



## Evans Waterless Heavy Duty Thermal Coolant (HDTC)

# INFORMATION MANUAL

**CAUTION: TO AVOID THE POSSIBILITY OF ENGINE DAMAGE USE EVANS HEAVY DUTY THERMAL COOLANT (HDTC) IN ITS UNDILUTED FORM ONLY AND AVOID ADDITIONS OF WATER.**

WATER IS A CONTAMINANT AND HARMFUL TO THE SYSTEM. To get the benefits of Evans HDTC and avoid corrosion and other problems, follow the installation procedure contained herein and refrain from adding water to the system.

### **Safety Precautions**

- When converting to EVANS "Waterless" Cooling never work on a conventional hot, pressurized water/antifreeze cooling system. Conventional water and antifreeze coolant spraying on a hot engine may ignite. Similar precautions should generally be adhered to with EVANS "Waterless" Coolants; coolant vapor may ignite if it is above 240°F and comes in contact with an open flame (leaking ignition spark, failed exhaust header, etc.) Always observe fire precaution warnings in your vehicle owner's manual.
- Always use jack stands or ramps to work on a vehicle, never use a jack only.
- Always wear eye protection.
- Use caution near thermostatically controlled electric cooling fans, as they may activate even when the ignition is off.
- Evans HDTC carries ethylene glycol warnings on its packaging because of the U.S. Consumer Products Safety Commission requirement that all products containing over 10 percent ethylene glycol carry such warnings.
- Drainings of coolant must be disposed of in accordance with local regulations for antifreeze disposal.

### **Features of Evans HDTC**

- Boiling point: 190.6 °C (375 °F), at zero psig
- Freezing point: Below -40 °C (-40 °F)
- Specially formulated for heavy duty engines.
- Stops cylinder liner cavitation erosion.
- Lasts the lifetime of the engine if uncontaminated by water.
- The coolant temperature is not limited to the boiling point of water.
- Ends afterboil.
- The cooling system develops less pressure because there is no vapor component.
- Permits fuel saving strategies not available with water-based coolants.



- Toxicity is reduced. HDTC contains ethylene glycol and also contains a substance that inhibits the metabolism of ethylene glycol, preventing its toxic metabolites from forming. In tests on rats according to EPA regulations, no rats died eating the ethylene glycol/inhibitor combination, even in quantities that completely filled the stomachs of the rats, indicating a very low toxicity. Evans HDTC carries the ethylene glycol warnings required by law.

# INSTALLATION PROCEDURE

## Evans Waterless Heavy Duty Thermal Coolant (HDTC)

**NEVER** work on a conventional hot pressurized water/antifreeze cooling system – allow cooling completely before starting coolant conversion. The existing water-based coolant will be completely drained from the system. Some residual coolant may remain but the overall water content after the HDTC is installed may not exceed 3.0% as measured with a refractometer. **DO NOT FLUSH THE EMPTY SYSTEM WITH WATER.** (It is better to leave a small residual amount of liquid behind that is 50% water than an equal amount that is 100% water.)

### **IMPORTANT - MAKE SURE THERE ARE NO COOLING SYSTEM LEAKS.**

#### **SPECIAL EQUIPMENT:**

1. Brix scale refractometer is essential (Evans Cooling Systems Part No. E2190).
2. A one-gallon garden sprayer (such as offered by Agway) can be handy.
3. Shop air or a hand held blower (e.g. Makita UB1101).

#### **THE PROCEDURE:**

1. Read through the whole procedure first! Do your best to get it right.
2. Drain the radiator. Usually removal of the bottom radiator hose yields additional fluid.
3. Drain the block. Search carefully for drain locations that may be at the bottom of the oil cooler, or on the lower region of the EGR cooler. Look for drain locations at the thermostat housing.
4. Drain the heater circuit. Disconnect the lines to the heater and gently blow compressed air in both directions. NOTE: When blowing out the heater, set the temperature control to "max". Also, some HD vehicles require the ignition key to be "on" in order to have flow through the heater. It is helpful to insert new HDTC into the heater and then blow it out to chase out old coolant that may be resident. **NEVER FLUSH WITH WATER.**
5. Make sure the expansion tank is empty.
6. If there is an overflow bottle, empty it completely.
7. Drain any ancillary cooling circuits (e.g. fuel heater and brake air compressor circuits) and gently blow them out with compressed air.
8. Use a gallon of the HDTC to flush parts of the cooling system suspected to harbor residual coolant. The garden sprayer is particularly handy for introducing coolant into such areas. (The nozzle can be unscrewed and a ¼" ID hose slipped onto the wand.)
9. If the engine is equipped with a coolant filter, remove the filter and replace it with one that **does not** introduce coolant additives.
10. Reconnect all circuits and close any drains.
11. Fill the system completely with Evans HDTC.
12. Replace the radiator cap.

*Procedure continued on next page*



13. Apply **DO NOT ADD WATER OR WATER BASED COOLANT** warnings.
14. Run the engine until it is warm and the thermostat(s) open. After the coolant has circulated completely, prepare to test the coolant water content.
15. **Calibrate the refractometer.** Using new Evans HDTC, place a drop on the refractometer glass and check the reading. If it does not read 55.7, use the screwdriver provided to set it to 55.7.
16. After there has been thorough circulation of the coolant through all parts of the cooling system, including the radiator and the heater core, obtain a coolant sample for the refractometer from a "well-mixed" location. **The reading should not exceed 54.4 Brix, which corresponds to 3.0 percent water.**
17. If the water exceeds 3.0 percent some coolant may have to be drained and replaced with new HDTC. Also, you can try this: Operating with the pressure cap removed will cause evaporation of water from the coolant when the coolant is hot. This method may be attempted as a means to lower the water content. The pressure cap should be returned to close the system once the water content is acceptable.
18. Post installation: CHECK COOLANT LEVEL DAILY UNTIL COOLANT LEVEL STABILIZES; ADD EVANS HDTC COOLANT AS NEEDED. The level of coolant for a cold engine should be at the "cold" line. Always keep some spare coolant in the vehicle for emergencies.

**CAUTION:** Ethylene glycol is poisonous. Do not leave it in an open container. Always use a drain pan to capture all fluid in compliance with local, state and federal laws. If drained fluid contains **ETHYLENE GLYCOL**, it must be disposed of as **HAZARDOUS WASTE**.

## **OTHER INFORMATION**

**Unexpected loss of coolant:** In the event of a highway emergency resulting in a coolant loss, ***NEVER ADD WATER EXCEPT AS A LAST RESORT***. Evans NPG+ and Evans NPGR waterless coolants are compatible with Evans HDTC and may be used to replace modest percentages of HDTC. If water is the only fluid available, use it to get home with and as soon as possible (preferably within 2 weeks) re-install Evans HDTC. Water left in the system will cause cylinder liner cavitation and other problems.

**Evans HDTC will darken during use.** All EVANS waterless coolants, including HDTC gradually change to a darker color during use due to organic aging from heat cycles in the engine. This change is normal and has no effect on the performance of the coolant or its non-corrosive attributes.

### **Storage of Evans HDTC**

Evans HDTC is hygroscopic and, in an open container, will naturally absorb moisture from the atmosphere. Always store Evans HDTC, whether it is new or being retained for re-use, in a tightly capped container.



### **Cooling System Leaks**

Bars Leaks Liquid Radiator Stop Leak has been found effective for stopping small leaks of Evans HDTC.

## **WARRANTY STATEMENT**

### **Warranty**

Evans Cooling Systems Inc. warrants Evans Cooling Systems products to be free from defects in material and workmanship under normal use and if properly installed for a period of one year from the date of purchase. If found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of date of purchase. This shall constitute the sole remedy of the purchaser and the sole liability of Evans Cooling Systems Inc. to the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations whether expressed or implied, including any implied warranty. In no event shall Evans Cooling Systems Inc. be liable for special or consequential damages.

### **Return Policy**

Any Standard Evans Cooling Systems Inc. products may be returned by the original purchaser within 30 days from the date of purchase, for a full purchase price refund, if the item is returned in the original unaltered condition. The customer must call to obtain a return authorization and return freight must be prepaid. A copy of the invoice and a letter of explanation including name, address and phone number must be enclosed with the return. After a return item is received and inspected at Evans Cooling Systems Inc., a credit or refund will be issued. Any products, which have been modified or damaged by the customer, will not be accepted for return. There are no returns on any special order or custom items. Items returned after 30 days will be subject to a restocking charge.

Evans Waterless Heavy Duty Thermal Coolant (HDTC) is a product of  
Evans Cooling Systems, Inc., Sharon CT 06069

Refer questions regarding use of Evans HDTC to the  
Evans Diesel Marketing Office, Suffield, CT 06078; Tel: 860-668-1114

Supplies, including refractometers, are available from  
Evans Cooling Systems, Inc., Pottstown, PA 19465; Tel: 888-990-2665