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## ADMET Equipment Updates Northern Elastomeric Test Processes

*Northern Elastomeric Inc., a manufacturer of roofing and waterproofing products based in Brentwood, NH, conducts a series of tests on asphalt-coated products. Primarily a private label manufacturer, it designs and manufactures products to customer specifications. This requires extensive development and quality assurance testing of both the substrate and surface materials before and after coating. One of its test machines, a Scott tensile tester traditionally used for testing textiles, was seriously out of date. Plant Process Manager, John Lackner, saw an ADMET tabletop test machine at the 2006 MASSPlastics tradeshow and decided to replace the old system with an up-to-date digital test frame. The result is greater accuracy and throughput, and the ability to automatically capture test data.*

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Northern Elastomeric Inc. (NEI) of Brentwood, NH, was founded in 1989 to produce styrene-butadiene-styrene (SBS)-modified asphalt, self-adhesive roofing and waterproofing products. NEI soon became one of the leading suppliers in the residential ice and water protection market.

NEI entered other self-adhesive markets such as thru-wall flashing, below grade waterproofing and air barrier products. It also began supplying other companies with private-labeled products. In 1999 NEI became a joint venture with Owens Corning.

NEI produces about 35-40 products that are shipped as coated rolls. The substrate materials, paper, fiberglass, polyethylene or polypropylene, are tested before manufacture.

### Testing for development - production

The asphalt coatings are applied to one or both sides of, or saturated into, the substrate materials. The coating material has its own penetration, melting, tensile and tear characteristics. NEI also tests competitors' products for comparison.

The lab supports manufacturing quality assurance with post-production penetration, viscosity, weight and melting point tests, as well as elasticity tests of the coated products. It also conducts cold-temperature testing.

The SBS coating formulations are designed to increase the elasticity of the asphalt. NEI intensely tests experimental designs and formulations as it develops new product variations. Technicians often test 20-100 specimens per experimental run to evaluate the resulting performance of various coating/substrate formulations. During development, technicians often run the tensile testing machine 25-30 hours per week.

Tensile tests range from just a few lbf for ice and water shield products up to about 200 lbf for asphalt roofing surfaces. NEI conducts tensile tests on 1" specimens. It also conducts Pant Tear tests that are similar to trapezoid tests. For these tests, a 1" sample is partially slit and the two "legs" are pulled apart to measure tear resistance.

Its room temperature tensile testing machine, a Scott tester, predated the company's founding by decades. The machine, common in the textiles industry, stands eight feet tall and uses a pendulum raised by a 20"-diameter motor and a mechanical arm indicator to report results. The Scott tester required that technicians mount the specimen and then manually set the machine parameters for each test. It was not accurate, especially for low-force testing. It was also cumbersome to operate, slow, and required operators to manually record test results.

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## SOLUTION OVERVIEW

**Industry:** Roofing materials

**ADMET Product:** eXpert 7601 with eP Digital Controller

**Customer:** Northern Elastomeric Inc.

**Application:** Testing SBS-modified asphalt

## Moving to digital

Plant Process Manager, John Lackner, attended the 2006 MASSPlastics tradeshow where he was introduced to ADMET's line of products. He was, of course, aware of the advances in testing equipment, and there he saw a relatively inexpensive digital machine that would improve accuracy and throughput while freeing up space.

"The ADMET machine intrigued me because it looked like a very simple piece of equipment that was compact," he said. The machine was an ADMET single-column tabletop tester that would introduce state-of-the-art digital controls and reporting, and free up space in the lab.

Lackner decided to replace the old machine. He researched a number of test equipment suppliers but, in the end, returned to ADMET. Commented Lackner, "There are some fine machines made in Japan and other places, but I liked that ADMET is local and that they had a better cost-to-value ratio."

## Accuracy, efficiency

Lackner ordered an ADMET eXpert 7601 single-column machine with an eP Digital Controller. The tabletop machine has a capacity of 225 lbf and weighs in at only 45 lb with a footprint that is barely the size of the old machine's motor. He also ordered 22 and 250 lbf load cells and grips from ADMET.

The new setup takes advantage of ADMET's digital controls and reporting. NEI's standard tensile and Pant Tear tests are programmed into the eP controller. The two technicians who are qualified to run the machine simply mount the specimen and select the appropriate test. The machine performs a fast preload, precisely controls the test, records the results and resets at test end.

The results are downloaded via ADMET's WinCOM PLUS RS232 Data Communications program to a dedicated personal computer for cataloging and retention. The technicians use the computer to perform jump test analyses, and to view and print force-extension curves. The raw data is also saved to a standard spreadsheet for archiving. "Now, we have the capability to go back and quickly reference test data," explained Lackner.

The setup went smoothly. "The service was good," he said. "The system was shipped and the sales engineer offered to come to set it up. We thought we'd take a stab at it. I didn't know how to set up [the test routine], so I called ADMET and they walked me through it until I had it set up the way I needed."

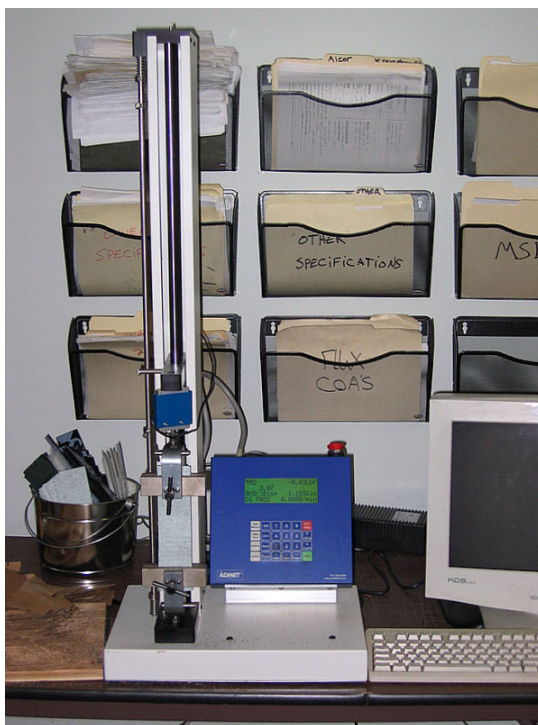
Productivity has significantly improved with the more automated digital system. "We have our tensile and pant leg tests programmed in. We just call up and select the particular test that we need," said Lackner.

Lackner also likes the fact that the grips have standard mounts and the load cells can be quickly changed out.

"The guys love it now," he said. "They can set it and walk away. It makes a big difference when technicians are working on experimental designs which can involve up to 100 tests per day. The techs instantly see the data and, based on the results, make

recommendations, adjustments or redesign the formulation and test again."

The ADMET machine has significantly improved both accuracy and throughput. Lackner plans further improvements by using the new machine to perform adhesive (peel) tests. He is also considering adding pneumatic jaws to make the process go even faster.



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## For more information

For more information about ADMET products or services, please call us at 800-667-3220 or 781-769-0850, email [sales@admet.com](mailto:sales@admet.com) or visit our Web site at <http://www.admet.com>.

For additional information on Northern Elastomeric Inc. visit <http://www.nei-act.com>, call 800-998-4634, or email [vanwyngarden@nei-act.com](mailto:vanwyngarden@nei-act.com).

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