



STATE OF IOWA

THOMAS J. VILSACK, GOVERNOR
SALLY J. PEDERSON, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

Underground Storage Tank System Checklist for Equipment Compatibility with E-Blend Fuels (greater than 10% ethanol by volume)

Facility Name		Registration No.
Address		No. of Tanks
City, County, Zip		Date of Inspection
Owner Name		
E-Blend stored <input type="checkbox"/> E-85 <input type="checkbox"/> Other		
Iowa Licensed Inspector or Professional Engineer		IA License No.
Company Name	Address	
City, Zip	Phone	

The checklist is to be completed by the owner/operator and an Iowa Licensed Installer. In place of an Iowa Licensed Installer, an owner/operator may use a professional engineer's judgement who has knowledge, experience and training in materials science (API, RP 1626, p. 1.4) to determine the suitability and compatibility of materials/equipment/components with E-Blend fuels. In such a case, the Professional Engineer would complete the checklist and sign it. The owner must complete those items identified in the checklist as the owner's responsibility. The following items in the UST system must be compatible with the E-Blend fuel stored and dispensed. Review this checklist thoroughly for its requirements before converting to E-Blend fuel.

Table 1: Tanks and Product Piping

Component	Model/Brand	Manufacturer	Material of Construction	UL LISTED OR CERTIFIED BY MANUFACTURER	
Tank*				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Spill Bucket**				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Auto Shutoff				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Sub Pump and O-rings/Gaskets				<input type="checkbox"/> YES	<input type="checkbox"/> NO
				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Tank Sump				<input type="checkbox"/> YES	<input type="checkbox"/> NO
ATG Probe, float/sensor				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Ball Float				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Sump Sensor				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Pipe				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Pipe Sealant***				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Adhesive***				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Flex Connectors				<input type="checkbox"/> YES	<input type="checkbox"/> NO
LLD				<input type="checkbox"/> YES	<input type="checkbox"/> NO

*Internally lined tanks are not suitable for conversion to storage of E-Blend fuels. **If incompatible, must be liquid tight (hydrostatic test), tested annually, inspected after each transfer of product and emptied expeditiously. *** If compatibility is undetermined, analysis may be used to determine compatibility. Deadline for determining compatibility is 1 July 2007. Third party precision line testing required annually.

Dispensers and Dispenser Sumps

The DNR and Fire Marshall Division require dispensers to bear the UL Mark or be certified by the manufacturer as compatible with the product stored and dispensed. Currently there are no E-Blend compatible dispensers with a UL Listing Mark. Therefore, incompatible dispensers are allowed a two-year phase-in period for E-Blend use. **Shear valves or emergency valves on existing and new UST systems must be compatible with E-Blend fuel.**

UST systems installed after August 1, 2005 must use available compatible equipment at the dispenser if E-85 is to be stored and dispensed. Contact the National Ethanol Vehicle Coalition (NEVC) and the Renewable Fuels Association (RFA) to inquire about grant assistance to purchase compatible dispenser components. All UST systems that store and dispense E-Blend fuel after July 1, 2007 must use E-Blend compatible dispensers bearing the UL Mark. Incompatible dispensers may not be used after July 1, 2007.

Dispensers that are not certified by the manufacturer or UL Marked as compatible for E-Blend fuel must be checked daily for leaks and equipment failure. Any incompatible component of the dispenser that leaks or does not operate as designed due to exposure to E-Blend fuel must be removed and replaced with E-Blend compatible components only. Notify the DNR immediately (515.281.8879 or 515.281.8779) of the failed component.

The inspection record must be completed by the owner/operator or someone authorized by the owner/operator and knowledgeable about the inspection requirements. The inspection record should be kept on site where possible or available for submittal to the DNR within two working days.

If an owner/operator discontinues storing and dispensing E-Blend fuel and switches back to gasoline before buying E-Blend compatible dispensers, daily visual inspections of the dispenser must continue for six months after converting. Owner/operators must also continue to keep a record of the inspections on the DNR's daily inspection form. Any leak or component failure must be reported (515.281.8879 or 515.281.8779).

Table 2: Dispensers and Dispenser Sump

Component	Model/Brand	Manufacturer	Material of Construction	Compatible with E-Blend	
Dispenser				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Pipe sealant*					
Seals/Gaskets				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Suction Pump				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Hoses				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Nozzle/Swivel				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Break-away				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Filter				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Meter				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Dispenser Sump					
Pipe				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Pipe Sealant*				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Flex Connector				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Sump				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Emergency Valve**				<input type="checkbox"/> YES	
Sensor				<input type="checkbox"/> YES	<input type="checkbox"/> NO
Check valve				<input type="checkbox"/> YES	<input type="checkbox"/> NO

* If compatibility is undetermined, analysis may be used to determine compatibility. Deadline for determining compatibility is 1 July 2007. Third party precision line testing required annually.

**Emergency/Shear Valve must be compatible with E-Blend fuels.

Before E-Blend is Transferred to the Tank

Once equipment compatibility has been established, the items below must be completed before E-Blend fuel can be transferred to the tank. Items that are the responsibility of the UST owner are indicated. The remaining items are the responsibility of the Iowa Licensed Installer or Professional Engineer.

- Inform the facility's UST insurance carrier of plans to convert to an E-Blend fuel. The UST insurance carrier may have additional requirements other than what the DNR requires. **(Responsibility of Owner)**.
- Obtain an amended certificate of insurance indicating UST coverage for the E-Blend stored and dispensed. **(Responsibility of Owner)**.
- Check for water in the tank. No level of water is acceptable for E-Blend fuels due to the phase separation problems.
- All visible fittings and connections at the top of the tank are tight (no vapors escape and no water enters).
- Sump and spill containment covers prevent water from entering.
- Water infiltration problems fixed if necessary.
- The tank has been cleaned of all water and sediment.
- Clean tank certificate obtained or comparable documentation (e.g., see API Publication 2015, Cleaning Petroleum Storage Tanks and NFPA 326, Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair, 199 Edition). **(Responsibility of Owner)**
- Labeling: identify the fill port and paint access covers according to API RP 1637. Make sure transport driver cannot make the mistake of delivering E-Blend fuel to the wrong fill pipe. Label dispenser.

First Delivery

- Tank filled to 80 percent capacity (recommended by the Renewable Fuels Association or RFA) and kept as full as possible for 7 to 10 days. **(Responsibility of Owner)**
- Conduct a precision test of the tank system (0.1 gph leak rate) with ATG system within seven days after tank is filled to make sure system is tight and leak detection equipment is operating properly. Report any "Fail" results. **(Responsibility of Owner)**
- Test for water (use alcohol compatible paste if you stick your tanks) at the beginning of each shift for the first 48 hours after delivery (RFA). If there is water in the tank, remove it, find out how it got there and fix it so it doesn't occur again. **(Responsibility of Owner)**
- Check for water daily with your stick or ATG system if product seems to pump slow, check and replace filters. **(Responsibility of Owner)**

Informed and demonstrated to owner/operator on how to visually inspect the E-Blend dispenser for leaks and problems and on how to complete inspection record.

Ethanol Compatibility Checklist signed by the Iowa licensed installer or Professional Engineer (e.g., with knowledge and training in materials science) and tank owner and submitted to the DNR by the UST owner. Include a copy of the revised certificate of insurance and the *Clean Tank Certificate* or comparable document with the checklist.
(Responsibility of Owner)

Ongoing Maintenance

Check regularly for water. No level is acceptable. **(Responsibility of Owner)**

Calibrate the dispenser liquid meter at the time of conversion and at two weeks after conversion to verify meter accuracy. Particulate materials in the product may cause excessive wear of the meter, which would require more frequent calibration (API RP 1626).

Conduct daily, visual inspections of the dispenser and dispenser sump (secondary containment) beneath the dispenser (if one is installed) and all the other items in the inspection record. The record should be kept on site where possible and available for submittal to the DNR within two working days. **(Responsibility of Owner)**

Installer Certification

I have inspected the visible UST system components, and reviewed available installation records of the UST site referenced on pages 1 and 2 of this checklist. I have found the information listed on the above checklist regarding the equipment/components of this UST site to be true and accurate. **Yes** **No**.

Signed _____, **Iowa Licensed Installer** **Professional Engineer**. **Date** _____

Owner's Signature: _____ **Date:** _____

Licensed Installers/Professional Engineers: Please comment on what equipment was needed to make the fuel path compatible with the E-Blend used or why the site is not compatible for E-Blend fuel