagulant dipping. You must develop a compound and a process which will overcome these problems. Also, "pot life" can be much shorter than what we have experienced with NR latex compounds.

These can be resolved by proper compounding and process development.

It should be kept in mind that although protein allergies are avoided by using synthetic polyisoprene, the same chemical residues are present in synthetic polyisoprene films as are in NR latex films. Good leaching is essential to avoid problems of contact dermatitis.

I am student of L.D. College of Engineering, Ahmedabad studying in B.E. 7th semester Rubber Technology.

"Neoprene Latex" is assigned to me as subject of seminar during the present semester. I would like to gather the detailed information-viz, manufacturing process, properties, application,

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Send your questions to:

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

history, etc. as regards the above subject.

Kindly arrange to send me all relevant details as regards the subject as early as you can, so that I may utilize the same in connection with my seminar subject.

As I find it difficult to collect this information here, I am forced to give you the trouble. I hope you would kindly excuse me for the same. Kindly also inform me about the books available on the subject.

Gatha Kothari
Ahmedabad

The term Neoprene is a trade name for polychloroprene manufactured by the Dupont Corporation. There are other manufacturers of polychloroprene. Bayer A.G. is one of them.

Your question covers a wide range of information. Therefore I am going to provide sources of information rather than answer directly.

For general information on the manufacturing of polychloroprene latex and the use of polychloroprene in production of latex related products, I suggest you get access to:

- High Polymer Latexes By
D.C. Blackley 1996
Mac Laren & Sons Ltd.
London
Palmerton Publishing Co.,
Inc. - New York
Printed by The Garden City
Press Ltd.
Letchworth, Hertfordshire,
UK
- Polymer Latexes by D.C.
Blackley 1997
Chapman & Hall India,
R. Seshadri
32 Second Main Road
CIT East
Madras - 600 035 India.

Both should be in either your University Library or a City Library.

In addition, since both Dupont and Bayer produce literature about their products, you should contact them:

- Dupont Dow elastomers,
L.L.C.
www.dupont-dow.com

Mr. Paul Graves-Americas
Product Manager
X 300 Bellevue Parkway
Wilmington, DE 19809
X 1 Maritime Square #10-54
World Trade Centre
Singapore 099253
Telephone : 65-275-9383
Fax: 65-275-9395

- Bayer. Inc.
Mr. John Sweet-V.P. Sales
and Marketing
126 Vidal Street
Sarnia, Ontario,
Canada N7T 7M2
Telephone: 519-337-8251
Fax: 519-339-7723

Many polymers in addition to natural latex are being used for medical gloves. What are the differences in the properties of these polymers?

Sunil Agarwal
Baroda

Some of the differences such as reduced flexibility higher modulus, greater permanent set and lower elongation affect the acceptability of alternative polymers. These are subjective and are based upon personal preferences which frequently have little or no bearing upon the barrier properties of the glove.

There are some important chemical resistance differences which should be evaluated. We've become familiar with the use of NR latex medical gloves for many tasks in the medical environment. However, the synthetic polymer of your choice may not be suitable for some tasks. For example:

- Vinyl gloves are quickly dissolved by acetone.
- Polyurethane becomes tacky by contact with alcohol after about 30 seconds
- SEBS develops holes after about 15 seconds contact with bone cement.

If you plan to use an alternative synthetic polymer in place of NR latex medical gloves, be sure you become knowledgeable about the properties of that polymer before you expose the alternative gloves to other than body fluids. I would expect the supplier of these alternative gloves to provide guidance on this subject. ■