

# Type of Fluids Compatible with Water Methanol Injection Systems

## Pure Water

For beginners the most basic fluid you can run with your water methanol injection system is pure water. Unfortunately the use of pure water injection is all too often overlooked as an option, as many believe they must have some percentage of methanol in the mix in order to be beneficial. This is completely untrue. While not as effective as blends of water and methanol. Pure water injection can be used when other solutions are not available.

Additionally, pure water injection may actually be preferred over mixes containing methanol or pure methanol. For example, when working with carbureted applications we recommend running pure water injection or water with very little methanol (less than 20%) vs. mixes containing larger percentages of methanol or pure methanol.

Unlike EFI applications, with carbureted applications we can not easily compensate for large amounts of additional fuel (methanol) being injected into the engine by a water methanol injection system. Therefore, we will run pure water injection so as not to effect the air fuel ratio. Thereby, not complicating the tuning process and continuing meter the engines air fuel ratio primarily through the carburetor.



*Tip: With carbureted applications, we want to meter air fuel ratio primarily through the carburetor. However, most carbureted forced induction applications will tend to gradually lean out as the engine runs up. A water methanol injection system can also be used as a tool to add a little extra fuel to the top end when needed by increasing the methanol percentage in the mix.*

Furthermore, it seems many people are still miss informed of the benefits of pure water injection. Often times we hear people referring to pure water injection as only offering the benefit of cooler air charge temperatures with no added increase or effect to octane. This is untrue. Water is a very "effective" octane enhancer. While it's not a high octane fuel as methanol and does not burn as part of the combustion process. Water is a remarkable anti-detonant. Thereby allowing engines running pump gas to withstand higher boost levels, hotter air charge temperatures and cylinder pressures without the onset of detonation. For more information about water injection and it's effects read our article "116 octane With Water Injection".

Best of all, water costs very little. When using water it's important to use distilled water and not tap water. Tap water contains to many minerals and will clog your system over time.

## Methanol

Methanol of course is another fluid which can be used with our water methanol injection systems. Either in pure form or mixed with water. Generally most users will run some type of water methanol mix. The most popular mix is 50/50. That is mixing 50% water with 50% methanol by volume. Not only does this make mixing easy, it's more affordable then using pure methanol and more importantly it's non-flammable. For most gasoline EFI forced induction applications, we recommend a 50/50 mixture.

The use of pure methanol is also quite common amongst users. With no water in the mix, users are able to run significantly higher amounts methanol through the engine. When running pure methanol it will make your air fuel ratio go very rich in which you will need to reduce fuel through the ECU to compensate for it. Technically, we are unlimited to how much methanol we can spray, as we are simply swapping one fuel for another.



Locating pure methanol can be difficult. Most race tracks, such as drag strips, sprint car tracks and go kart tracks, sell methanol. If you live near any them try them first. Additionally, many dyno shops have been found to carry it as well as performance speed shops. Try calling VP Fuels to see if there is a shop in your town which carries it. Other places you may try are hobby shops which sell remote controlled gas powered airplanes and cars and suppliers of industrial chemicals. If still no luck try one of the following online sources in which you can buy 5 gallon drums and have shipped to your house.

## Online Sources For Buying Methanol:

- **Hyperfuels**
- **World Wide Racing Fuels**

It's important to point out not all water methanol injection system can use 100% methanol. Our systems are designed for use with 100% methanol. Additionally, when running pure methanol we highly recommend upgrading from our standard high temp plastic lines to our stainless steel hose. Methanol is an extremely flammable fluid and users should take extra precautions when using it.



## Windshield Washer Fluid

Windshield washer fluid has quickly become one of the most popular fluids used in water methanol injection systems and for good reason. For starters, it's extremely affordable costing anywhere between \$1.00-\$1.70 per gallon and can be located in most auto parts stores across the states.

Unfortunately, not just any type of windshield washer fluid can be used. When shopping for a windshield washer fluid it's important to find of washer fluid rated for at least -20 degree's below zero as it will contain a large percentage of methanol mixed with water. Additionally, be sure to check the bottle and that it contains methanol as there are some eco-friendly windshield washer fluids rated below zero which do not contain any methanol which you do not want to use.

Most washer fluids rated between -20 and -35 degree's below zero contain between 30-40% methanol. When working with a particular windshield wiper fluid it's always a good idea to check it's MSDS sheet as this will tell you exactly what it contains and how much. To do this simply go the manufactures website as they often times list the MSDS sheets on their website or you may do a search on the internet.

Its always a good idea to also first check the MSDS sheet of the windshield washer fluid you are going to use to verify exactly what it contains. Some washer fluids will contain additional additives in very small percentages (less then 2%)



## Heet

Found in just about every auto parts store across the states. Heet is a gas-line antifreeze & water remover designed for cold weather starting, preventing gas line freeze ups and for removing moisture from your fuel system. Heet is essentially 12 oz. of pure methanol and works as a great as a kicker to windshield wiper fluid, generally costing only \$1.50 per bottle, when users want to increase the methanol content.

Basic mixing instructions are as follows. Take for example 1 gallon of negative -20 degree below zero windshield washer fluid, which is approximately 30% methanol 70% water. By adding four 12oz bottles of Heet, to the one gallon of windshield washer fluid will give you a 50/50 mix of water and methanol.



## Denatured Alcohol

When all else fails another fluid you can use and count of finding locally with no problem is denatured alcohol. Denatured alcohol can be purchased at any Home Depot, Lowes and many other home improvement stores and is located in the paint department.

What is denatured alcohol you ask? Denatured alcohol is generally 90% ethanol with 10% methanol added to it to render it undrinkable for human consumption. While ethanol does not offer as good of a cooling effect as does methanol. Ethanol does have more power per unit volume then methanol. However, methanol is still the preferred choice over the two alcohols.



## Isopropanol

Isopropanol, commonly referred to as rubbing alcohol, may also be used in your water methanol injection. While we haven't personally performed any testing using it, we have heard of many using it with great success. Isopropanol is much more expensive than other forms of alcohol costing upwards of \$100.00 per gallon. Additionally, it's generally only 70% pure containing 30% water.

Due to its high cost and being hard to find in large quantities, we do not recommend isopropanol to be used exclusively. However, we can see isopropanol working well as a kicker to windshield washer fluid when users want to increase its alcohol content as it can be purchased in small quantities for fairly inexpensively.



## Pre-mixed Water & Methanol

We're often asked by customers if we sell pre-mixed water methanol mixes as offered by other competing companies. The answer is NO. While this is convenient, we feel there are much more affordable solutions to these expensive pre-mixed water methanol solutions. Additionally, by the time you add shipping you're looking at paying \$60.00 for basically two gallons of methanol and two gallons of water. Let's face it you're really paying \$60.00 for two gallons of methanol. Not only are there many other more affordable solutions. It doesn't make sense to ship water around.

ARTICLE SOURCE: Alcohol Injection Systems [www.alcoholinjectionsystems.com](http://www.alcoholinjectionsystems.com)