STI's biofuels Statement of Compatibility

EPA's Guidance: Compatibility of USTs with Biofuel Blends was issued in July 2011. Among other provisions, the Guidance requires manufacturers to certify that their tanks are compatible with all ethanol and biodiesel blends.

In response, STI members have posted their Letters of Compatibility on the association's website. STI has also issued a Statement of Compatibility, based on several compatibility studies. The letter states, in part:

"All steel tanks are suitable for use with all blends of fuels meeting ASTM standards, including ethanol blends from E10 to E100. All steel tanks are also suitable for use with all blends of biodiesel, from B2 to B100. Testing has been done proving compatibility of steel by several sources, including Oak Ridge National Lab (sponsored by DOE in collaboration with UL and NREL), SwRI, DNV, and STI (through Battelle)."

Test reports and other information on biofuels and steel are is available on the STI website.

Revised SP001 Standard available September 16

After nearly two years of study and revision by a broad-based committee of experts, the Steel Tank Institute announces the 5th Edition: SP001 Standard for the Inspection of Aboveground Storage Tanks.

Changes were developed through the STI AST Inspection Standards Committee review process. The revised Standard was unanimously approved by a balanced, 21 member committee of STI tank fabricators, federal and state regulators, bulk storage tank owners, tank repair companies, and several other interested parties.

Highlights of the revised SP001 Standard include:

What material is best to transport, store and dispense the new biofuels?

"...mild steel...and stainless steel were found to be essentially immune to corrosion...there was no noted effect on metallic parts or equipment..." by ethanol blends."

Steel is the best material for biofuels storage:
- Steel is impermeable.
- Steel doesn't soften when exposed to stored materials.
- Steel is strong, stable, and design-flexible.

*DOE/ORNL 2010 corrosion study
Elevated tanks previously required a release prevention barrier (in addition to secondary containment) to qualify as a Category 1 tank. This requirement was deleted, as leaks from elevated tanks are visible.

Double-wall tanks must have overfill prevention in order to be considered as having secondary containment. In the revised Standard, however, overfill prevention may simply be a person watching the fill.

The requirement for a release prevention barrier to be sufficiently impervious was deleted, to avoid confusion with EPA's definition of secondary containment.

Language was added to the schedule of inspections concerning the initial inspection date, which is now based on the initial service date of the tank.

Additional examples of tank configurations were added as examples of tank categories

Inspection requirements for several types of valves, leak detection equipment, spill containers, etc. were added to the equipment checklists in the Appendix.

The committee's work stemmed in part from revisions of EPA's SPCC regulations to prevent oil pollution of the nation's water, initially published in August 2002. The rule incorporated provisions for all regulated tanks to be integrity tested. National standards such as SP001 play an important role in helping tank owners comply with the SPCC regulation.

How to purchase SP001 5th Edition
The revised SP001 Standard is available September 16, 2011.

To order the SP001 Standard Fifth Edition, go to www.steeltank.com and click Publications/Publications Index. The price for SP001 fifth edition is $165.00.

You may also purchase both SP001 and its companion standard SP031 Standard for Repair of Shop-Fabricated Aboveground Tanks for Storage of Flammable and Combustible Liquids together for $240.00 (a savings of $35). SP001 covers the requirements for tank inspections and SP031 covers repairs that may be required as a result of these inspections.

Special offer: Those who purchased the 4th Edition of SP001 after July 1, 2011, will receive a 50% discount on purchase of the 5th Edition. A copy of the 4th Edition receipt is required with the order. This offer is valid through November 30, 2011. Contact Linda Gibson at lagibson@steeltank.com to receive the discount.

Water tank linings maximize life cycle value

The technology for coatings and linings has improved significantly during the past decade. Properly-applied coatings and linings on welded steel potable water storage tanks can extend their life substantially. For proof, see the STI/SPFA Century Club's roster of tanks in service for over 100 years.

Linings for potable water storage tanks must be tested and certified to the NSF 61 Standard, which applies to both steel and concrete tanks. The components forming the internal surfaces of storage tanks in contact with potable water, as well as the linings that are often applied, are all subject to NSF 61.

CSI Services, an independent, third-party company that provides coating consulting services to numerous water tank owners throughout California, recently stated that, "Once the initial investment has been spent erecting a water storage tank, it must be maintained throughout
its operating life in order to protect that capital investment. The largest recurring cost in maintaining a water storage tank is the cost of recoating: linings on the interior and paint on the exterior."

New, advanced coating systems, such as the AWWA 102 Outside Coating System No. 4 (consisting of a zinc-rich primer, urethane intermediate, and fluorourethane topcoat), offer service life two to three times longer than traditional coatings used by the industry.

Today's sophisticated engineer-specifiers and tank buyers look at extended life cycles of 100 years or more to determine the true present-value cost of a new potable water storage tank. With our increased concerns about resource sustainability, some even look at the cost to demolish the tank after its service life is completed and the value and benefits of recycling the tank material.

STI/SPFA has developed a Total Cost of Ownership (TCO) application that allows users to perform life cycle cost analysis of various tank materials. Currently, the TCO application is available as Excel spreadsheets. A new, web-based version of the TCO program is coming soon.

150,000 "Tank You's!" to America
A question we're often asked at the Steel Tank Institute is, "How many atmospheric fuel storage tanks are there in operation in the US?"
There's no one source with an exact answer to that question.

A reasonable estimate
However, a recent inquiry to an organization that provides third party labels to manufacturers of shop-fabricated flammable and combustible liquid storage tanks indicates just how many tanks can be fabricated in a given year in compliance with fire codes and other regulations. Tank label sales for one year included:

- 5534 underground steel tank labels and 3534 underground FRP tank labels
- 15,234 aboveground tank labels
- 2,392 two-hour fire rated protected tank labels
- 6 vaulted tank labels

Some shop fabricated tanks are not viewed within the regulatory horizon due to their small size, yet also have labels applied, such as:

- 18,665 generator base tanks
- 85,594 tanks used traditionally for oil heat storage, e.g. residential

Other third party labeled "special purpose tank" data are not included above, such as workbench tanks, day tanks, waste oil tanks, and used oil tanks.

And then there are the small shop-fabricated tanks that aren't labeled at all. These are typically under 1000 gallons in capacity, often used at farms, construction sites, and for other limited purposes. One fabricator recently told STI that they expect to build 1500 such tanks this year alone.

There are 75 STI member production facilities for shop fabricated tanks at the subscription page.

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tanks, so it's not difficult to conservatively estimate that over 15,000 small unlabeled tanks are built annually.

**The grand total**

When all these numbers are added, the sum exceeds **150,000 new shop-fabricated atmospheric storage tanks built in one year**. If we assume a 20 or 30 year life, the number of tanks in operation is in the millions—a mind-boggling number. EPA estimates that there are approximately 600,000 UST's alone in operation, many installed 20 years ago when underground tank regulations were first promulgated.

Steel tanks last a long time, and with present concerns about resource sustainability, it's good to know that a vast majority of these tanks can be recycled into new steel after their current service life is over.

*US FUEL STORAGE STATS*

<table>
<thead>
<tr>
<th>Type of Storage</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>US oil terminals</td>
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<tr>
<td>Railcar loads of ethanol sold wholesale</td>
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<tr>
<td>US retail fuel stations</td>
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<td>Stations owned by major oil companies</td>
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<td>Independent stations selling major oil brand</td>
<td>52%</td>
</tr>
<tr>
<td>Independent stations selling unbranded fuel</td>
<td>47%</td>
</tr>
</tbody>
</table>

*GAO report: Challenges to the Transportation, Sale, and Use of Intermediate Ethanol Blends, June 2011*

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**Tank and Petroleum Mishaps**

**Tank explosion damages cruise ship, injures passengers**

According to a June 1 story in *The Daily Mirror*, an exploding fuel storage tank at the Port of Gibraltar injured twelve passengers on board the docked *Independence of the Seas*, one of the largest cruise ships in the world. The report says authorities think the "likely cause appears to have been welding work being carried out on the top of the tank."

The ship with its 4000 passengers immediately moved away from the dock. The article notes that "a video posted to YouTube by a Gibraltarian known as 'Mendenge' shows Independence of the Seas pulling out of port as the fire raged."

**Three dead in Russia fuel tank explosion**

Three welders working inside an empty underground fuel storage tank were killed in Russia earlier this summer. The tank reportedly still contained oil and gas fumes, even though Russian labor safety laws prohibit welding in a space potentially containing explosive fumes. The explosion was at the Pacific Ocean port of Petropavlovsk-Kanchatsky. Nearby homes were evacuated until the fire was under control.

**Refinery worker died first day on the job**

A man who fell to his death in July from the ring walkway on top of a tank at the ConocoPhillips refinery near Hartford, Illinois, was on his first day on the job. The accident is under investigation by the company, the coroner, police, and federal safety officials, to determine whether it resulted from a safety failure or a possible medical cause. The worker was a contract arc welder experienced in working at height, and had just completed a four-hour ConocoPhillips training program.

*For more Tank and Petroleum Mishaps, [click here](#)*

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**AI Krumholz remembered**

An STI icon passed away in June 2011. Al Krumholz, Jr., owner of Chicago Boiler Co., was a
Al Krumholz, Jr. took the helm at Chicago Boiler in 1955.

Chicago Boiler was a Founding Member of STI nearly a century ago. Al continued his company's long tradition of involvement with STI. He and his wife, June, were regular attendees at STI meetings for 50 years and Al was a Past President of STI. In 1993, STI recognized Al's long years of faithful support by presenting him with the STI Hall of Fame Award.