



TN Ethanol Fuels workshop



Regulatory E25 - E85 Status



Gordon Johnson

4/28/10



Agenda



- UL Status
- UL regulations
- Equipment status
- Questions





UL suspends use UL Markings



October 5, 2006, Underwriters Laboratories Inc. has suspended authorization to use UL Markings (Listing or Recognition) on components for fuel dispensing devices that specifically reference compatibility with alcohol blended fuels that contain greater than 15% alcohol (i.e. ethanol, methanol or other alcohols)....





UL states:



“Research indicates that the presence of high concentrations of Ethanol or other alcohols within blended fuels makes these fuels significantly more corrosive. This may result in the fuel chemically attacking the materials used in fuel dispenser components, and may ultimately degrade the dispenser’s ability to contain the fuel.





Why?



- E-85, is corrosive and can degrade “piping” and elastomers ability to maintain a seal.
- Attack on materials is more severe when fuels are cycled between high and low concentrations of alcohol,
 - i.e. switching from regular gasoline to E85 and back to regular gasoline





U.L. Regulations



- November 2007, UL issues UL 87A. The outline standard for new requirements for E85 dispensers
- UL 87A requires a complete evaluation of all materials in contact with E85:
 - Coating for metals
 - Use of Elastomers approved for E85
 - Ethanol blending is not allowed





US W&M's approvals



- NCWM Certificate 02-038A2 for C+ meter - 03/21/2007
- NCWM Certificate 02-019A9 for Encore - 3/22/2007
 - Approved for Gasoline, Diesel, B100, E100





UL Completes evaluation of E85 Encore models 2/11/09



the standard in safety

Underwriters
Laboratories

02/11/2009

Mr. Gordon Johnson
Gilbarco Inc
7300 W Friendly Ave Po Box 22087
Greensboro, NC 27420
Us

Our Reference: File MH1941 Project 07NK26060
Your Reference: JOHNSON, GORDON
Subject: Evaluation of Encore Series Dispenser With E85 Option

Dear Mr. Johnson:

Gilbarco Dispenser Models NA0, NA1, NA2, NA3, NL0, NL1, NL2, NL3, and NG1 with the E85 hydraulics have completed all testing applicable to fluid confining parts in accordance with UL Subject 87A. Gilbarco cannot state that these dispenser models were found to comply with UL Subject 87A or that they are Listed or Certified by UL at this time, as all parts of this Outline cannot be addressed until the "hanging hardware" components are Listed. "Hanging Hardware" components include the hose assembly, nozzle, swivel, and breakaway coupling.



Listing not issued due to lack of UL Listed hose





UL Decision to Stand Behind E15 Certification for Gasoline Pumps



In a press release issued today (February 19, 2009), UL announced that it supports Authorities Having Jurisdiction (AHJs) who decide to permit legacy system dispensers, listed to standard UL 87 and currently installed in the market, to be used with ethanol blends of up to **15** percent. AHJs are local regulatory and approval entities, such as fire marshals, that make the final determination of the acceptance of fuel dispensing devices.





U.L. Regulations



- August 10 2009, UL issues UL 87A 5th edition
 - Gasoline with up to 10% Ethanol
 - Gasoline with up to 25% Ethanol
 - Gasoline with up to 85% Ethanol
 - Ethanol blending is allowed by the standard
 - Must test with E25 and E85





Petroleum Products



- a) Gasoline;
- b) gasoline/ethanol blends \leq E15
- c) diesel fuel,
- d) Fuel oil;
- e) Kerosene.

No changes required to dispensers. i.e.

Standard fuels

- f) Gasoline/ethanol blends $>$ E25 ethanol
- g) Gasoline/ethanol blends $>$ E85 ethanol

requires changes to dispenser for ethanol





Materials for wetted parts



- Such as:
 - Meters
 - Inlet piping
 - Hose outlet castings
 - Nozzles
 - Swivels
 - Manifolds
 - All gaskets and seals
- All wetted parts must be evaluated for use with E25 and E85





Site Impact - Dispensers



Fuel Path

Meters, manifolds, castings, steel piping, gaskets, seals have completed all testing



Hanging Hardware

- Swivels, nozzles, breakaways Have UL Listing
- Hoses have not completed UL Evaluation.





UL Lists E25 dispenser 2/17/10



UL confirms certification of first E25 dispensers

By Holly Jessen *March 23, 2010*

A week after two companies put out press releases about Underwriters Laboratories (UL) certified fuel dispensers, UL confirmed that the dispensers are the first fuel dispensers UL-certified for anything above E10. John Drengenberg, a UL consumer safety director, told *Ethanol Producer Magazine* that Dresser Wayne and **Gilbarco Veeder-Root** now both have UL-certified dispensers for E25.





Gilbarco Expands Standard Fuel Dispenser Warranty From E10 to E15



GREENSBORO, N.C. – March 31, 2010 – Gilbarco Veeder-Root has upgraded the warranty on its standard fuel dispensers to cover use of ethanol content up to E15. Gilbarco is the first supplier in the industry to announce this change for fuel dispensers that are under warranty in the field. These dispensers are currently Underwriters Laboratories (UL) approved for ethanol up to E10 under the UL 87 standard.





Warranty for Gilbarco dispensers



- Gilbarco warranty for standard fuel dispenser is:
 - **5% methanol**
 - **15% ethanol**
 - **15% MTBE**
 - **20% Biodiesel**





Gilbarco continues to work with UL for ethanol blending dispensers



- UL testing for E25 – E85 blending - in process
 - Listing can not be issued due to lack of UL Listed E85 hose





Is E15 an approved motor fuel



No. The current EPA limit for standard motor fuel in the US is 10 percent ethanol (E10). However, the EPA is currently reviewing the possibility of whether or not to allow E15 as standard motor fuel. Their decision is expected this summer. Until then, the local AHJ's (authorities having jurisdiction) have at their discretion, the ability to allow ethanol gasoline above E10 up to E15 in their territories.





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Frequently Asked Questions: Your Gilbarco® and Gasboy® Dispensers and E15 (15% Ethanol)

Which models of pumps and dispensers are now covered under warranty for use with ethanol content up to E15?

All standard models of Gilbarco Encore®, Legacy®, and Gasboy Atlas® are now covered under warranty for applications using gasoline up to and including E15 as per the UL87A standard. This applies to all models built since April 1, 2008 (currently in the field under warranty) as well as new purchases.

Is E15 an approved motor fuel for all cars and trucks?

No. The current EPA limit for standard motor fuel in the US is 10 percent ethanol (E10). However, the EPA is currently reviewing the possibility of whether or not to allow E15 as standard motor fuel. Their decision is expected this summer. Until then, the local AHJ's (authorities having jurisdiction) have at their discretion, the ability to allow ethanol gasoline above E10 up to E15 in their territories.

How do I obtain approval from the local authorities to use E15?

You should contact your local authority having jurisdiction (AHJs) and obtain approval to dispense gasoline with greater than 10% ethanol for standard (non-flex fuel) UL's position on ethanol blends and UL Listed fuel dispensing devices was released Thursday, February 19, 2009 (link <http://www.ul.com/global/eng/pages/offering/perspectives/regulator/e85info/ahjupdate/>)

Our updated warranty should resolve the AHJ's concern with fuel compatibility issues with existing Gilbarco equipment.

What are the current UL ratings for ethanol dispensing?

The current UL specifications for dispensing ethanol are E0 to E10, E0 to E25, and > E25 with E85 as the maximum.

Will Gilbarco's current E10 approved equipment be approved by UL for E15?

This depends on how UL issues the specifications for E15 approval. We will determine the product modifications, if any, once the specification is issued.





If the EPA rules later this summer that E15 is a standard fuel product, does Gilbarco believe that its dispensers manufactured prior to April 2008 will need to be retrofitted?



Gilbarco doesn't believe E15 will have a detrimental effect on the operation of these units.

Do you think the regulators will let E-15 be dispensed through older dispensers with no changes?

Gilbarco has no insight as to what the EPA may do in this regard.

Why is Gilbarco Veeder-Root announcing this change?

Gilbarco is always at the forefront of technological change. We recognize to in order to resolve the energy issues facing the country it will require change in many areas. We are committed to providing products that are consistent with the steps necessary to meet our current and future energy challenges.

Are standard Gilbarco pumps and dispensers compatible with E25?

No. Gilbarco Flexible Fuel Dispensers (FFD) are compatible with E25. These units comply with the requirements as specified in the UL87A document. Currently, the applicable Flexible Fuel Encore S and Encore 300 models are:

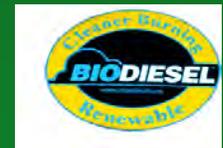
Model Description

- MPD 1-Grade Dispenser
- MPD 2-Grade Dispenser
- MPD 3-Grade Dispenser
- MPD 4-Grade Dispenser
- Single Hose +1 MPD (+1 only)
- Blender Dispenser 3+1 (only +1 on the E300)
- Blender Dispenser 3+1 (only +1 on the E300)
- Blender Dispenser 4+1 (only +1 on the E300)
- Multi-Hose Blender Dispenser (Encore S only)
- Multi-Hose +1 Blender Dispenser (Encore S only)
- Blender Dispenser 3+0 (Encore S only)
- Blender Dispenser 4+0 (Encore S only)
- Blender Dispenser 5+0 (Encore S only)

See Warranty Coverage Matrix at the end of this FAQ.

Where does Gilbarco stand with E85 Approval?

Gilbarco equipment was submitted and cleared all UL 87A testing. UL will not list a dispenser compatible to E85 until an entire system is approved which includes all hanging hardware. Gilbarco Flex Fuel models are approved by the National Standards of Weights and Measures.





Gilbarco Veeder-Root Warranty Coverage by Fuel Type

Products	Up to E15	E25	E85
Encore S	All Models	Flexible Fuel models*	Flexible Fuel models*
Encore 300	All Models	Flexible Fuel models*	Flexible Fuel models*
Legacy	All Models	none	none
Gasboy	All Models	none	none

* Specific Flexible Fuel models can be found in the GPL-1500 pricebook on page 9 and in the latest Encore Product Brochure





Gilbarco C+ meter – E100, B100





C+ meter in Encore





Questions??





biodiesel B?? to B100



UL standard 87C?
released Date?





Operational Issues



Before converting your site:

- 1) Inform state and local authorities of your plans.
- 2) Assess your underground infrastructure for compatibility.
- 3) If converting tanks from standard fuel to E85 or Bio - have tanks thoroughly cleaned to remove water and sediment.
- 4) Conduct a tightness test to ensure system is sealed to keep vapor in and water out.
- 5) Paint tank access cover in accordance with API RP 1637.
- 6) Fully label the dispenser. Use mandatory Ethanol decal.
- 7) Conduct a precision tank test (0.1 gal/hr leak rate) with the ATG within 7 days to confirm the integrity of the system and equipment.





Site Impact – General Guidelines



- STP and Gauges
 - Stainless, black iron or nickel-plated
 - No aluminum, brass or copper
- Piping
 - Non-metallic
 - Corrosion free pipe
- Tanks
 - AW Steel or fiberglass
 - No plated tanks





Gasoline/ethanol blends E25 to E85



Encore series has completed all E25 and E85 testing at UL

