

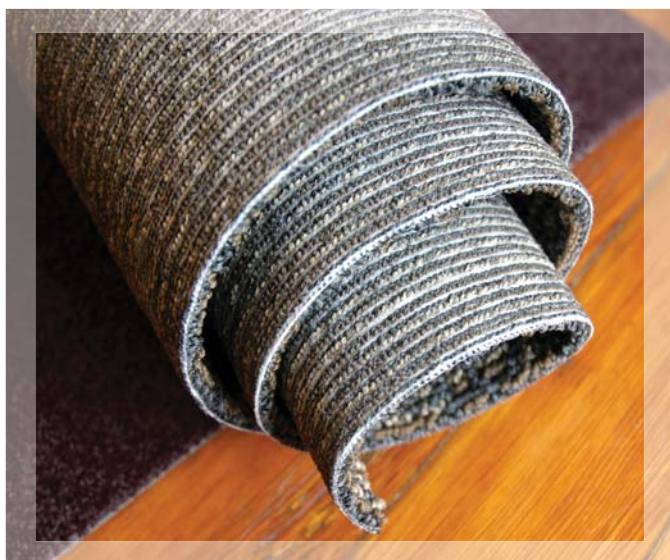
Carpet News & Notes

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Dow Makes Waves with Breakthrough Polyolefin Dispersion Technology

If you think BLUEWAVE sounds like the latest fan craze at a football game, guess again. The first in a family of new polyolefin dispersion (POD) products from Dow, HYPOD™ Polyolefin Dispersions from BLUEWAVE™ Technology allow the carpet industry to gain the performance and recyclable attributes of thermoplastic products while using conventional latex coating equipment. These propylene- and ethylene-based dispersions combine the performance of high-molecular-weight thermoplastics and elastomers with the application advantages of a high-solids waterborne dispersion.



HYPOD™ Polyolefin Dispersions

Unlike typical thermoplastic conversion processes and traditional waterborne products, HYPOD™ Polyolefin Dispersions provide converters an opportunity to introduce olefinic performance benefits to latex applications. This creates the potential for converters to help reduce the number of process steps during conversion, help lower systems costs, and develop entirely new product offerings. Unlike many carpet backing technologies that are available today, HYPOD™ Polyolefin Dispersions are thermoplastic, not thermoset, which facilitates easier recycling at the end of the carpet's life.

In addition to the sustainability attributes, HYPOD™ Polyolefin Dispersions impart excellent physical properties to carpeting including excellent wet strength and tuft lock, and the potential for lighter weights. These combined benefits create the opportunity for new, differentiated coatings, binders, sealants, adhesive layers, and foam coatings for a variety of substrates.

In the carpet industry, HYPOD™ Polyolefin Dispersions can allow customers to apply thermoplastic backing systems using conventional coating equipment. They can be used in multiple applications such as modular carpet tile pre-coats, broadloom carpet, thermo-moldable applications and artificial turf. In these applications, HYPOD™ Polyolefin Dispersions offer several key performance and attribute features including:

- Potential for greater recyclability
- Excellent wet strength
- Excellent tuft lock/delamination strength
- Flexibility/hand
- Potential for lighter weight
- Market differentiation
- Potential for chemical vs. mechanical bonding

To find out more about new HYPOD™ Polyolefin Dispersions from Dow, go online to www.dowhypod.com.

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ASK THE EXPERT



Dow has earned a reputation of excellence in the carpet latex industry due to the deep industry knowledge and expertise of its employees. In the Dow Latex for carpet Ask the Expert column, we share this experience to help customers overcome their carpet manufacturing challenges and grow their business.

In this issue, Roger Bergman, global carpet latex development leader, discusses Dow High Solids carboxylated latexes, as well as blistering in the manufacturing process.

Q. Roger, tell us about the concept of using Dow High Solids carboxylated latexes for carpet applications.

A. Higher solids latexes allow formulation to higher compound solids in the low load formulations typically used for carpets requiring increased physical properties such as tuft bind and delamination strength. Higher compound solids help reduce the tendency to blister and help shorten drying times.

Q. Tell us about blistering – what is it and how does it affect the formulation?

A. In some low load formulations a tight film is formed during the drying process and water can be trapped beneath the surface. Pressure builds up underneath this film as the water is vaporized and that pressure can push up the surface and eventually rupture causing imperfections or protrusions on the backing surface. In severe cases the compound protrusions actually can come up into the fiber side of the carpet. Higher solids formulations have less water to start with and therefore less moisture trapped below the surface during drying.

Q. Are there other ways to reduce blistering?

A. Yes, starch is often used to reduce blistering. Starch is believed to create a more open structure in the film that allows the moisture beneath the surface to escape. The use of Dow High Solids latexes can allow the user to reduce starch usage as much as 50 percent.

Q. You mentioned shorter drying times. How much advantage is there?

A. The drying time is proportional to the amount of water that needs to be removed. A three percent increase in compound solids reduces the drying time by about 15 percent. As a result, the carpet manufacturer can increase line speeds by up to 15 percent and decrease energy consumption by up to 15 percent. The actual line speed increase will depend on whether there are other finishing line limitations, such as in roll-up. If the line speed is increased from 50 to 58.8 ft/min, while coating 32 opsy of 200 load compound, the energy savings is 110 Btu/yd² or about \$4.80 per hour of coater operation. The cost savings due to producing a larger volume of carpet in the same coater time is much larger at about \$105 per hour. (These are estimated cost savings and may vary. Contact your Dow sales representative for more information.)

Q. What are the typical solids of carpet latexes, and what are the solids of Dow High Solids latexes?

A. Typical carpet latexes range from 52 to 53 percent solids. Dow High Solids latexes are at 57 percent solids. For example, if you had a 200-load formulation, then the compound solids would increase from around 77 percent with a 53 percent solids latex to nearly 80 percent with Dow High Solids latexes. Actual solids increase will depend on the additives used in the formulation.

Q. How many high solids latexes does Dow make for the carpet industry?

A. Dow has three high solids styrene-butadiene latexes, one high solids modified S/B latex and one modified acrylic latex.

Dow styrene-butadiene latexes:

- LXC 811 NA – a medium soft hand latex for excellent carpet durability (Roll Stool)
- LXC 874 NA – a medium hand latex
- XU36504.00 – a firm hand latex – ideal for when a firmer hand is desired on light weight carpets

Dow high solids ter-polymers:

- HPL™ 502 – modified S/B is used for improved flammability ratings or to allow for alumina trihydrate reduction or, in some cases, elimination

Dow modified acrylic latex:

- Foundations™ 885 – a modified acrylic latex that provides high strength, a soft hand, moisture barrier properties for British spill, and high wet strength retention of physical properties

Dow Goes Green

By Way of Dalton Landfill

One man's trash is another man's green power. As part of Dow's focus on sustainability, the company has signed a contract to capture and use methane gas from a landfill in Dalton, Georgia, to help power its latex manufacturing plant. As a result of the collaboration and in an effort to meet the industry's growing demand for carpet backings with sustainable attributes, Dow expects to soon produce latex carpet backing manufactured with LOMAX™ Technology.

LOMAX™ Technology means Dow will take approximately 240 billion Btu per year of landfill gas from this county-owned landfill, located two miles from the plant, and use it in place of natural gas. The landfill gas will be used to generate steam for general manufacturing purposes. This amount of energy is equivalent to the same amount electricity used in approximately 2100 average U.S. homes annually.

By using this renewable resource, Dow also helps reduce greenhouse gas emissions. This use of landfill gas will avoid the emissions of more than 27 million pounds of carbon dioxide per year, which is comparable to keeping 2,300 cars off the road annually.



Attending the Dalton landfill groundbreaking on October 15, 2007, are (from left to right): Dan Frierson, *CEO, The Dixie Group*, Chip Howalt, *President, Textile Rubber*, David Jolly, *President, J&J Industries*, Randy Waskul, *VP - Environmental Services, Mohawk Industries*, Philippe Raynaud de Fitte, *General Manager, Dow Paper and Carpet Latex*, Steve Bradfield, *Sustainability Director, Shaw*, Howard Elder, *R&D Director, J&J Industries*, Frank Endrenyi, *VP - Sustainability, Mohawk Industries*, Todd Crook, *Global Marketing Manager, Dow Carpet Latex*, Rick Ramirez, *VP - Sustainability, Shaw*, Tim Thomas, *Dalton Site Leader, The Dow Chemical Company*

Carpet backing products manufactured with LOMAX™ Technology may be eligible to receive between two to five points under the renewable energy section of NSF 140-2007 carpet sustainability standard. Products manufactured with LOMAX™ Technology are also designed to meet Green Label Plus requirements, which may allow specifiers to receive one LEED point. In addition, LOMAX™ Technology could qualify for an additional one to four LEED points under the ID (Innovation & Design Process) category.

This will not be the only or last such application for Dow as investigations into the use of other renewable sources of energy are ongoing. In the pursuit of more sustainable energy production and reductions in greenhouse gases, we are currently examining wind and hydro power, and fuel cells, along with other landfill gas projects.

Dow Gets to the Point

with Needlepunch

As the need for needlepunch carpet rises in the United States, Dow has your back. Our full offering of latex backing products for needlepunch carpet can provide a host of advantages to manufacturers and their customers both in the United States and overseas.

Dow has long made needlepunch backing products for the global market including Europe, South America and Australia. "While the use of needlepunch carpet has been relatively low in the United States at about two to three percent, the European market share has grown to approximately 30 percent," said Nick Hanlon, Carpet Latex Industry Development Leader.

Now this rise in use has crossed the ocean, with many manufacturers and end-users seeing the value of needlepunch as an inexpensive option for modular carpet. Due to its durability, stain-resistance and ease of replacement, these products are especially popular for high-traffic commercial areas, as well as residential spaces like basements and mudrooms.

Dow's latex backing products are designed to create a better needlepunch carpet by providing exceptional stiffness that helps improve the carpet's hand and makes it easier to lay in place. Plus, Dow is currently the only company to offer ignition-resistant latexes. For the United States market, Dow produces the following latex backings for needlepunch carpet:

HPL™

- Provides stiff hand – Tg greater than 23° C
- Offers reduced ATH (aluminum tri-hydrate) requirements for cost savings
- Can be used with less expensive fillers

S/B Latex

- Provides very stiff hand – Tg greater than 40° C
- Shows little ghosting or writing
- Allows for minimum film foundation temperature
- Enables manufacturer to maintain a stiff hand while lowering coating weight

To find out more about Dow latex backings for needlepunch visit us online at www.dowcarpetlatex.com

Carpet News & Notes is a publication for customers of Dow Emulsion Polymers. Your comments and suggestions are welcome. To provide story ideas, add a colleague to our mailing list, or if you have general questions or concerns, please contact:

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