

For immediate release

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**STI/SPFA Announces the Release of a Final Report for
Testing for Compatibility of Steel with Biodiesel**

Lake Zurich, IL – April 25, 2008 – The Southwest Research Institute in San Antonio, Texas has completed a study and prepared and released a Report. The objective of the 24-week study was to measure the corrosion rate of steel in various biodiesels and biodiesel/petroleum blends. Soy- and animal-based biodiesels were used in two separate sets of exposures to steel coupons in order to yield test results representative of all biodiesel blends. In addition, half of the samples contained water to simulate worst-case conditions. The testing was accomplished to simulate typical storage tank conditions for a 12-month period.

The study, collaboratively funded by STI/SPFA, the National Biodiesel Board and the National Oilheat Research Alliance (NORA), reinforced the compatibility of steel within the full spectrum of blended concentrations.

“These results were unusually good,” said Lorri Grainawi, director of technical services for STI/SPFA. “The laboratory found no significant level of corrosion and no formation of pits. Most important, data collected during both periodic measurements by electrochemical impedance spectroscopy and mass loss studies showed an imperceptible corrosion rate.

“From the outset, we expected that as fuel samples aged, acids would form and increase both the number of charge carriers (such as ions in solution) and the

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acid number, thereby elevating both the solution conductivity and the corrosion rate,” Grainawi added. “However, results demonstrated that conductivity of the fuel blends was too low to measure any corrosion, even by the end of the first 12-week period.”

The study included steel coupons – test samples – immersed in blends of biodiesel and ultra-low sulfur diesel (ULSD) fuel that were maintained at a controlled temperature of 109.4 degrees Fahrenheit (43 degrees Celsius) for the duration of testing. With an elevated temperature test, the 12 week test period correlates to a 12 month storage interval.

During visual inspection of test coupons, a small amount of surface rusting was observed, Grainawi said. In most cases, the amount of surface rusting was slightly higher in 100 percent ULSD than in biodiesel or biodiesel-plus ULSD blends. The minimal rusting was caused by a reaction between the surface oxide layer of the metal and the fuel blend.

The relative insignificance of visual rusting was demonstrated by microscopic examination and computation of actual weight loss for test coupons, Grainawi said.

A complimentary copy of the final report may be downloaded from the PUBLICATIONS section of the STI/SPFA website at www.steeltank.com (or go to <https://www.steeltank.com/LinkClick.aspx?fileticket=DmVUhxGwDVE%3d&tabid=108&mid=502>).

STI/SPFA is an association serving companies that fabricate steel tanks, pipe, and pressure vessels for use in the petroleum, food, water and chemical processing industries. STI/SPFA works with and receives funding from a number of industry organizations, including the American Institute of Steel and Iron (AISI), which supported this study. In addition to serving fabricators of steel tanks, pipe and pressure vessels, STI/SPFA provides certification and training courses for steel tank and pipe, performs quality assurance inspections, develops industry standards and specifications, produces safety manuals, and serves as a liaison to regulatory and code authorities.

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