AUTOMOTIVE MAINTENANCE AND REPAIR ASSOCIATION

INFORMATION BULLETIN

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15% Ethanol Fuel Blend

On January 21, 2011, the U.S. Environmental Protection Agency (EPA) announced it has approved the use of unleaded gasoline with up to 15% Ethanol content (E15) for all vehicles manufactured in 2001 or later.

Previously, ethanol levels up to 10% (E10) were allowed in standard unleaded fuel. The E10 standard was established in the 1970s to help spur the growth of a domestic, renewable fuels industry in answer to America's first major oil crisis. E10 is used in 80% of all gasoline currently sold in the U.S.

The January announcement increases the number of cars and light trucks currently registered in the U.S. that can utilize E15 fuels to approximately 50%. An earlier decision in October 2010 to allow E15 fuels in vehicles of model year 2007 and newer covered just 15% of such vehicles.

Higher levels of ethanol use in gasoline will be necessary for the U.S. to achieve the congressionally mandated goals for bio-fuels in autos by the year 2022. While E10 is currently available to be offered by retail gas stations, such facilities are not required to offer E15. There is controversy about whether many stations will convert any of their dispensing capacity to E15 as it requires unique systems and equipment which can cost up to $25,000.

This increase in the number of vehicles authorized to use E15 fuels also leads to an increased need to be aware of the effect E15 can have inside the vehicle.

The reason for these limits on model years is that E15 is chemically much more aggressive to rubber products and fuel tanks it comes in contact with than the current E10. It can cause corrosion in engines not designed for it and there is also concern that E15 can harm some catalytic converters.

Ethanol provides only 66% as much energy as standard gasoline, yet it burns hotter – causing catalytic converters to break down faster. A car that gets 25 mpg on traditional unleaded gasoline only gets 24.1 mpg on E10 and 23.7 mpg on E15. Additionally, E15 cannot be used in any small engine equipment, such as lawn mowers, chain saws, trimmers, etc.

While this change in the market for gasoline may take some time to become widely adapted, this adds to the complexity in the applications for fuel hose products. With over 40 different blends of fuel being sold around the country, the risks of hose failure are going to continue to grow. Consumers and service professionals should be selecting an MPI or Barricade type of low-permeation hose that can withstand these diverse fuel blends for fuel line applications.

Fuel Line	**Application**
J30R6	Recommended for fuel vapor only, not fuel line (for carbureted applications 1985 and below)
J30R7	Recommended for fuel vapor only, not fuel line (for carbureted applications 1985 and below)
J30R9	Recommend for most for fuel injection applications (other than submersible fuel lines)
J30R10	Submersible fuel hose (for in- tank repair)
J30R14	Low-permeation hose for carbureted automotive, marine and small engine applications

TABLE 1 - APPLICATION SELECTION GUIDE

SAE Spec	ID Sizes (mm)	Rated External Temperature	ASTM Reference Test Fuel	Burst Press		Permeation $g/m^2/day$	Low Temp
				ID (mm)	(MPa)		
30R2	3 to >30	100 °C	48 h @ RT Fuel B	Type 1 - 3.5 to 4.8 Type 2 - 1.7 to 4.8 Type 3 - 8.3 to 13.8		None	5 h @ -40 °C Fuel B Aged
30R3	4 to 11	100 °C	48 h @ RT Fuel B		6.2 to 13.8	None	5 h @ -40 °C Fuel B Aged
30R5 (Filler with wire)	19 to 65	100 °C	48 h @ RT Fuel B		0.6	None	5 h @ -40 °C Fuel B Aged
30R6	3 to >64	100 °C	48 h @ RT Fuel C 70 h @ RT Fuel G	< = 9.53 >9.53 to 25.4 > 25.4	1.72 1.20 0.5	600 Fuel C @ RT	5 h @ -40 °C Fuel C Aged
30R7	3 to >64	125 °C	48 h @ RT Fuel C 70 h @ RT Fuel G 14 day @ 40 C Sour Gas # 1	< = 9.53 > 9.53 to 25.4	1.72 1.20	550 Fuel C @ RT	5 h @ -40 °C Fuel C Aged
30R8	3 to >64	135 °C, intermittent to 150 °C	48 h @ RT Fuel C 70 h @ RT Fuel G	< = 9.53 > 9.53 to 25.4	1.72 1.20	200 Fuel C @ RT	5 h @ -40 °C Fuel C Aged
30R9 (Fuel Injected)	6 to 13	135 °C intermittent to 150 °C	48 h @ RT Fuel C 70 h @ RT Fuel G 14 day @ 40 C Sour Gas # 1	< = 9.53 > 9.53	6.2 3.4	15 Fuel C @ RT	24 h @ -40 °C Fuel C Aged
30R10 (In Tank, uncoupled)	6 to 13	100 °C, intermittent to 125 °C	48 h @ RT Fuel C 70 h @ RT Fuel I	3.4 to 2.8 MPa as size increases		Not Required	24 h @ -40 °C Fuel C Aged
30R11	3 to >64	100 °C T1 125 °C T2 (Can be selected)	48 h @ RT Fuel C Fuel I Extended Test		1.2	100 to 25 max Fuel I @ 40°C	24 h @ -40 °C after Fuel C Aging
30R12	6 to 13	100 °C T1 125 °C T2 135 °C T3 150 °C T4 (Can be selected)	48 h @ RT Fuel C 168 h @ RT Fuel I 168 h @ RT Fuel K Fuel I Extended Test		8	100 to 25 max Fuel I @ 60°C	24 h @ -40 °C after Conditioning with Fuel C
30R13 (Under Development)							
30R14	3 to >64	T1 = 100 °C T2 = 125 °C	48 h @ RT Fuel C 70 h @ RT Fuel G 14 day @ 40 C Sour Gas # 1 (T2 only)	< = 9.53 > 9.53 to 25.4	1.72 1.20	15 max, Fuel CE10 @ RT, 21 day, after 28 day presoak	5 h @ -40 °C Fuel C Aged

NOTE: This guide is intended to be a quick reference guide to assist the user in selection of the proper type of hose for the application. There are more requirements than are shown on this page. Please see the appropriate sections of SAE specification J30 for the detailed complete requirements for that type of hose.