

New Fuels & Old Equipment

**Maine Oil Dealers Association seminar
Managing C-Stores & Protecting the Environment
November 2, 2006**

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Credits

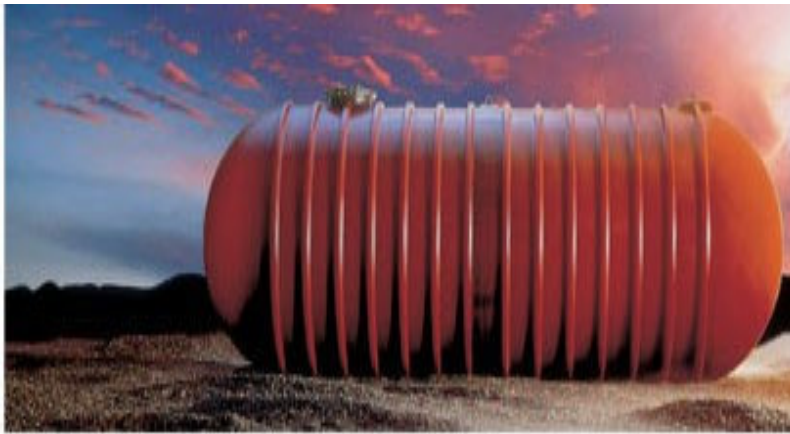
I'd like acknowledge the Terry Cooper of P.E.S. Marion IA for his help in obtaining the material used in this presentation

Petroleum Equipment Institute of Tulsa, OK provides a list of products compatible for use with Alternative Fuels.

Alternative Fuels, what are they?

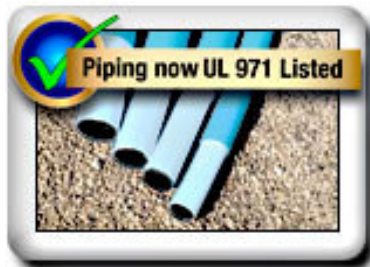
- E10 – Gasoline blended with 10% Ethanol
- E85- 85% Ethanol & 15% Gasoline
- B5 – 5% Bio-diesel, 95% Petroleum Diesel
- B20-20% Bio-Diesel and 80% Petroleum
- B100- 100% Bio-Diesel

Underground Tanks, Ethanol



- Steel tanks are acceptable unless water or corrosion problems exist
- Jacketed (TANX) – check UL listings
- Pre-'81 Fiberglass – Not listed for any alcohols
- Pre-'98 tanks should be limited to 10% Ethanol
- Current (new) Fiberglass tanks are OK for E10 & E85
- Lined tanks may be acceptable for E10, but check with lining manufacturer.

Underground Piping Systems



- Flexible piping needs to be listed with UL for 100% Ethanol/methanol. Most current production flex pipe has Ethanol listing.
- Ameron Fiberglass was listed in 1992. Pre- '92 will not support Ethanol
- Smith Fiberglass “Red Thread” is listed
- Vent Piping needs to be checked as well
- With Ethanol, you **CANNOT** have alcohol based pipe dope used on the fittings, it will dissolve.

Aboveground Piping & Fittings



- Soft metals will corrode in the presence of E85. Do not use Brass, Copper, Lead, plated steel or Aluminum. Carbon steel, stainless steel, or nickel plated materials should be used.
- With bio-diesel, the piping system should not include copper, brass, bronze, lead, tin, or zinc. Buna-N, Nitrile, and natural rubber seals cannot be used as well.

Dispensers



- **Both Dresser-Wayne and Gilbarco are working on developing dispensers that are designed and listed with UL to dispense E85**
- **As of October 5, 2006 UL has decided that UL does not have a specification for listing dispensers for E85. The time line for listing is uncertain.**
- **Dispensers may be installed subject to the Authority having jurisdiction accepting the dispenser.**
- **Clean Fuel Technologies is the leading producer of dispensers for dispensing E85.**
- **Most Manufacturers list standard dispensers for up to B20**

Gasoline dispensing hoses

- Teflon lined hoses work better, and are more resistant to bio-diesels methyl-esters.
- Use Viton gaskets as well.



Tank Gauging systems



- Make sure that if you have a tank gauge system in use on a tank for alternative fuels, that the gauge floats be equipped with stainless steel floats, Urethane floats will dissolve!

More Information?

- U.S. Department of Energy, Alternative Fuels Data Center: www.afdc.doe.gov
- National Ethanol Vehicle Coalition: www.e85fuel.com
- National Renewable Energy Laboratory: www.nrel.gov
- Governors' Ethanol Coalition, Nebraska Energy office: www.ethanol-gec.org
- National Corn Growers Association: www.ncga.com
- Renewable Fuels Association: www.ethanolrfa.org
- The National Ethanol Vehicle Coalition: www.E85fuel.com
- American Coalition for Ethanol: www.ethanol.org
- National Biodiesel Board: www.biodiesel.org
- U.S. Department of Energy: www.eere.energy.gov
- U.S. EPA: www.epa.gov/OMS/models/biodsl.htm
- Petroleum Equipment Institute: <http://www.pei.org/altfuels/guide.asp>