Technical Service Bulletin

The increase in ethanol based fuels available in the market today has made vehicle manufacturers and suppliers create more robust fuel systems that can operate in an ethanol rich environment. The higher percentage of ethanol in fuel is more aggressive to the fuel system components including fuel level sensors and even the fuel pump.

Ethanol absorbs a larger amount of moisture compared to conventional fuel. If mixed with water in the fuel system, ethanol will produce formic acid. Corrosion will start to form in the fuel system with small quantities of formic acid.

As the percentage of ethanol increases in the fuel, electrical conductivity will also increases. The fuel delivery system must be ESD (Electro-Static Discharge) complaint. All related components must be capable of dissipating the charge through approved conductive material to the vehicle ground. Components such as the fuel filler neck, modules and nylon tubing must be ESD compliant to ensure the entire fuel system is ESD compatible.

To ensure fuel delivery system integrity and functionality, the following testing parameters have been performed to the fuel delivery system components to ensure longevity and functionality.

Even though manufacturers have identified that 10% ethanol content has no effect on conventional components of the fuel delivery system, testing is performed on the fuel delivery system to ensure compatibility of the fuel delivery. components in the ever growing market of ethanol based fuels

For Flex Fuel Vehicles (FFV) running with E85, we ensure that high quality components such as stainless steel hangers, internal pump components and specific plastics are compatible to the FFV standard.

TESTING PROCEDURES

E10 [Conventional Fuel Delivery Systems]	**E85** [Flex Fuel Vehicles]
• Long life testing of E10 on Fuel Pumps and Modules	• Fuel delivery components soaked in E85 for compatability
• Individual components are soaked in E10	• Individual pumps are soak tested in E85 including performance test at operating pressure at 12 and 13.5 volts
• Wiring Harness and fuel level sensor testing in E10	• Long life testing is performed for durability and longevity
	• Wiring harness and fuel sensor test (specific to testing)