



Building a Greener Industry with Soy

Domestically produced soy has been used as a replacement for petrochemicals for many years, and even more industries are finding possible uses for this environmentally friendly product as sustainable standards take hold.

"We fund research that leads to the development of new technology utilizing soy. It's really starting to come to fruition now," says Karen Fear, director of the United Soybean Board and a soybean farmer in Montpelier, Ind. "Soy is sustainable, and that helps the environment."

Soy-based products contain a sustainable ingredient that reduces volatile organic compounds (VOCs) and emissions. The construction industry has embraced the use of soy to fill this demand in several areas, including adhesives, paints, coatings and plastics. An increasing number of soy-based products are being made available at competitive prices and with sound performance.

IMPROVING INTAKE

Emissions of VOCs and hazardous air pollutants from individual manufacturing processes are top concerns in the construction industry. The emissions and pollutants from paints and coatings have been linked to poor air quality due to the solvents used to carry the pigment in paint. Concerns about emissions have resulted in tighter regulations, and more companies are looking to soy for solutions.

Soy paint is manufactured using the same process and most of the same materials as conventional paint, but soybean oil replaces some of the petroleum ingredients.

"With the increasingly tighter VOC regulations from the Environmental

Protection Agency to lower solvent levels, there is a drive to use waterborne coatings and move away from solvent-borne paints," says Duke Rao, director of polymers and materials technology at Sherwin-Williams.

Formaldehyde is another synthetic chemical that affects air quality. Aware of this potential danger, Columbia Forest Products sought an affordable replacement for formaldehyde in the manufacturing of hardwood plywood veneers and developed a soy-based alternative.

"This allowed us to eliminate formaldehyde at virtually the same cost," says Steve Pung, vice president of technology and innovation at Columbia Forest Products. "We were able to convert our seven North American mills completely."

Pung adds that by switching to the soy-based adhesive, the company has virtually no emissions from its pressing operation, which used to represent a major area of emissions, and its employees are no longer exposed to formaldehyde fumes.

Universal Textile Technologies also worked to improve indoor air quality by creating carpet backing that replaces up to 100 percent of petrochemicals with biobased polyols. The carpet is low in VOCs and uses recycled materials.

And BioBased Insulation, which produces soy-based insulation products, has taken green building standards to heart by operating out of a new corporate headquarters built to LEED Silver standards.

BIG BENEFITS

In addition to the environmental benefits, soy can improve product performance.

According to John Schierlmann,

technology manager for Rust-Oleum/Zinsser Wood Care, soy imparts a warmth to the wood absent from conventional water-based stains.

Columbia Forest Products has experienced similar positive results with its soy-based adhesives.

"The bond and strength are the same, and the water resistance is better," Pung says. "Its benign makeup and water base also make it easier to clean up."

Affordability is another key benefit, as most people are not willing to pay more to go green.

"Buildings have a huge impact on our environment with emissions and carbon footprints, and by offering sustainable alternatives, we are beginning to see a positive effect on the environment," says Jennifer Wilson, marketing director at BioBased Insulation. "People are able to make minor choices, and if many people make them, it can make an impact."

Using soy as a sustainable ingredient maintains the quality of products without increasing the price, while using less energy in manufacturing.

"We've been able to maintain quality and price by going green," says Tom Peeples, president of Universal Textile Technologies.

The desire to find and use soy as a sustainable ingredient will continue to spawn new research and products, often with companies collaborating to make their products green.

Todd Allen is chair of the New Uses Committee for the United Soybean Board, St. Louis. For more information, call (800) 989-8721, email info@unitedsoybean.org or visit www.unitedsoybean.org.