



Evans Cooling Systems, Inc.

The following are questions most often asked by our customers regarding the installation and use of Evans Waterless Coolants (often referred to as EWC throughout this document).

Where are Evans Coolants available?

Evans Waterless Coolants are available through dealers and distributors across the US, and internationally. For a complete list, please visit our website at www.evanscooling.com.

Which automotive coolants are water-based?

Evans is the only manufacturer of waterless engine coolant. All other commercially available automotive coolants are water-based, or meant to be diluted with water. All Evans coolants are waterless.

Which Evans product should I use for my vehicle?

That would depend on the application, and to clarify, we've listed each product below and the applicable uses for each.

High Performance Coolant: For cars, and light duty trucks. Also for use in boats, light aircraft, light duty diesels, LP and CNG engines.

Heavy Duty Coolant: For all heavy duty applications such as class 8 trucks, generators, and off-highway equipment.

Powersports Coolant: For use in motorcycles, ATV's, snowmobiles, and other off-road powersports applications.

Arctic Coolant: For extreme cold weather applications for any of the above applications.

NPG: For racing venues that allow propylene glycol based coolants, but not ethylene glycol based coolants. Not applicable for general use. Adaptive equipment may be needed for specific high performance applications. Call Evans Cooling Systems for further specifics regarding use of NPG.

Prep Fluid: Used as a waterless flush to remove remaining water-based coolant from the cooling system prior to installing EWC. Prep fluid is 100% compatible with all Evans Waterless Coolants.

How do I install Evans Waterless Coolant (EWC) in my vehicle?

It is important to do a thorough job in removing all of the old coolant before installing EWC. Complete Installation Instructions are available on the website, and also in a downloadable pdf. In addition, you may view the installation video on the website as a supplemental aid to installing EWC.

Do I really need to use Prep Fluid?

Evans recommends using Prep Fluid for all installations to ensure removal of all remaining water-based coolant from the cooling system before installing EWC. In a new or “dry” engine, it is not necessary to use Prep Fluid.

How will I measure water content after installation of Evans Waterless Coolant?

There are two methods to determine water content after installation of EWC.

1. Using a Conversion Kit- The kit is an essential tool for converting over from a water-based Coolant to Evans Waterless Coolant. The kit contains water content test strips that measure the final water content after the waterless coolant conversion is completed. The kit is typically sold to your do-it yourselfers.
2. Using a refractometer - A refractometer is device used to measure the final water content after conversion to EWC and uses a Brix scale. The refractometers are most commonly used by fleets or conversion facilities where installations are regularly performed. Instructions for use are included in the installation instructions.

What happens if I have water in my cooling systems after installing Evans coolant? What is the best method to correct?

It is important to closely follow directions during the initial EWC installation. A water content higher than 3% will lower the boiling point, and may reduce the corrosion and pump cavitation protection of EWC. If a water test shows there is between 3% and 5% water in the coolant, the corrective action is to drain half of the system volume and add back new EWC. This will reduce the water content to an acceptable range. If the measured water content is greater than 5% the system must be drained and refilled with new EWC.

Do I need to change my radiator cap when using Evans coolant?

A different radiator/pressure cap is not required with EWC. A water-based coolant generally requires anywhere from a 7 to 15 psig pressure cap. Higher pressure raises the boiling point of water-based coolant. EWC expands slightly as it warms creating pressure of 3 – 5 psig, and the existing cap does not need to be changed.

Does Evans coolant require periodic maintenance?

No periodic addition of supplemental coolant additives are required, nor should any ever be added. Evans recommends inspecting the cooling system at least once a year to ensure that no contamination of the coolant has occurred.

If I have a leak or other event where I need to top off or refill my coolant, and Evans is not immediately available, what can I safely add to the cooling system?

With EWC, the likelihood of coolant loss and the need for topping up are greatly reduced. In the event that there is significant coolant loss from the system during operation and no EWC is available to fill the system and reach a repair facility, water or water-based coolant may be used. However, repairs should be made as soon as possible, and the system should be drained, purged and re-filled with EWC.

While driving with Evans coolant mixed with water or water-based coolant, what effects will it have on my cooling system?

In the short term, there should be no concern about the performance of mixing a small amount of conventional coolant or straight water with EWC. The high boiling point and corrosion protection of EWC will be reduced, and the coolant should be replaced as soon as possible.

How do Evans Waterless Coolants control engine metal temperatures as compared to water-based coolants under stressed conditions?

Water-based coolant boils at a temperature only slightly higher than the operating temperature of the coolant. The boiling point of water-based coolant is somewhat above the boiling point of water for the pressure of the system. Localized boiling releases water vapor that can only condense into coolant that is colder than the boiling point of water. Any vapor that doesn't condense occupies a volume that displaces liquid coolant. Water vapor is a very poor conductor of heat. Hot engine metal, insulated by water vapor, becomes an engine "hot spot" that can cause pre ignition and detonation.

In contrast, the boiling point of EWC is much higher than the bulk coolant temperature and any locally generated vapor condenses immediately into the surrounding bulk coolant. There is no persistent vapor to insulate between hot metal and the liquid coolant. Liquid coolant is in contact with all of the coolant jacket at all times, providing a path of excellent heat transfer away from the hot metal.

Will Evans coolant lower the operating temperature of my engine?

The effect of EWC on cooling system temperatures will depend on the engine and cooling system configuration, as well as driving conditions. Vehicles running under normal operating conditions,

should show no change or a slight increase in temperature. In high horsepower applications, the temperature effect of running EWC will depend on the engine and cooling system components.

Is Evans advocating operating engines at higher temperatures?

Not really. With EWC, operating temperatures may be modestly higher than those of water-based coolant, depending on driving conditions and whether the vehicle is stock or configured as high-performance. When the engine is stressed, the coolant absorbs more heat and temperatures rise. This is not a concern when using EWC. The combination of the high boiling point of EWC and a correctly-sized cooling system means that an increase in temperature can be accommodated without cooling system failure.

Are there engine types or cooling system configurations where EWC would not be a preferred coolant choice?

There are few high performance radiator configurations where Evans may not operate as well as a water-based coolant. Evans coolant works best with a single pass radiator of the proper core size. The following are minimum radiator core suggestions:

<i>300HP or less without AC</i>	<i>4 rows: ½" tube, copper/brass</i>
<i>300HP to 400HP with AC</i>	<i>2 rows: 1" tube, aluminum</i>
<i>400HP to 600HP</i>	<i>2 rows: 1 ¼" tube, aluminum</i>
<i>600HP plus</i>	<i>3 rows: 1" tube, aluminum, or 2 rows: 1.5" tube, aluminum</i>

How does Evans coolant prevent afterboil?

Afterboil (definition: coolant boiling after the engine has shut down because of the inability of the engine at rest to dissipate excess heat) occurs in an automotive engine after engine shutdown when the heat in the system cannot be rejected to the air because the coolant is no longer being circulated to the radiator. A coolant which is near its boiling point will not be able to absorb additional heat without boiling and being forced out through the pressure cap. Conversely, the huge separation between the operating temperature and the boiling point of EWC enables the coolant to act as a heat sink into which heat from hot metal parts of the system can be readily dissipated. Boiling is avoided and there is no build-up of pressure to force coolant out of the system. Stresses on cooling system components are avoided because metal temperatures are kept under control.

How does Evans coolant prevent water pump cavitation?

EWC inhibits vapor development in the pump over a broad range of temperatures. With EWC, the suction side of the coolant pump is never at a low enough pressure to flash vaporize the coolant. So, the pump never gets vapor-bound and has the ability to pump coolant over broad range of temperatures. No vapor bubbles are formed to collapse against the metal and cause cavitation erosion damage to the pump.

What is the flash point of Evans coolant?

The flash point (*definition: the lowest temperature at which a combustible substance produces sufficient vapor near its surface to generate an ignitable mixture with air*) of EWC is similar to that of conventional water-based coolant, i.e., 248 °F/120°C.

Over time, will Evans coolant absorb water?

EWC is hygroscopic, which means it has the ability to absorb moisture. As such, containers of unused coolant should be kept tightly closed. In the cooling system, EWC should not absorb a significant amount of moisture from the atmosphere as long as a conventional pressure cap is used. Under normal circumstances, the cap should not open, allowing air to enter the system.

Will using Evans Waterless Coolant void my warranty?

Some vehicle manufacturers may not yet recommend or endorse the use of EWC. However, you are protected by the Magnuson-Moss Warranty Act¹. Evans Cooling Systems provides its own warranty which covers any damages which occur as a result of using the coolant. Chubb Insurance provides Evans Global product Liability coverage. Contact Evans for further information.

For how long is Evans Waterless Coolant warrantied?

The coverage is in effect for as long as the coolant is in the vehicle, provided that the Evans installation instructions have been followed, the water content of the coolant is maintained at less than 3%, and no other materials are added to the coolant.

¹ <http://www.consumer.ftc.gov/articles/0138-auto-warranties-routine-maintenance>