



Roofing Adhesive Replaces Asphalt With Soy



A new soy-based roofing adhesive product, developed with the help of funding from the United Soybean Board (USB), represents a less toxic, less carcinogenic and less dangerous alternative to hot-applied asphalt roof adhesives.

BioBased Elastomeric Bitumen Adhesive (BEBA) represents the first cold-applied, biobased-certified adhesive for built-up roofs (BUR), according

to product developer Lance Niemann of Niemann & Associates. BEBA contains 28 percent biobased content, in accordance with ASTM D-6866-04, and qualifies under the USDA's BioPreferred program and also for LEED points through the United States Green Building Council. The company will begin applying the BEBA on commercial buildings this spring.

Adhesives used on BUR, the most common type of low-sloped commercial roofs, traditionally contain petrochemical-based asphalt. In fact, BUR used more than 1 billion gallons of asphalt in 2007. According to Niemann, the use of BEBA reduces asphalt use by 50 percent.

BEBA contains soybean oil and glycerin, an underused co-product of the soy biodiesel manufacturing process. Niemann says BEBA's cost and performance will be similar to or better than similar petrochemical-based products.

"The glycerin will keep the price of our adhesive equal to asphalt," says Niemann. "Currently glycerin is burned as fuel or fed to cattle. We have developed a polymer that uses glycerin in what we call upcycling, which takes a waste material and finds a use for it in a higher quality product."

According to Niemann, the manufacturing, application and disposal of asphalt results in toxic byproducts that contain numerous carcinogenic polynuclear aromatics. These fumes, coupled with the extreme heat associated with hot-applied asphalt, create a dangerous environment for workers, Niemann says.

Besides producing less odor and removing the need for dangerous heating, Niemann says BEBA brings faster setting times, increased water resistance and improved bonding strength.

USB provides funding to industry and researchers to help develop and commercialize new uses for U.S. soy. USB previously partnered with Niemann & Associates on a soy-based white reflective roof coating and soy-based resins for printing ink.

"We have recently partnered with USB on this development, which began in 2004," says Niemann. "USB's funding allowed us to focus our research efforts and produce a pilot batch of the polymer as well as 400 gallons of the finished adhesive that we'll apply in various locations around the country this spring."

To learn more about new uses for soybeans, visit www.soynewuses.org.