



State of Illinois
Office of the State Fire Marshal

Checklist for Documenting UST Compatibility

SUBMIT THIS FORM WITH SUPPORTING DOCUMENTATION ATTACHED.

ALL COMPONENTS MUST BE LISTED IN DETAIL, & COMPATIBILITY DOCUMENTATION MUST CLEARLY IDENTIFY THE COMPONENTS.

Facility where equipment is located:

Facility Number: _____

Facility Owner: _____

Facility Name: _____

Street Address: _____

City: _____

County: _____

UST Information:

Tank ID Number: _____

Tank Material: Steel _____

FRP _____

Single Wall _____ Double Wall _____

Tank Volume: _____

Tank Product: _____

Complete the checklist below, listing compatibility determination, method used and description. **All answers must be "YES" and supported with a sufficient description or supporting documentation** in order for your UST system to demonstrate compatibility with the blended fuel/biofuel product.

UST SYSTEM COMPONENTS	DOCUMENTATION DEMONSTRATING COMPATIBILITY WITH SUBSTANCE LISTED ABOVE		METHOD A or B (MAY USE BOTH)	DESCRIPTION OF COMPONENT TYPE, MODEL NUMBER, & NATIONAL LABORATORY CERTIFICATION, LISTING OR MANUFACTURER APPROVAL (ATTACH TO CHECKLIST)
TANK	NO	YES		
PIPING	NO	YES		
CONTAINMENT SUMPS	NO	YES		
PUMPING EQUIPMENT	NO	YES		

UST SYSTEM COMPONENTS	DOCUMENTATION DEMONSTRATING COMPATIBILITY WITH SUBSTANCE LISTED ABOVE		METHOD A or B (MAY USE BOTH)	DESCRIPTION OF COMPONENT TYPE, MODEL NUMBER, & NATIONAL LABORATORY CERTIFICATION, LISTING OR MANUFACTURER APPROVAL (ATTACH TO CHECKLIST)
RELEASE DETECTION EQUIPMENT	NO	YES		
SPILL PREVENTION EQUIPMENT	NO	YES		
OVERFILL PREVENTION EQUIPMENT	NO	YES		
GASKETS & SEALS (installs after 10/13/18)	NO	YES		
JOINT DOPES & ADHESIVES (installs after 10/13/18)	NO	YES		

Methods:

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

Note: Owners and operators may find American Petroleum Institute's Recommended Practice 1626, *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 federal 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.

Checklist Completed By: print name: _____ date completed: _____

 signature: _____ position/title: _____



WHY CHOOSE A FIBERGLASS TANK?

Best Product Investment

Fiberglass tanks have rapidly grown in popularity since they were first introduced more than 50 years ago as the corrosion-resistant alternative to underground steel tanks that were rusting, leaking and creating serious environmental damage. Major oil companies and large fuel marketers were the first to realize the benefits of fiberglass over steel for underground tanks. Today, a large majority of North American fuel marketers choose fiberglass, and the preference for fiberglass reaches all segments of the market, including industrial, commercial and government accounts who specify, install and own underground storage tanks. The growing understanding of fiberglass' benefits goes well beyond external corrosion protection with the recognition that fiberglass is corrosion-resistant, both inside and out.

FIBERGLASS OUTPERFORMS STEEL CORROSION RESISTANCE

It's now common knowledge that fiberglass tanks are protected from external rusting due to corrosive soil environments. Today, the widespread use of ethanol-blended gasoline (E10, E15, E85), biodiesel fuels and ultra-low sulfur diesel (ULSD) has shifted the concern about corrosion to include internal protection. Most significantly, new ethanol-blended fuels raise questions about the compatibility of storage tank materials with stored fuel. When today's buyers compare fiberglass and steel tanks they see the clear advantage of our fiberglass tanks, which are not vulnerable to aggressive internal corrosion caused by storage of today's biofuels. The fact that fiberglass tanks are corrosion-resistant both inside and out give them a distinct advantage over steel tanks.

FUEL COMPATIBILITY

Customers today want to be confident that they are choosing a tank material that is compatible with the new fuels as well as traditional fuels. **Our UL-listed (1316) and ULC-listed (S615) double-wall fiberglass tanks are UL-compatible with 0-100 percent ethanol storage.** They are also warranted for the full range of ethanol-blended gasoline. The correlating UL listing (58) for steel fuel tanks does not require testing for ethanol compatibility. This third-party compatibility verification for fiberglass tanks – that steel tanks do not have – makes fiberglass the clear and superior choice for fuel tanks.



Why Choose Our Fiberglass Sump?

For decades, ZCL | Xerxes has established itself throughout North America as a leading manufacturer of long-life, corrosion-resistant fiberglass vessels and accessories that offer superior protection for the environment. The internal environment of containment sumps is very corrosive. The use of ethanol, ultra-low sulfur diesel (ULSD) and biodiesel fuels, and the corrosion damage caused by these fuels and resulting vapors is increasing. Our fiberglass containment sumps offer customers a corrosion-resistant, long-term option for the storage of liquids in underground installations.

A Variety of Sump Options

Whether a customer is installing a new underground system or is retrofitting an existing installation, containment sumps are used on nearly all double-wall tanks today. We supply containment collars and sumps as a package to provide secondary containment around tank fittings, piping, pumps and manways. Customers have the option of either dry interstitial monitoring or hydrostatic monitoring. Most double-wall containment sump installations are equipped with hydrostatic monitoring for the same reasons that customers choose it as a monitoring method for double-wall tanks – continuous monitoring of both walls 24/7. Our containment sumps come in a variety of models, sizes and cover/top options.

MODELS & MONITORING OPTIONS	COVER/TOP OPTIONS	SIZE OPTIONS
• Round and flat-sided • Double-wall sump with hydrostatic monitoring • Double-wall sump with dry monitoring • Single-wall sump	• 32-inch watertight cover • 38-inch watertight cover • 32-inch friction-fit cover • Open top option	• 42-inch diameter • 48-inch diameter • 36-inch to 72-inch height • Available in shallow and deep burial heights

THE ZCL | XERXES ADVANTAGE

ZCL | Xerxes double-wall underground storage tanks offer customers several significant design and performance differences that make them a superior choice to both steel tanks and other fiberglass tanks.

- Corrosion-Resistant Inside and Out
- 100% Premium Resin and Glass
- Flexible Design and Installation Options
- Maintenance-Free
- TRUCHEK® Continuous Leak Detection
- 30-Year Limited Warranty

FUEL COMPATIBILITY

Our UL-listed (1316) and ULC-listed (S615) double-wall fiberglass tanks are listed as compatible with 0-100 percent ethanol storage and warranted for the full range of ethanol-blended gasoline. Since the UL listing for steel tanks does not require ethanol compatibility testing, this is another distinct advantage of fiberglass over steel.

PARABEAM®

To create a double-wall sump that is structurally strong, ZCL | Xerxes uses Parabeam®, our patented 3D glass-reinforcement material, to bond the sump walls. This is the same design concept that has made our double-wall tanks the most widely used underground tanks in North America. By using our unique woven-glass to create the interstitial space, our sumps are built to avoid weaknesses such as structural collapse and false monitoring alarms due to flexing walls.

CORROSION RESISTANCE

ZCL | Xerxes tanks and sumps are made of fiberglass, which means they are inherently resistant to corrosion. Because they are corrosion-resistant inside and out, you'll have the peace of mind of choosing products that help preserve and protect the environment. You'll also enjoy a lower cost of ownership than with steel tanks, which corrode over time and require maintenance.

EXTENSIVE THIRD-PARTY QUALITY TESTING

As further evidence of their durability, ZCL | Xerxes double-wall sumps have passed extensive third-party testing to verify that they withstand interstitial pressure levels that other sumps cannot. Therefore, customers can be assured that our containment sumps are superior to other options in the marketplace.

November 28, 2018

Nate Meyer
Stenstrom Petroleum
2422 Center St.
Rockford, IL 61108
Phone: 815-209-6640
Email: natem@stenstrom.com

Dear Mr. Meyer,

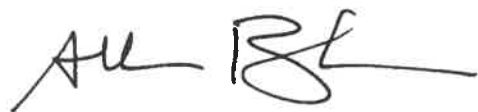
Franklin Fueling Systems certifies that our UPP piping system is certified to be compatible with Fuel Ethanol, also known commercially as E85, containing 51 % to 83 % ethanol by volume under UL-971, file MH25274. Our poly and fiberglass containment range are certified to meet the ASTM D5798 standard which has a provision for compatibility with high blend ethanol within the UL 2447 listing.

Per ASTM D5798 within the scope section 1.3 This specification formerly covered Fuel Ethanol (Ed70-Ed85) for Automotive Spark-Ignition Engines, also known commercially as E85. The nomenclature "fuel ethanol" has been changed to "ethanol fuel blends" to distinguish this product from denatured fuel ethanol Specification D4806. To facilitate blending of ethanol fuel blends that meet seasonal vapor pressure requirements, a new lower minimum ethanol content has been established.

For more information on ASTM D5798 follow the link below:

<https://www.astm.org/Standards/D5798.htm>

Sincerely,



Allan Busch
Senior Product Manager – Piping & Containment Systems
Franklin Fueling Systems

UPP™ SEMI-RIGID PIPEWORK SYSTEM

Since being introduced as the world's first electrofusion pipework system for fuel applications over thirty years ago, UPP™ brand semi-rigid pipework has become known globally as the standard for watertight electrofusion welded pipework systems. UPP™ brand pipework utilizes the advanced electrofusion welding process to effectively bond system components including pipework and containment together into one watertight system.



Hand-Held
Electrofusion Welder Unit



Electrofusion Entry Boot



Fittings and Adapters

HIGHLIGHTS

- The highly efficient electrofusion welding process that connects pipe, fittings, boots, and containment to create a seamless direct burial pipework system.
- The UPP™ electrofusion welding process is safe and simple to complete in any climate and virtually any weather condition. An installer simply preps the components, fits them together attaching welder leads to the fitting, and then presses a single button on the welding unit to initiate the process.
- The welder unit itself calculates the exact settings required to complete the weld, regardless of the pipework diameter or temperature, leaving no settings for the installer to input.
- UPP™ double wall semi-rigid pipe is flexible enough to coil and bend like flexible pipe, while UPP™ single wall pipe is also rigid enough to be used in place of fiberglass pipe for vapor or vent lines.
- Available in both coils and straight sticks, UPP™ pipe can accommodate the sweeping bends of a "loop" pipework system while the straight sticks make installation between dispenser sumps simple by providing a square pipe entry into containment.
- The flexibility of UPP™ double wall semi-rigid pipe allows for easy installation through existing ducting.
- As a vital component to the UPP™ pipework system, patented UPP™ electrofusion entry boots weld directly to the wall of any polyethylene sump creating a watertight seal between the pipework system and containment spaces.

SPECIFICATIONS

- Pipe outer layer: High Density Polyethylene (HDPE) grade PE100
- Pipe liner layer: Ethylene vinyl alcohol (EVOH) resin liner
- Pipe intermediate layer: Tie-layer which permanently bonds HDPE outer layer to EVOH resin liner layer
- Temperature rating: -22 °F to 122 °F
- Primary pipe pressure rating: 90 psi
- Secondary pipe pressure rating: 58 psi
- 1½" and 2" double wall pipe bend radius: 3'3"
- 3" and 4" double wall pipe bend radius: 13'2"
- 2" single wall vent/vapor pipe bend radius: 3'3"
- 3" single wall vent/vapor pipe bend radius: 9'10"

APPROVALS

- UL-971 approved for fuels including:
 - Motor vehicle fuels typically found in consumer dispensing facilities like gasoline or diesel including blended fuels with maximum 15% MTBE, 15% Methanol or 30% Ethanol.
 - Concentrated fuels such as alternate unblended fuels containing up to 100% concentrations of Toluene, Methanol or Ethanol.
 - High blend fuels with higher than normal gasoline blends with maximum 50% Methanol or 50% Ethanol.
 - Aviation and marine specialty fuels containing up to 100% kerosene or leaded gasoline.
- Michigan, Wisconsin, and Florida EQ-816.

SINGLE AND DOUBLE WALL FIBERGLASS LARGE MOUTH DISPENSER SUMPS

Designed for the installer, single and double wall fiberglass large mouth dispenser sumps provide easy access to piping connections. The dispenser frame and top are factory assembled and field glassed onto the sump after piping connections are completed. Stabilizer bar kits (SBK) for mounting emergency shear valves are track mount designed and adjust in all planes for proper alignment of the shear valve to the dispenser piping.

Note: Consult Customer Service to verify lead time on all double wall dispenser sumps. Two-week lead time on all fiberglass parts.

HIGHLIGHTS

- Powder-coated steel frame.
- Dispenser frame factory assembled and watertight sealed.
- Water dam frame design prevents surface water from entering sump.
- Strong three-layer hand layup FRP.
- Sumps include dispenser frames and mounting hardware.
- Stackable for reduced freight and storage space (single wall only).
- Double wall sumps are available for hydrostatic (brine) or vacuum monitoring and are shipped under vacuum with factory installed vacuum gauge.

MODEL NUMBER REFERENCE CHART

XXX - XXXX - XX
1 2A 2B 3

1 = Sump Type and Depth

LMM = Large mouth, medium bury

2 = Dispenser Frame Size

2A = A length

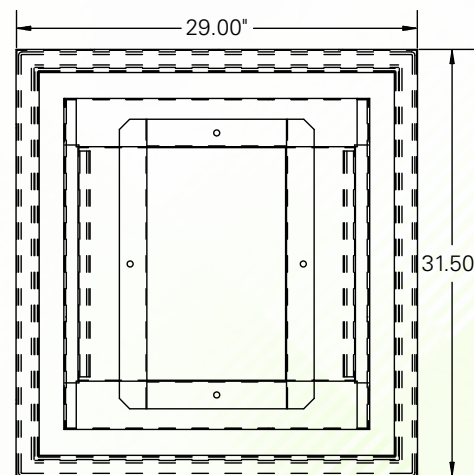
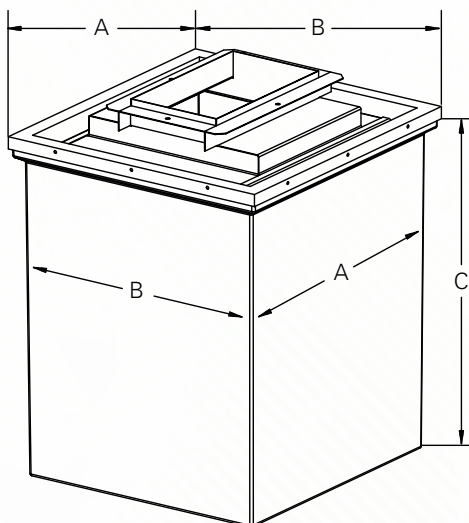
2B = B length

3 = Single or Double Wall

S = Single wall

D = Double wall

2400 SERIES



Model	A	B	C	SBK #
LMM-1410-X	28.00"	26.00"	33.50"	SBK-2
LMM-1913-T-X	28.00"	26.00"	33.50"	SBK-25
LMM-2010-X	28.00"	26.00"	33.50"	SBK-2
LMM-2018-X	28.00"	26.00"	33.50"	SBK-3
Model	Description			
HM-KIT	Hydrostatic monitoring system for dispenser sumps			
602-284-004	Drop down frame 2400 Series			

Note: Fiberglass models include base and top.



Variable Speed Submersible Turbine Pumps

Introduced in 1995, FE Petro™ brand variable speed submersible turbine pumps (STPs) were the first of their kind for the petroleum equipment industry. With faster fill times during peak hours and power savings during non-peak hours, FE Petro™ brand variable speed STPs allow you to maximize profits while minimizing operating expense. These benefits are something only FE Petro™ brand variable speed STPs, the industry's highest performing 4" diameter STPs, can provide.



Highlights

Higher Flow Rates

Variable speed systems ramp up the system's horsepower as needed to provide optimal flow rates at fueling points. This results in faster and more consistent flow rates at peak business times compared to fixed speed systems. Benefits include:

- Faster and more reliable flow rates than fixed speed systems resulting in higher throughput at virtually the same total cost of ownership.
- Ramps pressure up and down making nozzles easier to squeeze for consistent customer user experience.
- Ramping up and down reduces system wear from line shock, promoting a longer overall system lifetime.

Efficient Energy Consumption

Because a variable speed system is constantly providing only the necessary horsepower to achieve desired flow rates, the system only consumes as much energy as is needed. Benefits include:

- Energy savings during non-peak business hours and increased flow during peak hours.
- Potential for reduced energy costs without sacrificing a faster customer refueling experience.

Minimize Hydraulic Hammer

Hydraulic hammer is defined as a sudden pressure spike that is the result of a sudden stoppage in flow in a pressurized piping system. Hydraulic hammer can be exaggerated in a system that utilizes a high pressure fixed speed STP.

- A fixed speed pumping system is incapable of changing the flow rate dependent upon demand and as a result, hydraulic hammer is likely to result when flow is interrupted.
- Hydraulic hammer may result in system fatigue and intensified wear to system components such as diaphragm valves in multiproduct dispensers, leak detectors or hanging hardware.
- A variable speed STP will ramp up and down to provide only the pressure required to meet demand significantly minimizing the effects of hydraulic hammer.

Meet Your Flow Rate Needs

The STP can be adjusted at installation to perform at a maximum per-nozzle flow rate of 10 gpm (38 lpm) based on the specifications of your piping and dispensing system.

- Depending on peak business requirements, choose from either 2 Hp or 4 Hp variable speed models to meet your desired flow rates.
- 2 Hp pumps provide constant 10 gpm (38 lpm) for up to eight fueling positions operating simultaneously.
- 4 Hp pumps provide constant 10 gpm (38 lpm) for up to 12 fueling positions operating simultaneously.

Specifications

- Variable speed models are available in variable lengths only.
- Check valve: 2 $\frac{3}{4}$ " diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 40 psi and resets above 35 psi.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Pump Motor

- 2 Hp or 4 Hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. flow: VS2 = 110 gpm, VS4 = 140 gpm.
- Max. pressure: selectable operating pressure on MagVFC™ between 24 psi and 42 psi deadhead.
- Available with MagShell™ which results in 45% increased flow area around motor.

Approvals

- cULus listed.
- Consult factory for applicable approvals.

Power Requirements

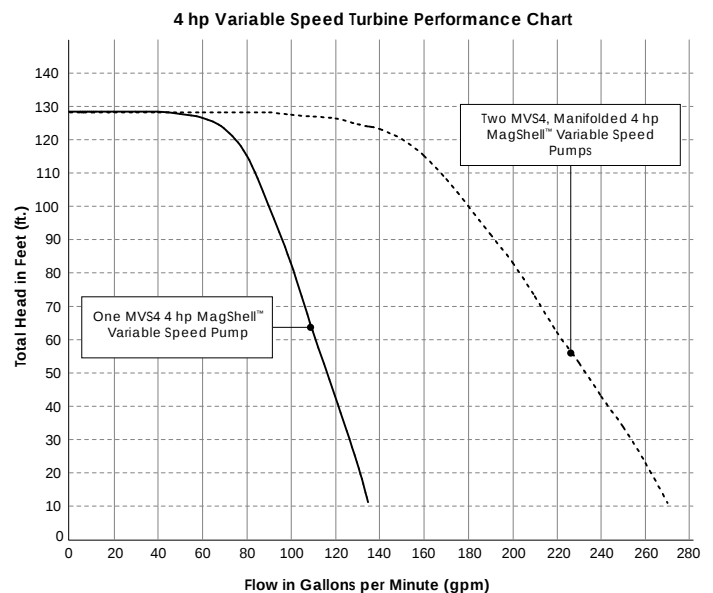
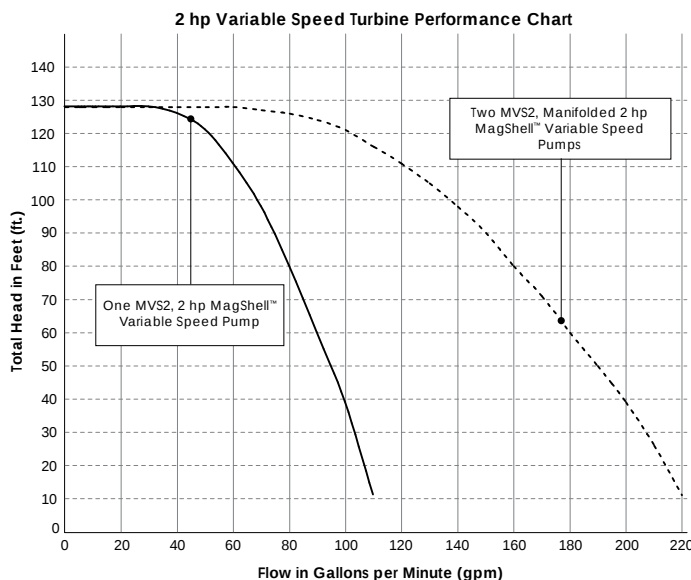
- Variable speed pumps can only be controlled by a MagVFC™ variable frequency controller:
 - VS2 models can operate with single- or three-phase incoming power supply to the MagVFC™.
 - VS4 models require three-phase incoming power supply to the MagVFC™ for proper operation.
- Incoming power supply to the MagVFC™ can be 200-250 VAC, 50 or 60 Hz.
- MagVFC™ outputs a three-phase, variable frequency signal, valid for FE Petro™ variable speed pumps only.
- VS2 max. motor draw: 9 Amps.
- MagVFC™ max. line draw: 20 Amps.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP variable speed models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- IST variable speed models are UL and cUL listed for fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All variable speed (non-AG) models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



August 2, 2019

Nick Lecrone
Project Manager/ Estimator
Stenstrom Petroleum Services Group

Dear Mr. Lecrone,

Franklin Fueling Systems has determined that INCON Series Probes and sensors specifically the FMP-ULS and FMP-HFS and all FMP-LL3-XXX probes to be compatible with Fuel Ethanol, also known commercially as E85, containing 51 % to 83 % ethanol by volume under UL-971, file MH25274.

Sincerely,



Loren Swalheim
Director, Global Technical Services
Franklin Fueling Systems

August 2, 2019

Nick Lecrone
Project Manager/ Estimator
Stenstrom Petroleum Services Group

Dear Mr. Lecrone,

Franklin Fueling Systems has determined that Fuel Ethanol, also known commercially as E85, containing 51 % to 83 % ethanol by volume, is compatible with Defender series Spill containment and are certified to meet the ASTM D5798 standard which has a provision for compatibility with high blend ethanol within the UL 2447 listing.

Per ASTM D5798 within the scope section 1.3 This specification formerly covered Fuel Ethanol (Ed70-Ed85) for Automotive Spark-Ignition Engines, also known commercially as E85. The nomenclature "fuel ethanol" has been changed to "ethanol fuel blends" to distinguish this product from denatured fuel ethanol Specification D4806. To facilitate blending of ethanol fuel blends that meet seasonal vapor pressure requirements, a new lower minimum ethanol content has been established.

For more information on ASTM D5798 follow the link below:

<https://www.astm.org/Standards/D5798.htm>

Sincerely,



Loren Swalheim
Director, Global Technical Services
Franklin Fueling Systems



August 2, 2019

Nick Lecrone
Project Manager/ Estimator
Stenstrom Petroleum Services Group

Dear Mr. Lecrone,

Franklin Fueling Systems has determined that Fuel Ethanol, also known commercially as E85, is compatible with LS-500, LS500/E line leak pressure transducers used for Electronic Line Leak Detection (ELLD) on EVO 550, EVO 5000, TS-550, TS-5000 tank monitoring consoles.

Sincerely,

A handwritten signature in blue ink, appearing to read "Loren Swalheim", with a long horizontal flourish extending to the right.

Loren Swalheim
Director, Global Technical Services
Franklin Fueling Systems



August 2, 2019

Nick Lecrone
Project Manager/ Estimator
Stenstrom Petroleum Services Group

Dear Mr. Lecrone,

Franklin Fueling Systems has determined that Fuel Ethanol, also known commercially as E85, containing 51 % to 83 % ethanol by volume, is compatible with AGB models of the Defender Series Over Fill Prevention Valve, specifically part numbers 708591921, 708591922, 708592921, 708592922, 708594901.

Sincerely,

A handwritten signature in blue ink, appearing to read "Loren Swalheim", with a long, sweeping horizontal line extending to the right.

Loren Swalheim
Director, Global Technical Services
Franklin Fueling Systems

*** Ovation2 Valance Standard 54.2"



Secure EMV Hybrid Card Reader

E85 Compatibility

Column Speaker & Light Valance
Conduit

Intercom Call Button

Stop Button

Junction Box

Stainless Steel Doors

EB23/5220D6/2IJKLNPX/LR

Products: 5

Quantity: 5

TECHNICAL DATA

2013

Description

A dark green, opaque, viscous, non-hardening, textured paste with PTFE.

Type

Slow-drying, soft-setting, non-toxic, brushable, without grit. Cures by solvent evaporation providing a durable, long-lasting seal that can be easily disassembled.

Typical Uses

Especially designed for ethanol blended gasoline
Including E10, E20 & E85.

Substrates

Can be used on brass, copper, stainless steel, aluminum, black pipe, tin, galvanized pipe, ABS plastic, CPVC, nylon, PVC, polyethylene, polypropylene and more.

Chemical Resistance

Excellent resistance to ethanol blended gasoline, kerosene, petroleum solvents, diesel fuel, propane, butane, LPG, water, cutting oils.
NOT oxygen.

Set Time

None. For immediate service
Dries to the touch 48-72 hour

Packaging

Available in 1/4 pint, 1/2 pint and pint cans with brush-top lids.

**For Chemical Emergency, Spill, Leak,
Fire, Exposure or Accident Call:**

CHEMTREC - Day or Night. 1-800-424-9300

KEEP OUT OF THE REACH OF CHILDREN

Product Data Sheet

Safety

Contains no lead, is non-toxic, not a skin sensitizer, and is non-corrosive.

Shelf Life: One year in original containers, when stored at room temperature at or below 80°F (27°C)

Wt./Gal.: 11.35 lbs

Color: Medium/Green

Clean Up: Hand cleaner or alcohol.

Temperature Range

-100°F to 600°F (-73°C to 316°C)
Allow to dry thoroughly before exposing to high temperatures. Remains usable in sub-zero weather.

Pressure Range

Up to 10,000 psi when sealing liquids and up to 3,000 psi with gases. Allow to dry, if possible, before subjecting to pressure.

The information presented is in good faith, but no warranty is given, nor are results guaranteed. Federal Process has no control over physical conditions surrounding application conditions. Federal Process disclaims any liability for untoward results.



FEDERAL PROCESS
CORPORATION



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