Compatibility:

Interesting Observations and Lessons Learned While Implementing the 2015 Requirements

National Tanks Conference

September 11, 2018

Louisville, KY

Ryan Haerer
Release Prevention Division
EPA Office of Underground Storage Tanks

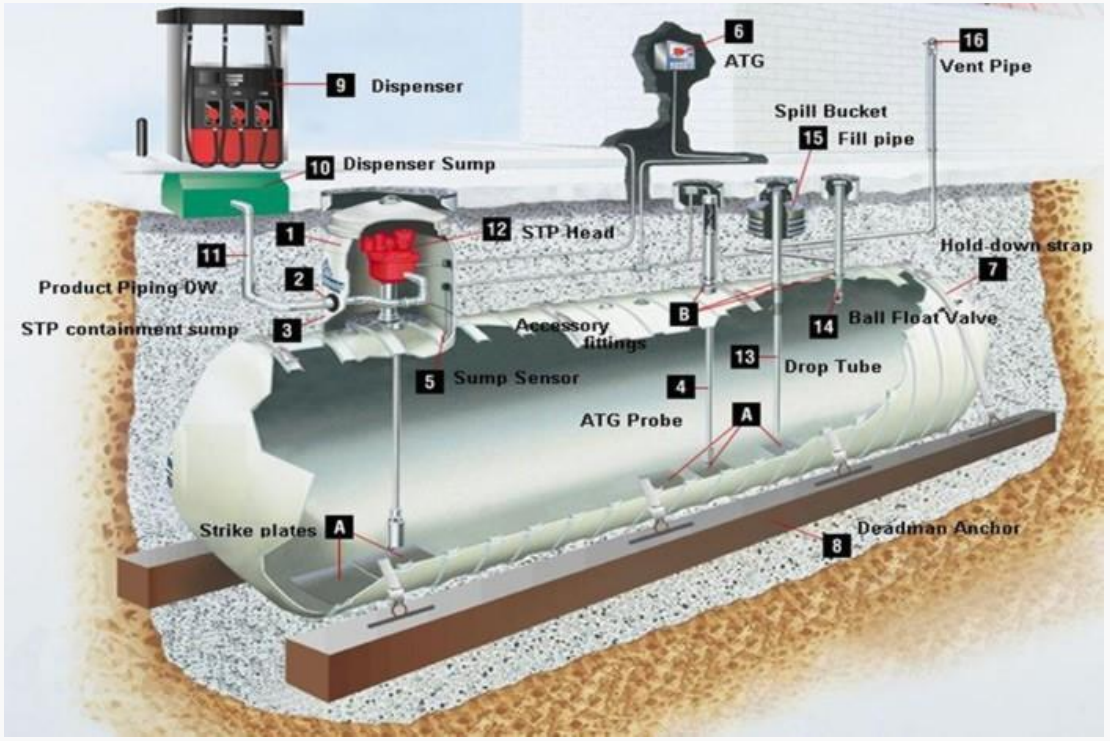
Compatibility for All UST Systems

UST system must be compatible with substance stored. (1988)

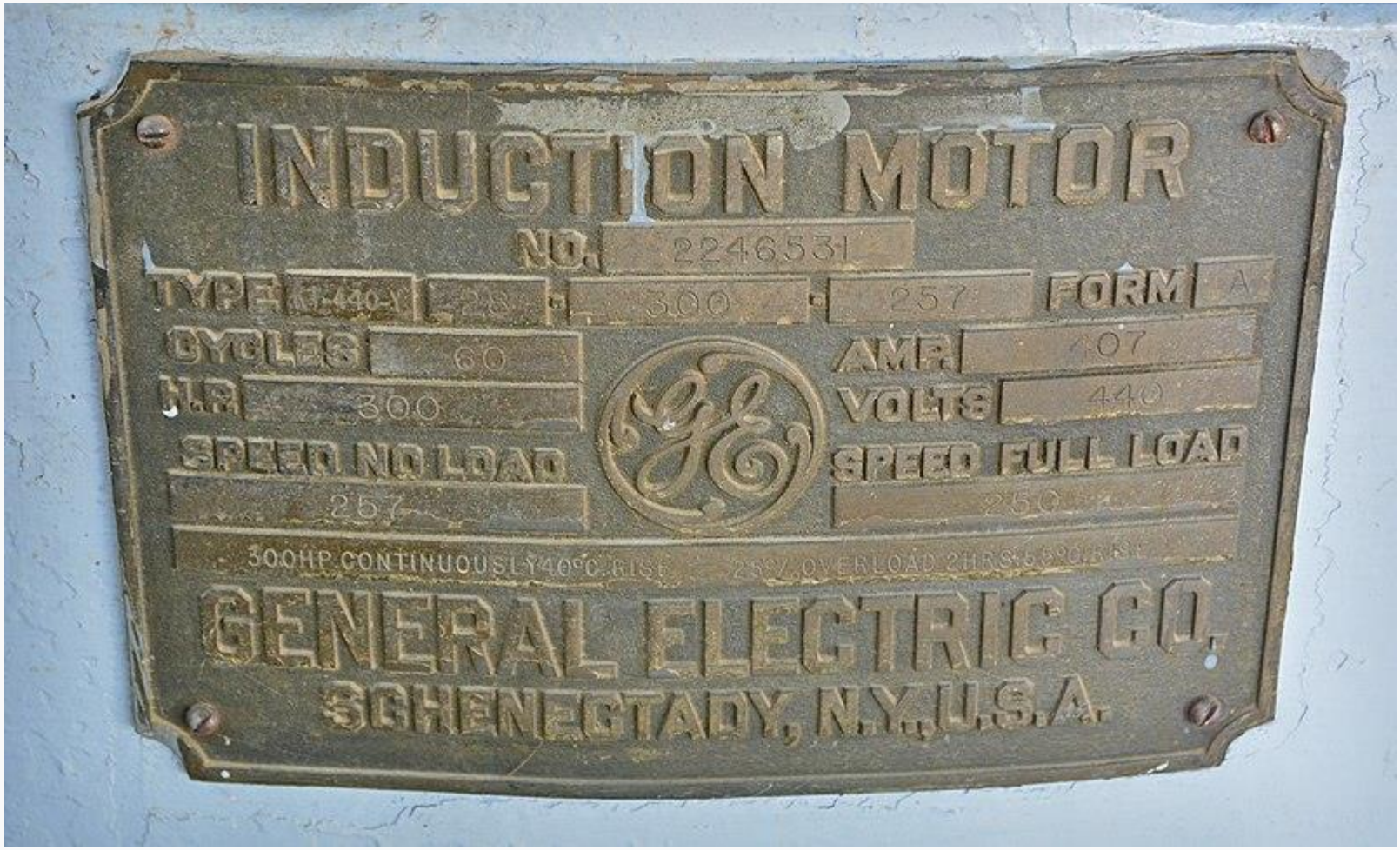
<u>Biofuels (2015)</u>
Notify
Demonstrate
Keep Records

Demonstrate Compatibility For:

- Tanks
- Piping
- Containment sumps
- Pumping equipment
- Release detection equipment
- Spill equipment
- Overfill equipment



Demonstrating Requires 2 Steps



Demonstration Options

CONTAINMENT SOLUTIONS

Engineering Report

Fuel Compatibility of Containment Solutions
FRP Tanks with Biodiesel or Biodiesel/Diesel Blends

William A. Schneider
Revised May 8, 2009

Background

Containment Solutions Inc. (CSI) single, double, and triple wall tanks are listed by Underwriters Laboratories Inc., under UL Standard 1316 - *Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures.* This standard outlines the requirements for fiberglass reinforced tanks for the underground storage of petroleum-based flammable and combustible liquids, alcohols, and alcohol-blended fuels.

To obtain a UL 1316 listing, actual tank laminate was exposed to a number of environments and then tested for property retention to meet UL's minimum specified values. This testing was done by UL and included No. 2 Fuel Oil (Diesel Fuel) and No. 6 Fuel Oil as well as various other fuels including Ethanol and Methanol. However, at this time, there is no recognized representative biodiesel fuel for UL testing of underground tanks.

Currently, there are four ASTM standards that relate to Biodiesel:

1. ASTM D 975-08a Standard Specification for Diesel Fuel Oils. This specification covers seven grades of diesel fuel oils suitable for various types of diesel engines and includes an allowance for up to 5 percent biodiesel for the light middle (D-1) and middle (D-2) grade distillate fuels.
2. ASTM D 7467-08 Standard Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to 20). This specification covers fuel blend grades of 6 to 20 volume percent (%) biodiesel with the remainder being a light middle or middle distillate diesel fuel, collectively designated as B6 to B20. These grades are suitable for various types of diesel engines.
3. ASTM D396-08(b) Standard Specification for Fuel Oils. This specification covers grades of fuel oil intended for use in various types of fuel-oil-burning equipment under various climatic and operating conditions and includes an allowance for up to 5 percent biodiesel for Grades No. 1 or 2 distillate fuels.
4. ASTM D 6751-08 Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels. This specification covers pure biodiesel (B100) for use as a blend component with middle distillate fuels and includes a new requirement that controls minor compounds using a new cold soak filterability test. The U.S. EPA requires that all biodiesel intended for use as a fuel meet D 6751.

Biodiesel is a fuel composed of mono-alkyl esters of long chain fatty acids (typically 16 to 18 carbons long) derived from vegetable oils and animal fats. Some sources of the oils and fats are soy beans, corn, cotton, sunflowers, rapeseeds, lard from pork, tallow from beef, etc. Pure biodiesel meeting ASTM D 6751 is referred to as B100. When B100 biodiesel is then mixed with diesel, the resulting

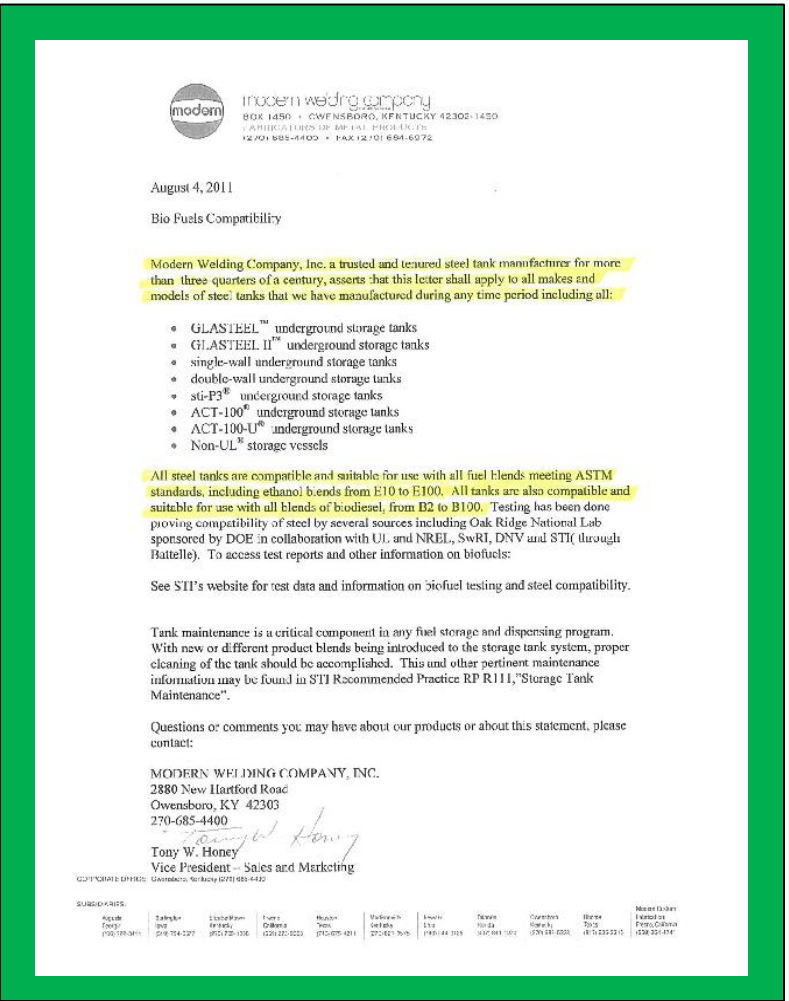
Independent Laboratory Certification

Issues with Certifications

Independent Laboratory Certification

- Wrong listing type
- Check with UL and manufacturer

Demonstration Options



modern welding company
BOX 1450 • OWENSBORO, KENTUCKY 42302-1450
FABRICATORS OF METAL PRODUCTS
(270) 685-4400 • FAX (270) 684-6072

August 4, 2011

Bio Fuels Compatibility

Modern Welding Company, Inc. a trusted and tenured steel tank manufacturer for more than three quarters of a century, asserts that this letter shall apply to all makes and models of steel tanks that we have manufactured during any time period including all:

- GLASTEEL™ underground storage tanks
- GLASTEEL II™ underground storage tanks
- single-wall underground storage tanks
- double-wall underground storage tanks
- sti-P3® underground storage tanks
- ACT-100® underground storage tanks
- ACT-100-U® underground storage tanks
- Non-UL® storage vessels

All steel tanks are compatible and suitable for use with all fuel blends meeting ASTM standards, including ethanol blends from E10 to E100. All tanks are also compatible and 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). To access test reports and other information on biofuels:

See STI's website for test data and information on biofuel testing and steel compatibility.

Tank maintenance is a critical component in any fuel storage and dispensing program. With new or different product blends being introduced to the storage tank system, proper cleaning of the tank should be accomplished. This and other pertinent maintenance information may be found in STI Recommended Practice RP R111,"Storage Tank Maintenance".

Questions or comments you may have about our products or about this statement, please contact:

MODERN WELDING COMPANY, INC.
2880 New Hartford Road
Owensboro, KY 42303
270-685-4400

Tony W. Honey
Vice President – Sales and Marketing

CORPORATE OFFICE: Owensboro, Kentucky (270) 685-4400

SUBSIDIARIES:

Manufacturer Letter

- In writing
- Affirmatively stated
- The *range* of blends
- Be from the manufacturer

Issues with Letters

John Q Public
Company

October 13, 2015

You can use our widget for E85.

Thanks.

Manufacturer Letter Issues

- No range stated
- Letters not found for several products

What Component is Actually Installed?

Pipe Dope and Sealants

- **Must be compatible**
- **Multiple versions available**
- **High ethanol compatible first came out around 2007**
- **Many pipe dope connections underground**

Aboveground Equipment

Can't demonstrate?

- Targeted retrofits
- Install a new system
- Don't store the substance

Butanol

EPA approves bio-isobutanol as gasoline additive at up to 16 vol %

15 June 2018

EPA has approved the registration of bio-isobutanol as a gasoline additive at up to 16 vol % after reviewing and taking comment on the application of Butamax Advanced Biofuels, LLC…

Additional Information

- OUST Website
- Local implementing agencies
- NTC 2018 Poster session
- Ryan Haerer, Michael Pomes, R7, Arturo Cisneros, R5, or your regional inspectors
- ASTSWMO Emerging Fuels Task Force