

Antifreeze

Antifreeze protects the cooling system of an automobile from freezing and overheating, provides pump lubrication, and inhibits corrosion in the cooling system. Antifreeze may contain ethylene glycol, diethylene glycol, propylene glycol, or sodium nitrite. Antifreeze may also become contaminated with oil and hazardous metals such as copper, zinc and lead. Ingredients or contaminants in antifreeze are considered toxic, reactive, flammable, poisonous, or an eye, skin, and mucous membrane irritant.

Source Reduction **PREVENTS THE NEED FOR DISPOSAL**

An alternative to ethylene-glycol based antifreeze is to use antifreeze made with propylene glycol.

To minimize the amount of antifreeze that must be managed or the hazards associated with its use:

- buy and use only the quantity needed;
- capture the antifreeze when the coolant or hoses are changed, and reuse or recycle it;
- watch for and repair any leaks;
- store antifreeze in tightly closed containers to prevent it from being spilled or contaminated by other materials; and
- use antifreeze that is designed to last for four years or 50,000 to 60,000 miles (most antifreezes need to be replaced every two years).

Recycling/Reuse Options **TRY THIS NEXT**

Antifreeze can be recycled. Used antifreeze still protects against freezing and boilovers; however, the corrosion inhibitors may be depleted during use and should be replaced in the recycling process. To collect antifreeze for recycling, place the antifreeze in a clean, closed container and contact 1-800-CLEANUP or www.1800cleanup.org on the Internet for information on sites that will accept it. To close the recycling loop, purchase recycled antifreeze, when possible.

Disposal **LAST RESORT**

If the antifreeze cannot be reused, given away, or recycled, then read and follow the product's label for the manufacturer's instructions on proper disposal. If recycling is not feasible, then antifreeze may be disposed of in one of two ways. If the local wastewater treatment plant permits it, antifreeze may be poured down an inside drain, flushing with plenty of water. Contact the local wastewater treatment plant for information. In addition, under state law, if generated by household use, solidified antifreeze can be legally disposed of in a permitted, Subtitle D landfill. Before attempting to dispose of antifreeze in this manner, contact the local landfill to find out if they meet this requirement. If curbside waste pick-up is provided, contact the service provider to find out if the waste is being disposed of in a landfill which meets this requirement. To solidify the

antifreeze, mix the antifreeze with enough absorbent material, such as cat-box filler, to absorb all free liquids. Place the solidified antifreeze in a bag or wrap in newspaper before disposing in a landfill. The empty container should be recycled, if possible. Contact 1-800-CLEANUP or www.1800cleanup.org on the Internet for a list of recycling sites. If it cannot be recycled, then the empty container can be disposed of in a landfill.

Antifreeze should not be poured down septic tanks, outside drains, in the storm sewer, or on the ground. This can cause ground water contamination and/or operational problems with the septic system or POTW. Antifreeze can also harm pets if ingested.

The information contained in this publication is only intended to further the public interest by facilitating the proper management of certain consumer items. This information has been assembled from a variety of sources. The authors make no warranty, express or implied, or assume any legal liability or responsibility for the products, processes, or information disclosed in this publication. No endorsement or criticism of any product is implied. Only the consumer can determine what best meets his/her needs. Local ordinances and regulations may supersede the best management practices described in the document.

Batteries

An automobile (lead acid) battery provides an electrical current to the starter motor and the spark plugs. A battery contains an average of 18 to 22 pounds of recoverable lead, approximately 3 pounds of polypropylene casing, and one gallon of sulfuric acid.¹ Some automobile battery components are considered corrosive, toxic, poisonous, and an eye irritant.

Source Reduction **PREVENTS THE NEED FOR DISPOSAL**

There are no less toxic alternatives to lead-acid automobile batteries at this time.

Recycling/Reuse Options **TRY THIS NEXT**

In Georgia, automobile batteries must be returned to retailers for recycling.² Battery retailers are required by law to accept old lead acid batteries. Used batteries may be dropped off at battery wholesalers or retailers, secondary smelters, or a collection or materials processing facility that accepts batteries. 1-800-CLEANUP has a recorded list of collection sites sorted by zip code.

Disposal **LAST RESORT**

Automobile batteries, under state law, may not be legally disposed of in landfills or incinerators. They must be recycled.

¹ Georgia Recycling Fact Book. James E. Kundell and Katherine Inman. Carl Vinson Institute of Government, The University of Georgia, 1994. p. 127.

²O.C.G.A. §12-8-28

Brake Fluid

Brake fluid is an alcohol-based hydraulic fluid used to transmit braking pressure to the brake pads. Brake fluid may contain glycol ethers. Used brake fluid may also contain benzene, lead, and other heavy metals. Some ingredients of brake fluid are considered flammable, poisonous, a skin and eye irritant, or toxic.

Source Reduction **PREVENTS THE NEED FOR DISPOSAL**

To minimize the amount of brake fluid that must be managed or the hazards associated with its use:

- keep the vehicle properly maintained;
- change the brake fluid twice a year or when dirty (brake fluid is golden in color; dirty brake fluid is brown or black.);³
- watch for leaks in the brake system and repair any leaks;
- buy only as much brake fluid as needed; and
- store any unused brake fluid in tightly capped containers to prevent it from being spilled or contaminated by other materials.

Recycling/Reuse Options **TRY THIS NEXT**

Brake fluid is recyclable. In order to collect brake fluid for recycling, place it in a clean, leak-proof container and contact the local recycling coordinator to see if a collection program is scheduled for your area. Their number can be accessed via 1-800-CLEANUP or www.1800cleanup.org on the Internet. If a collection is not available, contact service stations or auto parts stores to see if they will accept brake fluid for recycling. To close the recycling loop, purchase recycled brake fluid.

Disposal **LAST RESORT**

If the brake fluid cannot be reused, given away, or recycled, then read and follow the product's label for the manufacturer's instructions on proper disposal. If recycling is not feasible, under state law, if generated by household use, solidified brake fluid can be legally disposed of in a permitted, Subtitle D landfill. Before attempting to dispose of brake fluid in this manner, contact the local landfill to find out if they meet this requirement. If curbside waste pick-up is provided, contact the service provider to find out if the waste is being disposed of in a landfill which meets this requirement. To solidify the brake fluid, mix the brake fluid with enough absorbent material such as cat-box filler to absorb all free liquids. Place the solidified brake fluid in a bag or wrap in newspaper before disposing in a landfill. The empty container should be recycled, if possible. For a list of recycling sites, contact 1-800-CLEANUP or www.1800cleanup.org on the Internet. If it cannot be recycled, then the empty container can be disposed of in a landfill.

³ Overbeck, Steve. *In the Garage*, Internet.

Brake fluid should not be poured down drains (inside and outside), in the storm sewer, or on the ground. This can cause ground water contamination and/or operational problems with the septic system or POTW.

The information contained in this publication is only intended to further the public interest by facilitating the proper management of certain consumer items. This information has been assembled from a variety of sources. The authors make no warranty, express or implied, or assume any legal liability or responsibility for the products, processes, or information disclosed in this publication. No endorsement or criticism of any product is implied. Only the consumer can determine what best meets his/her needs. Local ordinances and regulations may supersede the best management practices described in the document.

Gasoline

Gasoline is a petroleum-based hydrocarbon fuel used to power internal-combustion engines. Gasoline is flammable, an explosion hazard, toxic if inhaled, reactive with oxidizing materials, an irritant, and poisonous.

Source Reduction **PREVENTS THE NEED FOR DISPOSAL**

Alternatives to gasoline-powered vehicles include vehicles powered by electricity, liquefied petroleum gas (LPG), propane, solar energy, natural gas or other fuels. In the case of a lawn mower, consider using a manual or electric powered lawn mower. Before storing a gas-powered vehicle for extended periods of time, add stabilizers to the gasoline. This will decrease the need to drain and replace the gasoline in the engine before restarting.

Recycling/Reuse Options **TRY THIS NEXT**

If the gasoline is stale or has a small amount of water in it, consider purchasing a gas rejuvenator product which can be added to the gasoline. Small amounts of the gasoline can then be used in a lawnmower or other gas powered engine with caution. Another option to consider is to mix small amounts of the stale gas with large amounts of new gas at a ration of at least 7:1 parts new gas to old. The mixture can then be used in a lawnmower or other gas powered engine with caution.

Disposal **LAST RESORT**

If the gasoline cannot be reused or given away (try mechanics and repair shops) or if the gas has a large amount of water in it, contact the local recycling coordinator to see if a collection program is scheduled for your area. Their number can be accessed through 1-800-CLEANUP or www.1800cleanup.org on the Internet. Other possibilities for disposal include marinas, marine repair shops, and automobile repair shops. As a last resort, let the gasoline evaporate, in a well ventilated area, away from pets, children, and heat sources.

Gasoline should not be poured down drains (inside or outside), into a storm sewer, or on the ground. This can cause sewer explosions and/or can contaminate groundwater. Gasoline should not be used for cleaning. Do not mix gasoline with kerosene. Great care should be used when storing and handling gasoline. Clearly label the gasoline container. Keep gasoline away from an open flame and other heat sources. Store flammable liquids in a tightly closed, non-glass container. Store out of reach of children. Gasoline can produce invisible explosive vapors that can ignite by a small spark. Do not store flammable materials inside the home.

The information contained in this publication is only intended to further the public interest by facilitating the proper management of certain consumer items. This information has been assembled from a variety of sources. The authors make no warranty, express or implied, or assume any legal liability or responsibility for the products, processes, or information disclosed in this publication. No endorsement or criticism of any product is implied. Only the consumer can determine what best meets his/her needs. Local ordinances and regulations may supersede the best management practices described in the document.

Motor Oil

Motor oil lubricates the engine's moving parts and sometimes helps cool the engine. Used motor oil may contain chromium, lead, petroleum hydrocarbons, aromatic hydrocarbons, or zinc. Used oil may also be contaminated with other hazardous substances such as gasoline and other solvents and toxic chemicals such as antifreeze. Some components of used motor oil are considered flammable, toxic, poisonous, and a skin irritant.

Source Reduction **PREVENTS THE NEED FOR DISPOSAL**

There are no known less toxic alternatives. Synthetic oils are available that do not have to be changed as often as ordinary oils. To minimize the amount of motor oil that must be managed or the hazards associated with its use:

- keep the vehicle properly maintained;
- watch for and repair any oil leaks;
- buy only as much oil as needed;
- avoid spills while pouring or draining; and
- store any unused motor oil in tightly closed containers to prevent it from being spilled or contaminated with other materials.

Recycling/Reuse Options **TRY THIS NEXT**

Motor oil can be recycled or re-refined, a process where it is made into clean lubricant oil or motor oil. Used motor oil can also be burned as fuel; it is sometimes used as fuel at cement kilns and industrial furnaces in Georgia (where permitted) and as a substitute for fuel oil. To recycle motor oil, place it in a clean, leak-proof container and contact the local recycling center. Or, call 1-800-CLEANUP for a list of collection sites that accept used oil. In addition, Exxon Corporation maintains a list of Exxon service stations which accept used oil. For the nearest station, contact 1-800-732-1100. To close the recycling loop, purchase recycled/re-refined motor oil.

Disposal **LAST RESORT**

The best management option is to recycle motor oil.

Motor oil should *not* be poured down drains (inside or outside), into a storm sewer, or on the ground. This can cause ground water contamination and/or operational problems with the septic system or POTW. Motor oil should not be burned in wood stoves or fireplaces, because it produces toxic vapors.

Oil Filters

Oil filters are used to filter out any debris and sludge that the oil picks up as it circulates through the engine. Used filters contain motor oil and other impurities. Some of the oil components contained in the filter are considered ignitable and toxic.

Source Reduction **PREVENTS THE NEED FOR DISPOSAL**

There are no non-toxic alternatives to oil filters. To minimize the need to change oil filters:

- keep the vehicle properly maintained;
- use one of the more efficient filters now on the market that can last up to one year or 12,500 miles, instead of the 6,000 to 10,000 miles for conventional filters;
- purchase a car with a lifetime filter;
- use a washable, reusable filter; and
- install a by-pass filter that is changed every 25,000 miles.⁴

While these suggestions may minimize the need to change oil filters, they may not be practical or readily available options.

Recycling/Reuse **TRY THIS NEXT**

Oil filters are recyclable. The oil contained in the filter and steel components are recoverable. To prepare the oil filter for recycling, remove the filter from a warm engine and drain it immediately into a clean container, using the gravity draining method described below. While the remaining three methods described are acceptable methods of removing the oil from the filter, they are usually only available to a consumer who takes his car to a business that changes automobile oil.

The four methods for removing oil from oil filters are:

- **Gravity Draining:** Place the filter with the gasket side down in a drain pan. If the filter has an anti-drain valve, then the “dome end” of the filter should be punctured with a screwdriver. The filter should be allowed to drain for twelve to twenty-four hours.
- **Crushing:** A mechanical, pneumatic, or hydraulic device is used to crush the filter. This squeezes out the used oil and compacts the filter.
- **Disassembly:** A mechanical device separates the filter into its different parts. This allows most of the used oil to drain from the filter.

⁴The bypass filter pre-filters the oil before it runs through the standard oil filter.

- **Air Pressure:** The filter is placed in a machine that uses air pressure to force the used oil out of the filter.

The leak-proof container used to capture the used oil should then be tightly closed and taken to a location that accepts used oil. Crushed or dismantled used filters should be stored in a leak-proof container. Contact the local recycling center or local gas stations for the location of sites that accept used oil filters and used oil for recycling. Also, 1-800-CLEANUP has a list of collection sites for used oil filters. See the section on motor oil for information on recycling the oil collected from the draining process.

☐ Disposal LAST RESORT

If the oil filter cannot be recycled, then read and follow the product's label for the manufacturer's instructions on proper disposal. Under state law, gravity-drained oil filters can be legally disposed of in a permitted, Subtitle D landfill. Before attempting to dispose of oil filters in this manner, contact the local landfill to find out if they meet this requirement. If curbside waste pick-up is provided, contact the service provider to find out if the waste is being disposed of in a landfill which meets this requirement.

Solvents

Solvents are liquids used to clean parts of the car and for a variety of other purposes. Chlorinated hydrocarbon solvents are typically used to clean brake pads, rotors, drums, calipers, other brake parts, and CV joints. Carburetor, fuel injector, and choke cleaners contain detergents and chlorinated solvents that strip away contaminants. Engine degreasers are aerosol products containing surfactants and solvents that strip grease and clean metal. Some solvents may contain 2-butoxyl-1-ethanol, m-pyrol, aromatic naphtha, xylene, mineral spirits, n-propanol, naphthalene, 1,1,1-trichloroethane and petroleum distillates. Some components of solvents are considered flammable, toxic, poisonous, and an eye, skin, or mucous membrane irritant.

Source Reduction **PREVENTS THE NEED FOR DISPOSAL**

Less toxic alternatives are available. These include: non-chlorinated degreasers and cleansers, products that contain citrus oil, and water-based cleaners that contain detergents and/or emulsifiers. When choosing a product, read the label and consider purchasing a product that lists “Cautions” over “Warnings”, over “Danger/Poison”. Danger/Poison denotes a more hazardous property than Caution.

Recycling/Reuse **TRY THIS NEXT**

Solvents are recyclable; however, recycling may not be economically feasible for homeowners due to the limited quantities generated. Contact the local recycling coordinator to see if a collection program is scheduled for your area. Their number can be accessed via 1-800-CLEANUP or www.1800cleanup.org on the Internet.

Disposal **LAST RESORT**

If the solvent cannot be used up or given away, then read and follow the product’s label for the manufacturer’s instructions on proper disposal. If recycling is not feasible, under state law, solidified solvents, if generated by household use, can be legally disposed of in a permitted, Subtitle D landfill. Before attempting to dispose of solvents in this manner, contact the local landfill to find out if they meet this requirement. If curbside waste pick-up is provided, contact the service provider to find out if the waste is being disposed of in a landfill which meets this requirement. To solidify solvents, mix the solvent with enough absorbent material such as cat-box filler to absorb all free liquids and allow the mixture to harden. Place the solidified solvent in a bag or wrap in newspaper before disposing in a landfill. The empty container should be recycled, if possible. For a list of recycling sites, contact 1-800-CLEANUP or www.1800cleanup.org on the Internet. If it cannot be recycled, then the empty container can be disposed of in a landfill.

Solvents should *not* be poured down drains (inside and outside), in the storm sewer, or on the ground. This can cause ground water contamination and/or operational problems with the septic system or POTW.

The information contained in this publication is only intended to further the public interest by facilitating the proper management of certain consumer items. This information has been assembled from a variety of sources. The authors make no warranty, express or implied, or assume any legal liability or responsibility for the products, processes, or information disclosed in this publication. No endorsement or criticism of any product is implied. Only the consumer can determine what best meets his/her needs. Local ordinances and regulations may supersede the best management practices described in the document.

The information contained in this publication is only intended to further the public interest by facilitating the proper management of certain consumer items. This information has been assembled from a variety of sources. The authors make no warranty, express or implied, or assume any legal liability or responsibility for the products, processes, or information disclosed in this publication. No endorsement or criticism of any product is implied. Only the consumer can determine what best meets his/her needs. Local ordinances and regulations may supersede the best management practices described in the document.

Transmission Fluid

Transmission fluid is used to lubricate gears, bearings, and shafts within automatic transmissions and provides for heat dissipation. It also carries hydraulic pressure to cause transmission engagement and gear shifts. Transmission fluid contains hydrocarbons. Some of the components of transmission fluid are considered flammable, an irritant, and toxic.

Source Reduction **PREVENTS THE NEED FOR DISPOSAL**

There are no known less toxic alternatives. There are ways, however, to minimize the use of and the hazards associated with transmission fluid. These include:

- keeping the vehicle properly maintained;
- watching for and repairing any leaks;
- avoiding spills while pouring or draining;
- buying only as much transmission fluid as needed;
- storing any unused transmission fluid in tightly capped containers so as to prevent it from being spilled or contaminated with other materials; and
- purchasing, if possible, recycled transmission fluid.

Recycling/Reuse Options **TRY THIS NEXT**

Transmission fluid is recyclable. Most recycling sites for used motor oil will accept transmission fluid. To recycle transmission fluid, place it in a clean, leak-proof container, and contact the used motor oil recycling sites (see used motor oil section) to see if they will also accept transmission fluid for recycling.

Disposal **LAST RESORT**

If the transmission fluid cannot be reused, given away, or recycled, then read and follow the product's label for the manufacturer's instructions on proper disposal. If recycling is not feasible, under state law, solidified transmission fluid, if generated by household use, can be legally disposed of in a permitted, Subtitle D landfill. Before attempting to dispose of transmission fluid in this manner, contact the local landfill to find out if they meet this requirement. If curbside waste pick-up is provided, contact the service provider to find out if the waste is being disposed of in a landfill which meets this requirement. To solidify transmission fluid, mix the transmission fluid with enough absorbent material such as cat-box filler to absorb all free liquids. Place the solidified solvent in a bag or wrap in newspaper before disposing in a landfill. The empty container should be recycled, if possible. For a list of recycling sites, contact 1-800-CLEANUP or www.1800cleanup.org on the Internet. If it cannot be recycled, then the empty container can be disposed of in a landfill.

Transmission fluid should *not* be poured down drains (inside or outside), in the

storm sewer, or on the ground. This can cause ground water contamination and/or operational problems with the septic system or POTW.

The information contained in this publication is only intended to further the public interest by facilitating the proper management of certain consumer items. This information has been assembled from a variety of sources. The authors make no warranty, express or implied, or assume any legal liability or responsibility for the products, processes, or information disclosed in this publication. No endorsement or criticism of any product is implied. Only the consumer can determine what best meets his/her needs. Local ordinances and regulations may supersede the best management practices described in the document.