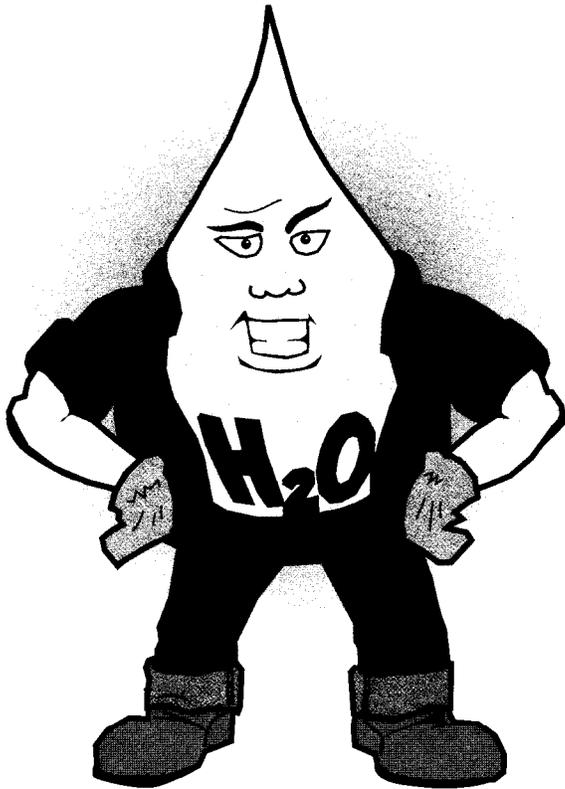




AQUEOUS BRAKE WASHERS

Best Environmental Practices for Auto Repair and Fleet Maintenance • November 1999



Aqueous brake washers perform as effectively as traditional solvent washers, they are better for the environment, and they reduce hazardous waste management costs and liability.

WHAT ARE YOU WAITING FOR?

If you perform 20 or more brake jobs per month, you can purchase and operate an aqueous brake washer and achieve payback in less than 2 years. This payback threshold was estimated assuming the following:

- Aerosol brake cleaner = \$2 per can
 - Aqueous solution = \$10/year
 - Aqueous brake washing unit = \$800
 - Filters = \$20/year
 - 1 can used per brake job
- Costs include purchase only.*

Which brake washing method is best for the environment?

Washing brakes before inspection and repair helps create a clean work area. It also removes dust and debris that prevent the brakes from functioning properly and cause squeaking and grinding. Brake washing can be performed using three devices: 1) aerosol cans of solvent-based brake cleaner, 2) solvent brake washing units, or 3) aqueous brake washing units. The best environmental practice is to use aqueous brake washing units.

Aqueous brake washing units use water-based cleaning solutions. These solutions are nonflammable and generally less toxic than petroleum-based solvents. Furthermore, aqueous cleaners contain little or no volatile organic compounds (VOCs) that can harm the environment and shop employees. Aqueous brake washing units are widely available and perform as well as solvent-based equipment; however, aqueous brake washers have the following advantages:

Advantages of using aqueous brake washers

- Little or no solvent vapors or aerosol mists that can be harmful to your workers' health.
- Nonflammable
- Do not contribute to smog formation, climate change, or ozone depletion.
- No empty aerosol cans discarded as bulky, nonbio-degradable trash.
- Reduces overall environmental and safety liabilities for your shop.
- Can save you hundreds of dollars per year after payback period.

How aqueous units work

Most aqueous brake washing units function much like sink-top parts cleaners. Aqueous brake washers feature a portable basin that can be adjusted to fit under the wheel assembly. Units with adjustable sink height are preferred by most technicians. Compressed air pumps the aqueous solution through a hose and a flow-through brush. A filter is often used to collect debris and keep the solution clean. Aqueous units range in cost from \$500 to \$1,200 to purchase, or \$45 to \$85 per month to lease (lease cost includes waste management).



Keeping aerosol products away from aqueous brake washers



If you use aerosol brake cleaners to spot clean or dry brakes after aqueous brake washing, be aware that many aerosol products contain F-listed chemicals. An F-listed chemical is a chemical that makes each waste it contaminates a hazardous waste, no matter what its concentration in the waste is. Even one drop of an F-listed aerosol solvent that drips into your brake washing solution is enough to make it a regulated hazardous waste! If you must use aerosol products to spot clean, always move the aqueous brake washing unit away from the brake area first. To save time and avoid potential regulatory problems altogether, use compressed air to dry brakes rather than aerosol brake cleaner.

Managing wastes

When purchased, aqueous brake washing solutions contain proprietary compounds that are either nonhazardous or considerably less hazardous than solvents. With proper filtration and regular addition of fresh solution to make up for evaporatives losses, many shops can go for years without requiring solution disposal. Over time however, contaminants build up creating sludge and making the solution less effective. Waste solution, sludge and filters may contain metals washed off the brake assembly, or solvents that mistakenly dripped into the sink and contaminated the solution. Waste solution, sludge and filters should be shipped off-site as either hazardous or non-hazardous wastes. Get data, or test the waste stream at least once to make this determination, and dispose of the waste solution and filters accordingly. Some unit vendors will dispose of the spent solution for you and include the cost of this service in the unit's rental price.

Ask the vendor

- How often will I need to change the solution?
- How much will it cost to refill the unit?
- How often will I need to change the filters?
- How should I dispose of solution and filters?

If the vendor recommends dumping solution down the drain or filters into the trash, ask them to pay for testing the waste solution and filters to determine proper disposal methods. Aqueous brake washing wastes (solution and filters) must be disposed of according to state and local regulations governing sewage treatment and solid and hazardous waste. In some states, the filters can be recycled.

2 HOW AQUEOUS UNITS WORK

Did You Know? An informal survey of San Francisco Bay area shops revealed that aqueous solution is changed about once every 3 years, on average.

VENDOR CONTACTS FOR AQUEOUS BRAKE WASHERS	
Clayton Associates	(800) 248-8650
Kleer-Flo	(800) 328-7942
Mirachem	(800) 847-3527
Raybestos	(800) 407-9263
Safety-Kleen	(800) 669-5840
KleenTec	(800) 435-5336
Safe CleanUp Solutions	(888) 848-0879

These vendors provided information for this fact sheet. This list is not complete: other vendors may provide similar or identical products and services.

Your state or local government environmental agency has more information about compliance and pollution prevention for auto repair shops and fleet maintenance operations in your state or area. Additional fact sheets and information can be found at www.epa.gov/region09/p2/autofleet. This fact sheet is part of a package of fact sheets entitled either "The Pollution Prevention Tool Kit, Best Environmental Practices for Auto Repair" (publication number EPA-909-E-99-001) or "The Pollution Prevention Tool Kit, Best Environmental Practices for Fleet Maintenance" (publication number EPA-909-E-99-002). To obtain copies of either package, call (800) 490-9198. Accompanying videos, "Profit Through Prevention", are available at the same phone number for either auto repair (number EPA-909-V-99-001) or fleet maintenance (number EPA-909-V-99-002).



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