

ETHANOL SUITABILITY – NEW ZEALAND NEW MODELS

The following list has been compiled from information provided by members of the Motor Industry Association. It details by model the manufacturers' recommendation on ethanol suitability up to a maximum of 10%. Ethanol suitability depends upon what market the model is sold in. For example the maximum level of ethanol blended petrol in Europe is E5 – hence the reason E10 suitability will differ from one vehicle manufacturer to another.

Please note that this listing does not relate to any vehicles that have been imported as used vehicles (from any market). For the vast majority Japanese used imports vehicle manufacturers state that they can safely use ethanol blend fuel up to a 3% maximum (E3). Some later models (2006 onwards) may be suitable for ethanol blend fuel of up to 10%. For specific information vehicle owners are advised to visit the web site of the New Zealand distributor for further information. Web links to each MIA member can be found on www.mia.org.nz.

MOTOR VEHICLES

The following table lists vehicle models suitability to run on E3, E5 or E10 ethanol blended petrol. Before use of E3, E5 or E10 in motor vehicles not listed below or if you are unsure, you should consult your handbook or manufacturer to check if the fuel is suitable.

BRAND	MODEL	E3 Suitable		E5 Suitable		E10 Suitable	
		Yes	No	Yes	No	Yes	No
Alfa Romeo	All models post 1998	√		√			X
Aston Martin	All models post 2004	√		√		√	
Audi	A3 1.8 (engine code APG (92kW)) A4 & A6 2.0 (engine code ALT (96kW))		X		X		X
Audi	All models post 1997 except above	√		√		√	
Bentley	All models post 1990	√		√		√	
BMW	All models pre 1996	√		√			X
BMW	All models post 1996	√		√		√	
Chrysler	All models post 1986	√		√		√	
Citroen	All models post 1998	√		√		√	
Daihatsu	Charade (post September 2005) Copen (post January 2006) Materia (post November 2006) Terios (post February 2006)	√		√		√	
Daihatsu	All models except above		X		X		X
Dodge	All models post 1986	√		√		√	
Fiat	All models post 1998	√		√			X
Ford	Capri; Courier 2.0L & 2.6L, Econovan (pre-2002); Festiva; Laser 1.3L, 1.5 & 1.6L, Telstar; Sierra; Escort		X		X		X
Ford	Focus (2002-2004), F-series (1986-1992), Ka, Mondeo (2.0L), Mondeo (2.5L pre-2001) Transit (1996-2004)	√		√			X
Ford	All models post 1986 except above	√		√		√	
GMDaewoo	All models		X		X		X
Holden	Barina (1985-1994)		X		X		X
Holden	Astra Sri 2.2L (Post November 2006) Astra 2.2L Twin Top Convert(Post Nov 2006)	√		√			X

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Holden	All models post 1986 except above	√		√		√	
Honda	All fuel injected models post 1996	√		√		√	
Hyundai	All models post October 2003	√		√		√	
Jaguar	All fuel injected models post 1986 95 octane or higher	√		√		√	
Jeep	All models post 1986	√		√		√	
Kia	All models post 1995	√		√		√	
Lamborghini	All models		X		X		X
Land Rover	All fuel injected models post 1986 95 octane or higher	√		√		√	
Lexus	All models	√		√		√	
Maserati	All models		X		X		X
Mazda	MPV–post 1999, Mazda2–post May 2005 Mazda3; Mazda6; RX-8, NC MX5, CX-7	√		√		√	
Mazda	All models except above		X		X		X
Mercedes-Benz	All models post 1986	√		√		√	
MG	All models		X		X		X
MINI(BMW)	All models post 2001	√		√		√	
Mitsubishi	Evo X and GDi engines		X		X		X
Mitsubishi	All models except GDi engines & Evo X	√		√		√	
Nissan	All models post 1 January 2004	√		√		√	
Peugeot	205, 404, 405, 504, 505, 605, 306 (except post 07/1997 TU engines)		X		X		X
Peugeot	206, 207, 307, 406, 407, 607, 306 (post 07/1997 TU engines)	√		√		√	
Porsche	All models pre model year 2007	√		√			X
Porsche	All models post model year 2007	√		√		√	
Rover	All models		X		X		X
Renault	All models post 2001	√		√			X
Rolls Royce	All models post 1990	√		√		√	
Saab	All models post 1986	√		√		√	
Skoda	All models post 2006	√		√		√	
Subaru	Legacy RS,GT,GTB,RSK,Blitzen-1990 on Impreza STI-1997 on, Forester STI		X		X		X
Subaru	All models post 1990 except above	√		√		√	
Suzuki	Pre-2000 Alto, Wagon R, Pre-2001 Wagon R+, Pre 1995 Swift, Vitara, X-90, Jimny (SOHC),Super Carry, Suzuki Baleno and Baleno GTX		X		X		X
Suzuki	All models except above (providing RON requirements are met)	√		√		√	
Toyota	All models post 1991	√		√		√	
Volkswagen	All fuel injected models 1997 onwards	√		√			X
Volkswagen	All models post 2006	√		√		√	
Volvo	All fuel injected models post 1986 95 octane or higher	√		√		√	

MOTORCYCLES, ATV'S AND OTHER VEHICLES

The following table lists vehicle models suitability to run on E3, E5 or E10 ethanol blended petrol. Before use of E3, E5 or E10 in motor vehicles not listed below or if you are unsure, you should consult your handbook or manufacturer to check if the fuel is suitable.

BRAND	MODEL	E3 Suitable		E5 Suitable		E10 Suitable	
		Yes	No	Yes	No	Yes	No
BMW	All models pre 2000	√		√			X
BMW	All models post 2000	√		√		√	
Ducati	All models		X		X		X
Honda	All models post 1989 (refer Owners' Manual for related cautions)	√		√		√	
Harley-Davidson	All models	√		√		√	
Hyosung	All models		X		X		X
Kawasaki	Some Canadian specification models (details in owners handbook)	√		√		√	
Kawasaki	All other models		X		X		X
Polaris	All models	√		√		√	
Suzuki	Road bikes 50cc to 1800cc	√		√		√	
Suzuki	ATV wheel bikes		X		X		X
Suzuki	Road trail bikes and kids bikes	√		√		√	
Suzuki	Motor cross 2 stroke and 4 stroke		X		X		X
Yamaha	All motorcycles and All Terrain vehicles		X		X		X

THE FOLLOWING INFORMATION OUTLINES THE KEY REASONS WHY VEHICLE MANUFACTURERS DO NOT RECOMMEND THE USE OF ANY ETHANOL/PETROL BLENDED FUELS IN VEHICLES.

Ethanol has a number of important chemical and physical properties that need to be considered in a vehicle's design.

Carburettor Equipped Engines

Vehicles made before 1986 vehicles were predominantly equipped with carburettors and steel fuel tanks.

The use of ethanol blended petrol in engines impacts the air/fuel ratio because of the additional oxygen molecules within the ethanol's chemical structure.

Vehicles with carburettor fuel systems may experience hot fuel handling concerns. This is because the vapour pressure of fuel with ethanol will be greater (if the base fuel is not chemically adjusted) and probability of vapour lock or hot restartability problems will be increased.

As a solvent, ethanol attacks both the metallic and rubber based fuel lines, and other fuel system components.

Ethanol also has an affinity to water that can result in corrosion of fuel tanks and fuel lines. Rust resulting from this corrosion can ultimately block the fuel supply rendering the engine inoperable. Water in the fuel system can also result in the engine hesitating and running roughly.

Fuel Injected Engines

In addition to the issues mentioned above for carburettor equipped engines, the use of ethanol blended petrol in fuel injection systems will result in early deterioration of components such as injector seals, delivery pipes, and fuel pump and regulator.

Mechanical fuel injection systems and earlier electronic systems may not be able to fully compensate for the lean-out effect of ethanol blended petrol, resulting in hesitation or flat-spots during acceleration.

Difficulty in starting and engine hesitation after cold start can also result.

Exhaust and Evaporative Emission Levels

Lean-out resulting from the oxygenating effect of ethanol in the fuel may affect exhaust emissions.

Of more concern is that fuel containing ethanol can increase permeation emissions from fuel system components, particularly those that have aged for nearly 20 years. Therefore the increased vapour pressure of fuel with ethanol (if the base fuel is not chemically adjusted at the refining stage) will lead to increased evaporative emissions.