



CASE STUDY

UL Solutions grants its first certification for expandable polystyrene resin containing recycled content for use in the North American construction sector



The challenge

NexKemia Petrochemical Inc. — a leading manufacturer of expandable polystyrene and graphite enhanced expandable polystyrene resins — was seeking third-party certification for its newly created ME-Series expandable polystyrene resin containing recycled content. The company turned to UL Solutions, which is widely known for its safety science expertise and industry reach.

Marketed as NexEco, the ME-Series comprises NexKemia's first resin containing mechanically recycled content.

UL Solutions' comprehensive capabilities — spanning technical expertise, testing to safety standards and building product certifications — made us the ideal partner for this complex certification.

"With growing demand among our customers for more sustainable solutions, plus increasing regulations aimed at restricting traditional EPS applications, we identified an opportunity to pioneer recycled EPS for the construction industry," said Mathieu Desjardins, marketing and certification specialist at NexKemia.

"We created our NexEco product line: a resin containing a minimum of 30% recycled content. In doing so, we've introduced a full circular economy for EPS, meaning that when a product reaches the end of its useful life,

we recover the molded EPS and repurpose it into its resins," he explained.

Before it could launch NexEco, NexKemia faced a significant barrier: without certification, recycled EPS products were not accepted for use in the North American construction sector.

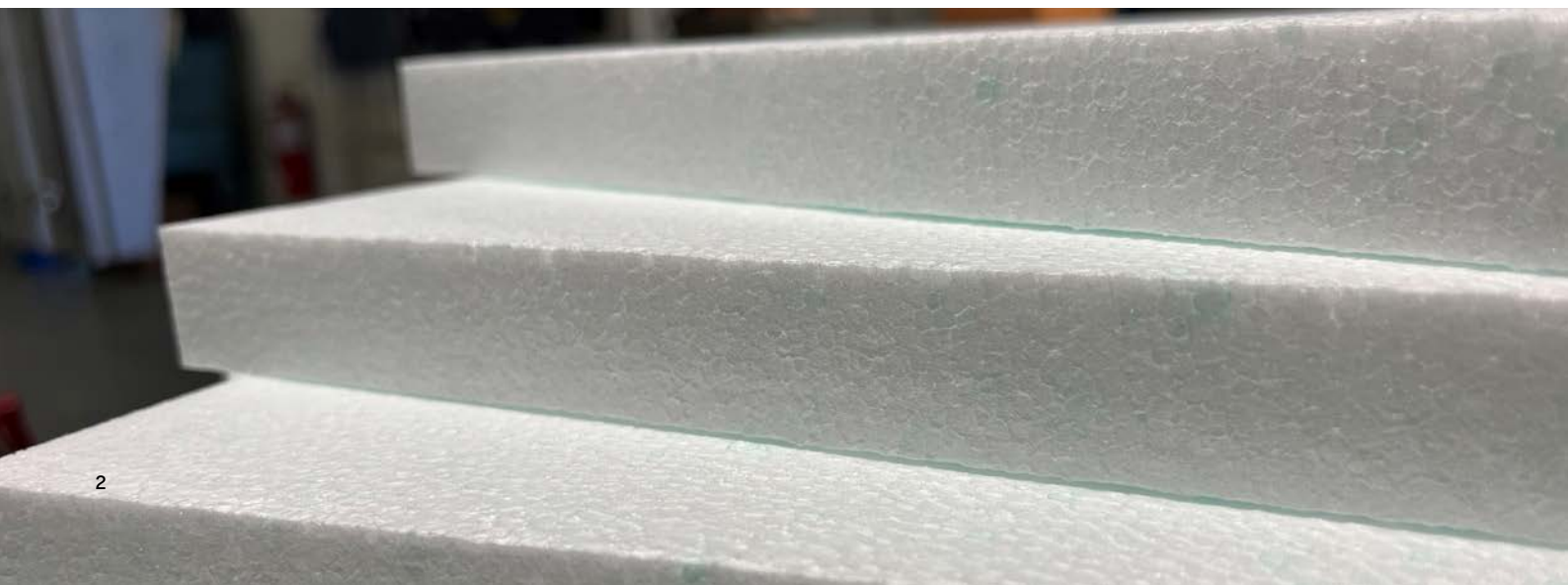
To address this challenge, the company required a trusted, industry-recognized partner to certify its NexEco product line for use in construction projects.

This certification was essential for market entry and to position NexKemia as a sustainability leader in the sector.

"UL Solutions was the only third-party certifier to take our project seriously. It has all the departments, expertise and resources necessary to help us get our product onto the market, so we just needed to figure out how to get it certified."

Mathieu Desjardins

Marketing and certification specialist at NexKemia



The approach

Engineers and project coordinators from UL Solutions worked closely with NexKemia to establish testing protocols, assess compliance with North American standards for product certification.

The journey to certification was thorough, and NexKemia demonstrated its commitment by submitting more than 1,000 samples to UL Solutions.

To evaluate the uniformity of the recycled materials, the Built Environment and Engineered Materials teams at UL Solutions collaborated to develop a testing program by utilizing and adapting the test methods from UL 746S, the Standard for Evaluation of Sustainable Polymeric Materials for Use in Electrical Equipment. This helped to establish batch-to-batch consistency for the recycled feed stream in conjunction with the insulation panel testing.

The NexEco (ME-Series) products also underwent testing and certification in accordance with:

- UL 723, the Standard Test for Surface Burning Characteristics of Building Materials, earning a UL Classification Mark
- CAN/ULC 102.2, the Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies, earning a UL Classification Mark
- CAN/ULC 701.1, the Standard for Thermal Insulation, Polystyrene Boards, earning a UL Listing Mark
- ASTM C578, the Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation, earning a UL Classification Mark

The collaboration required innovative problem-solving to bridge engineering and market requirements, setting a new benchmark for the industry.

UL Solutions also supported NexKemia to achieve recycled content validation through UL 2809, the Environmental Claim Validation Procedure (ECVP) for recycled content, for its Nextherm Expandable Polystyrene (MT-Series), NexKem Eco Expandable Polystyrene (ME-Series) and NexKem Eco Expandable Polystyrene (HE-Series). At this time, only the ME-Series has achieved certification to UL 723, CAN/ULC 102.2, ASTM C578, and CAN/ULC 701.1 with recycled content.

The UL Environmental Claim Validation Mark provides third-party validation that sustainability claims are accurate, helping companies boost credibility and gain a competitive edge in the construction industry.

The result

With the help of UL Solutions' comprehensive testing, auditing and certification expertise, NexKemia has become the first company in North America to achieve a UL certification for expandable polystyrene resin containing mechanically recycled content for use in the built environment.

"Our goal was to be able to reach the construction market, where sustainability was very limited in the segment we are developing," said Mathieu. "Certification and Environmental Claim Validation from UL Solutions underscore our commitment to building a circular economy and positions NexKemia as a leader in custom EPS and GPS resins. as a leader in custom EPS and GPS resins."



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