

Soy Biobased Hydraulic Oil Proven in Lady Liberty's Elevators

Five Years of Flawless Performance

Based on almost five years of flawless performance at the Statue of Liberty, a number of events are about to happen that will make the well-proven benefits of soy biobased hydraulic fluid for elevators more available to users throughout the Federal government.

First, the elevator industry's acceptance of soy-based hydraulic fluids

represents a significant step in the use of biobased products. AgriTech Brands, a division of Bunge Oils, commercialized the product in January 2006 after extensive testing both in the laboratory and during application testing at the Statue of Liberty. "Agri-Tech has placed the product in multiple elevator operations across the United States with most of the major equipment

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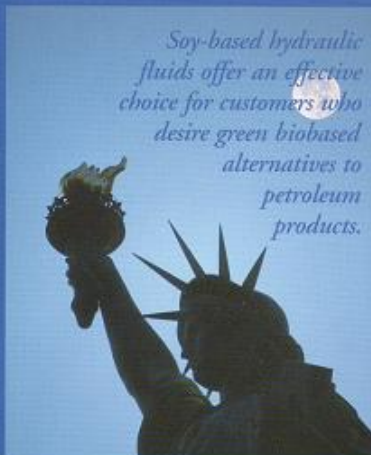
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manufacturers represented," explains Beau Meneley, Director of Non Food Oil Applications, AgriTech Brands, a Division of Bunge Oils.

Soy-based hydraulic fluids offer an effective choice for customers who desire green biobased alternatives to petroleum products.

Second, as part of the batch of 20 product categories put forward by the U.S. Department of Agriculture (USDA) on August 17, 2006, "Stationary Equipment Hydraulic Fluid" is expected to be certified as "Biobased" in coming weeks. The USDA certification process is required under the 2002 Farm Bill that establishes a biobased preferential purchasing requirement for all Federal agencies.



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When these events occur, it will mark a major milestone in a unique journey of a product from an idea in someone's mind to commercialization.

It all started in 2002 when Jeff Marrazzo was a utilities foreman for the National Park Service's (NPS) famed Statue of Liberty. He contacted chemist, Sevim Erhan, at the USDA's Agricultural Research Service (ARS) National Center for Agricultural Utilization Research (NCAUR) in Peoria.

Marrazzo had read on the internet about Erhan's work. He told her he needed a

new hydraulic fluid because the one he was using, a mineral-oil formulation derived from petroleum-based stocks, wasn't working. "It overheated and started to break down far too soon. We not only had to replace the fluid, but it actually caused elevator malfunctions," he explains.

He also wanted something **green** to meet the objectives of the NPS. It had to breakdown readily in the environment (in this case, potentially New York Harbor) in case of leaks, it had to come from a renewable resource, it had to be environmentally friendly to manufacture, and it had to meet elevator company standards.

Erhan and her colleagues had a head start. They had already worked with various vegetable oils, including soy, for hydraulic fluids. "After studying the petroleum-based product they were using, we began formulation," she says. "Once we got a product we thought might do the job, we sent a 50-gallon batch to Otis Elevators to be tested. It worked at Otis so then we began working with Agri-Lube, then a biobased manufacturing firm in Ohio, to produce a hydraulic fluid to test at the Statue of Liberty."

How much time elapsed from Marrazzo's first call until Dr. Erhan helped install the hydraulic fluid? Incredibly, only eight months!

"We saw an immediate change. Our heat problem was solved with the biobased hydraulic fluid. And, not just for awhile. Dr. Erhan has sampled the fluid every three months for almost five years. Each time, it comes back fine. This is one biobased product that pays for itself over and over again," he says.

Maintenance Chief at the Statue of Liberty and Ellis Island, Tom O'Dougherty says, "This product is exactly what the NPS was thinking about when it started its emphases on making the park system not only green but a leader in environmental stewardship back in the 1990s. **It's good for the environment, its renewable, it works and it saves money—what more can you ask?"**



Jeff Marrazzo, who at the time worked for the National Park Service at the Statue of Liberty, and Dr. Sevim Erhan of the U.S. Department of Agriculture take the first ride in the elevator after the biobased hydraulic fluid was installed in it in November 2002. That very same fluid is still lifting that elevator nearly five years later. The quality of the fluid is checked every three months by Dr. Erhan. She says, "We've seen no deterioration."

In the meantime, Agri-Lube began commercializing the product and was bought by Bunge in 2005. "This is an amazing story of science, government and industry working together to create a product to fill a need to benefit everyone," says Bunge's Meneley.

Speaking on behalf of the USDA, Under Secretary for Research, Education and Economics Dr. Gale Buchanan states, "As we move toward a more bio-based economy, agricultural research will play a critical role in providing new products and fuels for our nation. A great example of this is the bio-based hydraulic fluid made from soy oil that is currently being used in the elevator of the Statue of Liberty. This technology is the product of innovation and partnership between USDA, the National Park Service and industry. I am proud to say that the Administration's 2007 Farm Bill Proposals include \$50 million in annual mandatory funding to support the Agricultural Bioenergy and Biobased Products Research Initiative. This Initiative will enable USDA to expand its efforts to develop biobased products and biofuels for the future."

