

Contaminated Antifreeze a Potential Hazard

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Antifreeze is made of ethylene glycol, a poisonous substance that may also become a hazardous waste due to contaminants picked up while circulating through the vehicle engine. Contamination in used antifreeze primarily accumulates from lead solder and fuel contamination. However, used antifreeze may become hazardous due to the presence of any one of the heavy metals or volatile organic compounds. Only a testing protocol called the Toxicity Characteristic Leaching Procedure (TCLP) can be used to make the determination.

Because of the toxicity of the contaminants that may be present, used antifreeze should never be dumped on the ground or discharged to a storm sewer or a septic system. When illegally discharged to a septic tank, antifreeze will destroy the bacteria and cause the tank to cease functioning. With no bacteria to break down the contaminants, toxins will pass through the system and pollute groundwater. Improper disposal of used antifreeze may result in soil, groundwater or surface water contamination. And may also lead to expensive regulatory fines and cleanup costs.

The federal hazardous waste management standards require that a hazardous/non-hazardous waste determination (using TCLP methodology) be made for any waste with the potential to be hazardous. Sending a sample of the waste in question to an analytical laboratory for testing is the only way to make this determination.

While the TCLP includes 40 test parameters, wastes need only be tested for the toxins likely to be present. To make an accurate determination the minimum testing parameters for used antifreeze include:

TCLP Parameter	Regulatory Level*	EPA Number
Metals:		
Arsenic	5.0 mg/L	D004
Barium	100.0 mg/L	D005
Cadmium	1.0 mg/L	D006
Chromium	5.0 mg/L	D007
Lead	5.0 mg/L	D008
Mercury	0.2 mg/L	D009
Selenium.....	1.0 mg/L	D010
Silver	5.0 mg/L	D011
VOCs:		
Benzene	0.5 mg/L	D018
Carbon		
tetrachloride	0.5 mg/L	D019
Chlorobenzene	100.0 mg/L	D021
Chloroform	6.0 mg/L	D022
1,2-Dichloroethylene	0.5 mg/L	D028
1,1-Dichloroethylene	0.7 mg/L	D029
Methyl ethyl ketone (MEK)	200.0 mg/L	D035
Tetrachloroethylene.....	0.7 mg/L	D039
Trichloroethylene.....	0.5 mg/L	D040
Vinyl chloride	0.2 mg/L	D043

* Samples exceeding these levels are hazardous.

A representative sample of waste antifreeze should be collected and submitted to an

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analytical laboratory for testing. The TCLP test need only be conducted one time at a facility unless changes in the type of work or waste generated occur. The cost of the test will vary from one laboratory to the next, but will be approximately \$350.

If TCLP results show the concentration of any parameter equal to or greater than its corresponding regulatory level, the antifreeze must be managed as hazardous waste. Hazardous waste must be stored in sealed, labeled containers and disposed by an EPA-permitted hazardous waste management company. Hazardous antifreeze must also be included in the facility's hazardous waste inventory and managed on-site in compliance with the applicable generator regulations.

If the TCLP test results of the representative sample show concentrations less than regulatory level for each parameter, then the antifreeze is non-hazardous. Non-hazardous used antifreeze may be sold, recycled or disposed of as a non-hazardous waste through a waste management company such as Safety-Kleen. In some instances, used antifreeze can be discharged to the city sanitary sewer system with prior permission from the wastewater treatment plant, in small amounts.

Reclaiming Used Antifreeze

When good antifreeze must be removed for repairs, it should be saved in a clean container for reuse in the system after completion of the repairs to avoid unnecessary disposal of useable antifreeze. Reclaiming



useable antifreeze also keeps it from becoming waste.

Recycling is Another Option

If the antifreeze cannot be reused, recycling is the next best management option. This can be done by an off-site recycling services or on-site recycling equipment such as filtration. Through a "cleaning" process using filtration the reclaimed antifreeze can be reused. A filtration system removes the sediments and contaminants from the antifreeze. Rust and corrosion inhibitors are then added to replace the additives lost during use. The filters in the unit eventually become hazardous waste due to the sludge collected during the filtration process.

Call the Iowa Waste Reduction Center (IWRC) for more information about making a waste determination for any waste generated. The IWRC is a free, confidential and non-regulatory small business technical assistance program located at the University of Northern Iowa. The IWRC also offers a free on-site review of any Iowa business with fewer than 200 employees. Contact the IWRC at 1-800-422-3109 or on the web at www.IWRC.org.

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Iowa analytical laboratories able to perform TCLP testing

Ask for a discount to IWRC clients!

* KEYSTONE LABORATORIES

600 E. 17th Street South,
Newton IA 50208

Phone: (800) 858-5227
<http://www.keystonelabs.com>

* KEYSTONE LABORATORY

3012 Ansborough Avenue
Waterloo, IA 50701

Phone: (800) 858-5227
<http://www.keystonelabs.com>

* MIDWEST LABORATORIES, INC.

13611 B Street
Omaha, NE 68144

Phone: (402) 334-7770
<http://www.midwestlabs.com>

* MINNESOTA VALLEY TESTING

35 West Lincoln Way
Nevada, IA 50201

Phone: (800) 362-0855
<http://www.mvtl.com>

* QCML, INC.

17048 215th Street
Davenport, IA 52804

Phone: (319) 386-7827
<http://www.qcml.com>

* STATE HYGIENIC LAB

Oakdale Hall
Iowa City, IA 52242

Phone: (319) 335-4500
<http://www.uhl.uiowa.edu>

* TESTAMERICA

704 Enterprise Drive
Cedar Falls, IA 50613

Phone: (800) 750-2401
<http://www.testamericainc.com>

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