



Antifreeze is used as an engine coolant and contains ethylene glycol or propylene glycol. Ethylene glycol is very toxic and is attractive to animals and small children due to its sweet taste. Propylene glycol is significantly less toxic and has an acrid taste. Both of these products have a lime green color. Some vehicle manufacturers are now using an extended-life engine coolant that is orange colored and has a recommended service change interval of five years/100,000 miles. The green coolants should never be mixed with the orange coolant, even in tiny amounts, or the extended-life benefits of the orange coolant are lost.

During the process of cooling the engine, antifreeze often becomes contaminated with heavy metals from the engine, grit, and traces of fuel. Benzene, lead, and other toxins picked up from the engine may cause the used antifreeze to fail the Toxicity Characteristic Leaching Procedure (TCLP) test for these constituents. The antifreeze also breaks down over time and forms acids that corrode the cooling system. All wastes, including used antifreeze, must be evaluated to determine if they are hazardous wastes. Used antifreeze that contains listed hazardous wastes or exhibits a characteristic of hazardous waste must be managed following all hazardous waste notification, generator, and transportation requirements.

Recycle/Disposal Options

Antifreeze should not be disposed of by throwing it in the trash, pouring it down the storm sewer, or putting it into septic systems. Many storm sewers discharge directly to surface waters, such as ponds or streams. Degradation of the antifreeze consumes the oxygen in the water, effectively smothering plant and animal life in the pond or stream and causes a foul odor. Poured into a septic system, the antifreeze may damage the system by killing the microorganisms necessary for decomposition.

Acceptable methods of managing used antifreeze include recycling, disposal at a hazardous waste treatment, storage, or disposal facility (TSDF), or discharge to a wastewater treatment plant with prior written approval of the Publicly Owned Treatment

Works (POTW). Most wastewater treatment plants discourage sewerage of used antifreeze, and many no longer allow discharges of antifreeze to their systems at all.

Recycling used antifreeze is the preferred option.

Not only is recycling the most environmentally safe and responsible option, but it may also be more cost effective than disposing of the waste and buying new product. Antifreeze may be recycled by distillation, ion exchange, or filtration. Distillation and ion exchange restore the antifreeze to a high level of purity. Mechanical filtration may remove undissolved solids, but may not remove contaminants dissolved in the antifreeze. Mechanical filtration combined with other technologies, such as chemical filtration (which precipitates heavy metals out of used antifreeze), can be very effective in removing contaminants. After recycling, the antifreeze should be chemically refortified with rust and corrosion inhibitors, acid neutralizers, clogging and foaming agents, and pH buffers. Some major vehicle manufacturers allow recycled antifreeze meeting specific criteria to be used in vehicles under warranty. Check with vehicle manufacturers for further information. Used antifreeze should not be mixed with used oil as the mixture is not easily recycled.

Generators may recycle their own used antifreeze in any of several commercially available onsite recycling units. Alternatively, the generator may have his used antifreeze handled by a legitimate recycler. Many used oil recyclers also pick up used antifreeze for recycling. The recycler may recycle the used antifreeze at the generator's facility or may transport it to a recycling facility for reclamation. A hazardous waste determination must be made on all wastes produced by the recycling process, such as filters and sludges, and these wastes managed appropriately. Such wastes contain concentrated heavy metals and other contaminants removed from the antifreeze.

Although the recycling process does not require a treatment permit, the owner or operator of a facility that recycles contaminated antifreeze without storing it before it is recycled must notify the state of their

hazardous waste activity and must utilize the manifest system. If the recycler stores used antifreeze that exhibits one or more characteristics of hazardous waste longer than 24 hours before recycling, the recycler must also obtain a hazardous waste storage permit.

For more information please contact:

**Colorado Department of
Public Health & Environment**

**Hazardous Materials and
Waste Management Division
4300 Cherry Creek Drive South
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Division Website <http://www.cdphe.state.co.us/hm/>
Regulations <http://www.cdphe.state.co.us/regulate.asp>
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This Compliance Bulletin is intended to provide guidance on the appropriate management of wastes based on Colorado solid and hazardous waste statutes and regulations only. The wastes described in this guidance may be regulated under other statutes and regulations.