Biofuels Compatibility Determination

What, Why, and a Hands-on Exercise

August 2017 TLEF Meeting
The use of organization, company, and product names are for identification purposes only and does not constitute endorsement by USEPA.
We’ll start with compatibility... 

- What is compatibility?
- Why is compatibility important?
- Regulatory requirements
- Compatibility versus functionality
- To store or not to store biofuels
- Compatibility determination exercise
  - Pony Express, Winnebago, Nebraska
Ensuring materials in the Underground Storage Tank (UST) system will maintain their chemical and physical properties when in contact with the substance they are storing...
For UST materials incompatibility causes loss of original manufactured properties through

– Brittleness
– Elongation
– Thinning
– Swelling
Releases of regulated substances can result from loss of original manufactured properties

Examples of UST incompatibility not caused by biofuels

- elongation
- embrittled tank lining
- delamination
It’s always been on the books. . .


Owners/operators must use an UST system made or lined with materials compatible with the substance being stored
§280.32 Compatibility.

(a) Owners and operators must use an UST system made of or lined with materials that are compatible with the substance stored in the UST system.

(b) Owners and operators must notify the implementing agency at least 30 days prior to switching to a regulated substance containing greater than 10 percent ethanol, greater than 20 percent biodiesel, or any other regulated substance identified by the implementing agency. In addition, owners and operators with UST systems storing these regulated substances must meet one of the following:

(1) Demonstrate compatibility of the UST system (including the tank, piping, containment sumps, pumping equipment, release detection equipment, spill equipment, and overfill equipment). Owners and operators may demonstrate compatibility of the UST system by using one of the following options:

(i) Certification or listing of UST system equipment or components by a nationally recognized, independent testing laboratory for use with the regulated substance stored; or

(ii) Equipment or component manufacturer approval. The manufacturer’s approval must be in writing, indicate an affirmative statement of compatibility, specify the range of biofuel blends the equipment or component is compatible with, and be from the equipment or component manufacturer; or

(2) Use another option determined by the implementing agency to be no less protective of human health and the environment than the options listed in paragraph (b)(1) of this section. (c) Owners and operators must maintain records in accordance with §280.34(b) documenting compliance with paragraph (b) of this section for as long as the UST system is used to store the regulated substance.

NOTE TO §280.32. The following code of practice may be useful in complying with this section: American Petroleum Institute Recommended Practice 1526, “Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Filling Stations”
40 CFR 280.32(b)

Notify implementing agency at least 30 days before switching to any of the following products

– Regulated substances containing >10% ethanol
– Regulated substances containing >20% biodiesel
– Any other regulated substance identified by your implementing agency
40 CFR 280.32(b)(1)
Facilities required to demonstrate UST system components are compatible with the regulated substance, including

- Tanks
- Piping
- Containment sumps
- Pumping equipment
- Release detection equipment
- Spill prevention equipment
- Overfill prevention equipment
40 CFR 280.32(b)(1)(i) Certification or listing of UST system equipment or components by a nationally recognized, independent testing laboratory for use with the regulated substance stored
40 CFR 280.32(b)(1)(ii)

Equipment or component manufacturer approval

Requirements for manufacturer’s approval

- Written
- Includes an affirmative statement of compatibility
- Includes range of biofuel blends the component is compatible with
- From the equipment or component manufacturer
40 CFR 280.32(b)(2)

Any other method determined by implementing agency to be no less protective of human health and the environment than those listed on previous slides
Maintain records demonstrating UST system compatibility with the regulated substances

- Regulated substances containing >10% ethanol
- Regulated substances containing >20% biodiesel
- Any other regulated substance identified by your implementing agency
API RP 1626, “Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Filling Stations”

Includes information that may help facilities comply with compatibility requirements
Release detection equipment should
  – Be compatible with the biofuel
  – Be fully functional to detect releases

www.nwglde.org/
Choices include

• Use targeted retrofits of specific equipment to upgrade existing UST systems
• Install new UST system that can be demonstrated compatible with the regulated substance
• Decide to not store the regulated substance
Pony Express Winnebago, Nebraska Exercise
• Location: 137 US Hwy 77, Winnebago, Neb.
• Owner: Ho Chunk, Inc., 1 Mission Drive, Winnebago, Neb.
• Situation: Received funding from Nebraska Energy Office to install blender dispensers
  – USDA Biofuel Infrastructure Partnership
  – Converted Tank 1 to E85 Service
### Checklist For Determining And Documenting UST System Compatibility

Instructions: Complete all sections. This will help ensure you have the required information to demonstrate compatibility of an UST system with biofuels containing more than 10 percent ethanol or more than 20 percent biodiesel.

<table>
<thead>
<tr>
<th>Facility Owner:</th>
<th>Facility Name:</th>
<th>Facility Number:</th>
<th>Facility’s Street Address, City, State, Zip Code:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>UST System Identifier:</th>
<th>Type And Blend Of Regulated Substance:</th>
<th>UST Capacity In Gallons:</th>
</tr>
</thead>
</table>

Complete the checklist below, listing compatibility determination, method*, and description. All answers must be Yes and supported with a sufficient description or documentation for your system to be demonstrated compatible with the biofuel.

### UST System Components

<table>
<thead>
<tr>
<th>UST System Components</th>
<th>Documentation Demonstrating Compatibility With The Substance Listed Above?</th>
<th>Method* A, B, Or C</th>
<th>Description Of Component Type, Model Number, And National Laboratory Certification, Listing Or Manufacturer Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Piping</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Containment Sumps</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

*A: Certification or listing of UST system equipment or components by a nationally recognized, independent testing laboratory for use with the regulated substance stored

B: Equipment or manufacturer approval. The manufacturer's approval must be in writing, indicate an affirmative statement of compatibility, specify the range of biofuel blends the component is compatible with, and be from the equipment or component manufacturer

C: Use another option determined by your implementing agency to be no less protective of human health and the environment than methods A or B. If using C, list your implementing agency and immediately below describe the approved alternative method for meeting the compatibility requirement

Method C Description:

Note: Owners and operators may find American Petroleum Institute's Recommended Practice 1628, Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Filling Stations, useful in complying with the compatibility requirements.

In order to be in compliance with the 2015 UST regulation compatibility requirements for storing biofuels, you must keep documentation of compatibility of the UST system components listed on this page as long as you store the fuel.

For your records, you should update this checklist each time you repair or replace components of your UST system to ensure you have all the required compatibility documentation while storing biofuels.
Exercise – Compatibility Determination (cont.)

Resources

- Petroleum Equipment Institute (PEI) UST Component Compatibility Library
  - www.pei.org/ust-component-compatibility-library
- PEI Current Underwriters Laboratory (UL) 971 listings
  - www.pei.org/state-survey-ul-971
• Affirmative Statement of Compatibility by Manufacturer
  - California State Water Resources Control Board
  - www.waterboards.ca.gov/water_issues/programs/
    ust/alt_comp_opt/soc.shtml

• UL Online Certifications Directory
  - database.ul.com/cgi-bin/XYV/template/LISEXT/
    1FRAME/index.html
• Steel Tank Institute Tank Manufacturers' Statements of Compatibility

Exercise – Compatibility Determination (cont.)

Working Through the Form

**Checklist For Determining And Documenting UST System Compatibility**

*Instructions:* Complete all sections. This will help ensure you have the required information to demonstrate compatibility of an UST system with biofuels containing more than 10 percent ethanol or more than 20 percent biodiesel.

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<tr>
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</table>

<table>
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<th>Type And Blend Of Regulated Substance:</th>
<th>UST Capacity In Gallons:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

Complete the checklist below, listing compatibility determination, method*, and description. All answers must be Yes and supported with a sufficient description or documentation for your system to be demonstrated compatible with the biofuel.

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<thead>
<tr>
<th>UST System Components</th>
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<th>Method* A, B, Or C</th>
<th>Description Of Component Type, Model Number, And National Laboratory Certification, Listing Or Manufacturer Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

*Method*: A, B, C
The use of organization, company, and product names is for identification purposes only and does not constitute endorsement by USEPA.
Petroleum Equipment Institute

- UST Component Compatibility Library
- www.pei.org/ust-component-compatibility-library

Exercise – Compatibility Determination (cont.)

Tanks

To Whom It May Concern:

The following summarizes the suitability of Xerxes’ UL listed underground storage tanks for the storage of ethanol-blended fuels and biodiesel fuels:

Single-Wall Tanks
- Tanks manufactured prior to February 1981 were not designed for the storage of ethanol-blended fuel. Tanks are compatible with all ASTM biodiesel blends.
- Tanks manufactured from February 1981 through June 2005 are designed for the storage of ethanol fuel up to a 10% blend (E10), as well as all ASTM biodiesel blends.
- Tanks manufactured from July 2005 to date are designed for the storage of ethanol fuel blends up to 100% (E100), as well as all ASTM biodiesel blends.

Double-Wall Tanks
- Tanks manufactured prior to April 1990 were designed for the storage of ethanol fuel up to a 10% blend (E10), as well as all ASTM biodiesel blends.
- Tanks manufactured from April 1990 to date are designed for the storage of ethanol fuel blends up to 100% (E100), as well as all ASTM biodiesel blends.

Additionally, all storage tanks designed for storage of ethanol-blended fuel up to 100%, as noted above, are also UL listed under UL’s Standard 1016 for the storage of ethanol fuel blends up to 100% (E100).

This summary is intended to address standard production tanks. Different tank models with appropriate UL listing and designed for higher levels of ethanol storage were available throughout the period of time. Ethanol blend compatibility for such tanks is based on the design specifics of each tank.

Further information regarding product compatibility can be found in the applicable Xerxes limited warranty.

Sincerely,

Thomas Tietjen
Vice President
Sales & Marketing

www.pei.org/sites/default/files/PDF/xerxes.pdf
## Exercise – Compatibility Determination (cont.)

### Piping and Containment Sumps

<table>
<thead>
<tr>
<th>Piping</th>
<th>Yes</th>
<th>No</th>
<th>A</th>
<th>Model needed, UL Listing (attached)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td>OPW Pieces double wall piping, Model needed, UL Listing (attached)²</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Containment Sumps</th>
<th>Yes</th>
<th>No</th>
<th>B</th>
<th>Model needed, UL Listing (attached)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td>OPW FRP Tank Sump, # TSMF-4536CL, Manufacturer approval (attached)³</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td>OPW FRP Dispenser Sump, # DSF-1630, Manufacturer approval (attached)³</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td>OPW Electrical Conduit Sump Entry Boots, # EBF-0751, Manufacturer approval (attached)³</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td>OPW Piping Penetrations Entry Boots, # EBF-0150, Manufacturer approval (attached)³</td>
<td></td>
</tr>
</tbody>
</table>
Petroleum Equipment Institute

- Current UL 971 listings
- www.pei.org/state-survey-ul-971
• Look for concentrated (CT) and high blend (HT) listings

• Problem – model number not yet identified
Exercise – Compatibility Determination (cont.)
Piping – Shear Valve

California State Water Resources Control Board
www.waterboards.ca.gov/water_issues/programs/ust/alt_comp_opt/soc.shtml
# Exercise – Compatibility Determination (cont.)

## Piping – Shear Valve (cont.)

### Ethanol

Manufacturer's Affirmative Statement of Compatibility (As required by California Code of Regulations section 2631(k))

<table>
<thead>
<tr>
<th>Manufacturer(s) (including prior marketed names)</th>
<th>Model</th>
<th>Component Type (i.e. pipe, tank, etc.)</th>
<th>Current UL Standard Listing</th>
<th>Years Manufactured</th>
<th>Sizes</th>
<th>Unique Identifiers for Field Evaluation (i.e. color, material)</th>
<th>Blend Concentration</th>
<th>Supporting Test Date &amp; Documents Attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPW 1-2100 Series, Multiports, 1C-3100 Series</td>
<td>Spill Containers</td>
<td>ULC: MH27236</td>
<td>Edge: May 2008, others Jan, 1994</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>OPW 60V Series</td>
<td>Vapor Shear Valve</td>
<td>MH25884</td>
<td>April 1993</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>OPW 10 Series, 10P Series</td>
<td>Emergency Shear Valve</td>
<td>MH6535</td>
<td>10. Nov. 1955, 10P Oct. 2007</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>OPW 10P.0152E56</td>
<td>Emergency</td>
<td>MH6535</td>
<td>July 2010</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Manufacturer: OPW FCS  
Corporate Headquarters: 3250 Highway 70 Business West, Smithfield, NC 27577  
Address:  
Phone: 919 934 2786  
Email: cliebal@opwfcs.com

I declare, to the best of my knowledge and belief, that this affirmative statement of compatibility and the information contained herein is true, correct, and complete.

Charles Liebal  
Print Name

Product Manager  
Title  
7/19/12  
Date

* Please complete and submit form to Cory Hootman of the SWRCB at chootman@waterboards.ca.gov.
### Ethanol

Manufacturer's Affirmative Statement of Compatibility
(As required by California Code of Regulations section 2631(k))

<table>
<thead>
<tr>
<th>Manufacturer(s) (including p/n or marketed names)</th>
<th>Model</th>
<th>Component Type (i.e. pipe, tank, etc.)</th>
<th>Current UL Standard Listing</th>
<th>Years Manufactured</th>
<th>Sizes</th>
<th>Unique Identifiers for Field Evaluation (i.e. color, material)</th>
<th>Blend Concentration</th>
<th>Supporting Test Data &amp; Documents Attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPW</td>
<td>CXXA Double Wall Piping</td>
<td>Pipe</td>
<td>MH16678</td>
<td>2011 for CXXA 2006 for CXX</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
</tr>
<tr>
<td>OPW</td>
<td>DPC-2150/DPC-2200, SBC-2150, SBC-2200</td>
<td>Coupling</td>
<td>MH16678</td>
<td>2005 for DPC 2011 for SBC</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
</tr>
<tr>
<td>OPW</td>
<td>SPC-0150, SPC-0200, SPC-0300, SMA-1515, SMA-1520, SMA-2020, SMA-3030</td>
<td>Coupling</td>
<td>MH16678</td>
<td>1997</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
</tr>
<tr>
<td>OPW</td>
<td>STF-1515, STF-2020, STF-2215, STF-3030</td>
<td>Tees</td>
<td>MH16678</td>
<td>1997</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
</tr>
<tr>
<td>OPW</td>
<td>SEF-1515, SRE-2015, SEF-2020, SEF-3030</td>
<td>Elbow</td>
<td>MH16678</td>
<td>1997</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
</tr>
<tr>
<td>OPW</td>
<td>MBS, DBS, TSS, TSM, TSD, TSMF, TSDF, TRFS Series</td>
<td>Tank Sump</td>
<td>MH19391</td>
<td>July 1997</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
</tr>
<tr>
<td>OPW</td>
<td>DS, DSW, FDS, DFS Series</td>
<td>Dispenser Sump</td>
<td>MH19391</td>
<td>July 1997</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
</tr>
<tr>
<td>OPW</td>
<td>EBF, DEB, REF</td>
<td>Entry Fitting</td>
<td>MH19391</td>
<td>REF: Nov, 2011, others: Aug, 1997</td>
<td>All</td>
<td>No</td>
<td>0-100%</td>
<td>No</td>
</tr>
<tr>
<td>Pumping Equipment</td>
<td>No</td>
<td>Yes</td>
<td>A</td>
<td>Franklin Fueling Systems, INC, F E Petro STP, # STP150 w/ Alcohol Gas (AG) compatible &quot;O&quot; Ring Kit, UL Listing (attached) (^4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>----</td>
<td>-----</td>
<td>---</td>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Underwriter Laboratories (UL) Online Certifications Directory

- Search for “Franklin Fueling Systems”
- `database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html`
**Exercise – Compatibility Determination (cont.)**

**Pumping Equipment (cont.)**

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Category Name</th>
<th>Link to File</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRANKLIN FUELING SYSTEMS INC</td>
<td>Pumps, Power Operated, Flammable Liquid</td>
<td>RCRX.MHZ562</td>
</tr>
<tr>
<td>FRANKLIN FUELING SYSTEMS INC</td>
<td>Pumps, Power Operated, Flammable Liquid Certified for Canada</td>
<td>RCRX7.MHZ6262</td>
</tr>
</tbody>
</table>

Model number information is not published for all product categories. If you require information about a specific model number, please contact Customer Service for further assistance.
Exercise – Compatibility Determination (cont.)

Pumping Equipment (cont.)

RCRX.MH6262 - Pumps, Power Operated, Flammable Liquid

See General Information for Pumps, Power Operated, Flammable Liquid

FRANKLIN FUELING SYSTEMS INC
3760 MARSH RD
MADISON, WI 53718-6900 USA

Submersible type transfer pump-motor assembly. Model STP with or without T, with or without AG or AP, with or without F, with or without H, with or without R, with or without V, with or without W, with or without K, with or without M, followed by 33, 75, 150, 200, VS2 or VS4, may be followed by A, B, C or J, followed by -XXX, where X is any numeric character or VL1, VL1.5, VL2 or VL3, followed by two characters. All models have been evaluated for use with gasoline-ethanol blends with concentrations from E0 to E10 (up to E85 for models with suffix AG or AP). Models with AG or AP suffix have also been evaluated for diesel/biodiesel blends with nominal biodiesel concentrations up to 20 percent biodiesel (B20) and biodiesel (B100). Models with suffix VS2 are only for use with Model IST-VFC or MAG-VFC motor controllers. Models with suffix VS4 are only for use with MAG-VFC motor controller.
<table>
<thead>
<tr>
<th>UST System Components</th>
<th>Documentation Demonstrating Compatibility With The Substance Listed Above?</th>
<th>Method A, B, Or C</th>
<th>Description Of Component Type, Model Number, And National Laboratory Certification, Listing Or Manufacturer Approval</th>
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<tbody>
<tr>
<td>Release Detection Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td>Veeder-Root Mag Probe # 846390-107, Manufacturer listing (attached)(^5) Note: #846391 is listed to be compatible with 0-100% ethanol</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td>Veeder-Root 846400-000 Float Kit, Manufacturer listing (attached)(^5) Note: 846400-004 is listed as being compatible with 0-100% ethanol</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td>Veeder-Root Electronic Line Leak Detector PLLD model # 848480-001, Manufacturer listing (attached)(^6)</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
<td><strong>Veeder-Root STP Sump Sensor – model needed</strong></td>
</tr>
</tbody>
</table>

Note: Method A, B, or C typically refers to different types of compatibility tests or evaluations.
Exercise – Compatibility Determination (cont.)

Probes and Floats

www.veeder.com/us/
Exercise – Compatibility Determination (cont.)
Probes and Floats (cont.)

Not there yet...
Almost there... 

Exercise – Compatibility Determination (cont.)

Probes and Floats (cont.)

Finally...

www.veeder.com/gold/download.cfm?doc_id=5210
Exercise – Compatibility Determination (cont.)

Line Leak Detector (Automatic Line Monitor)


## Exercise – Compatibility Determination (cont.)

### Spill and Overfill Equipment

<table>
<thead>
<tr>
<th>Spill Equipment</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal Valve Model # 70C-1212SP (5-gallon capacity), Manufacturer listing (attached)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Universal Valves**


<table>
<thead>
<tr>
<th>Overfill Prevention Equipment</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPW Overfill Valve, # 61SO 4 inch inside fill pipe, Manufacturer approval for #61SOM (attached)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**OPW**


<table>
<thead>
<tr>
<th>Franklin Defender Series Overfill Prevention Valve Model Number 708591921, Manufacturer listing (attached)</th>
</tr>
</thead>
</table>

**Franklin Fueling**

Exercise – Compatibility Determination (cont.)

Spill Bucket

Model 70C – Single Wall Spill Containment Manhole with All Metal Body

Rugged all metal body prevents environmental contamination.

Application -
Rugged all metal body prevents environmental contamination.

Features -
- All cast iron, weathering cover prevents entrance of water into the spill containment, and is easy to open
- Flexible and allows both vertical and angular movement, for easy installation
- All metal body for maximum strength
- Painted coating throughout the body or flight connections
- Available in 5 gallon capacity
- Available with all weather ring and cover (76CB-2221-SF)
- 3.25 load rating
- Compatible with E42

Construction -
- Durable, cast iron cover
- Cast iron ring
- All metal body

Sales Sheet

http://www.universalvalve.com/proddetail.asp?prod=70C

Price: $125.00
## Ethanol

Manufacturer’s Affirmative Statement of Compatibility  
(As required by California Code of Regulations section 2631(k))

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<thead>
<tr>
<th>Manufacturer(s) (including prior marketed names)</th>
<th>Model</th>
<th>Component Type (i.e. pipe, tank, etc.)</th>
<th>Current UL Standard Listing</th>
<th>Years Manufactured</th>
<th>Sizes</th>
<th>Unique Identifiers for Field Evaluation (i.e. color, material)</th>
<th>Blend Concentration</th>
<th>Supporting Test Data &amp; Documents Attached</th>
</tr>
</thead>
</table>
Exercise – Compatibility Determination (cont.)

Franklin Fueling Overfill

DEFENDER SERIES® OVERFILL PREVENTION VALVE

The Defender Series® overfill prevention valve (OPV) is a self-contained two-stage positive shut-off valve that prevents the overfill of an underground storage tank (UST) during a gravity-fed product delivery. The Defender Series® OPV employs a revolutionary magnetically-coupled actuator system to provide positive shutoff. This unique method of shutoff eliminates any penetrations in the valve, making it both vapor and leak tight. The Defender Series® OPV provides safe, rapid, and reliable fuel drops for the broadest range of fuel applications and environmental conditions. Simple to install, service and test remotely, the Defender Series® OPV is the industry’s most versatile overfill prevention valve.

HIGHLIGHTS

- Magnetic coupler actuates the interior primary flapper assembly and secondary shut-off valve when the float rises outside of the valve, eliminating valve body penetrations and any potential product or vapor leak points.
- After cutting to length in the field, the upper drop tube is roll-crmped onto a top adapter outfitted with two O-rings and then threaded onto the top of the valve body, eliminating the need for drilling, rivets, spay, and flaring tools.
- Bottom drop tube is cut in the field and threaded onto the bottom of the valve ensuring straight installation.
- The roll-crimp/thread method of installing drop tubes ensures proper alignment of the drop tubes with the rest of the OPV assembly, making installation and removal of the entire assembly smooth.
- Damaged drop tubes can be easily replaced instead of having to purchase an entire new assembly.
- Fully compatible with gas, gas/alcohol blends, diesel and biodiesel.
- Compatible with industry standard 4” drop tubes allowing retrofit into existing installations.
- The entire OPV assembly remains within the 4” inner diameter of the riser preventing interference with other tank components and also allowing removal even while the tank is full.
- Actuates in both low and high flow applications.

SPECIFICATIONS

- Approvals/Certifications
  - UL® Listed
  - ATEX Approved
  - CARB Certified

Dimensions

- 3.97” (101 mm)
- 17.40” (442 mm)
- 18.40” (467 mm)
Takeaways

- Know equipment models and manufacturers
- Some resources available for compatibility information that meets “A” and “B” options
  - More manufacturer affirmative statements are needed
- Considerable searching needed to find manufacturer’s listings
  - Some manufacturers do not quite make an affirmative statement
Special Thanks to Danielle Gutierrez
Director of Retail Operations, Ho Chunk, Inc.

- Do your research up front
- Make a checklist of things you must do before beginning
- Get to know your equipment
  - Take advantage of available UST Training
  - Know what materials your UST equipment is made of
  - Keep track of installation dates
  - Keep track of maintenance and equipment upgrades after installation
• Notify the proper authorities, in a timely manner
  – Perform any required inspections
  – All tanks should be registered
• Make sure your vendors are up to speed
  – Knowledgeable on regulatory requirements and compatibility issues
  – Should be able to prove they’re installing compatible equipment
• Talk with EPA and your State Fire Marshal
  – Follow the most recent guidelines
  – Ensure you’re not violating any regulations
  – Notify EPA and your State Fire Marshal prior to making any changes
Questions???
• EPA Office of UST Website www.epa.gov/ust
• EPA OUST Contact
  Ryan Haerer; haerer.ryan@epa.gov; 202-564-0762
• Region 7 UST Prevention Contact
  Michael Pomes; pomes.michael@epa.gov; 913-551-7216