

# Integrating P2 into the Permitting and Enforcement Process

## Auto Service and Repair/Solvent Usage Industry

Auto service and other industry groups that use solvents for parts washing often use a variety of processes and chemicals that generate wastes ranging from ignitable and toxic solvents to excess metal parts for recycling. Significant quantities of recyclable wastes, as well as hazardous and solid wastes, are common for this industry group. For this reason, their processes are usually associated with hazardous and solid waste regulations. However, when very large solvent use operations and/or when services are combined with other pollutant-generating activities, such as collision repair services, the air regulations may also apply. Typical wastes generated by this industry type include ignitable and/or toxic solvents, used oil, antifreeze, batteries and parts, and shop rags.

**Enzymatic parts washing:** Enzyme cleaners use active enzymes to actually digest oils and other soils from parts, allowing the solution to be used indefinitely; some shops have been using their systems for almost two years, adding only more enzyme and water with no loss of cleaning power. These systems are much gentler on the mechanics' hands, warm in winter, and are very safe to use. Some parts may take a little bit longer to clean, but most workers agree it's not significant and is worth the time to avoid the health hazards associated with breathing solvent fumes. *Waste parts-washing fluid disposal virtually goes to zero with the use of these units.* Unit costs are comparable to other sink-on-a-drum style units equipped similarly (filters and heaters). Use of an aqueous enzyme-detergent system significantly reduces hazardous waste generation from the parts-washing process. Total costs with equipment purchases are about \$2130 initially and when compared to a traditional solvent system, the enzymatic system pays for itself within about 2.3 years.

**Permitting:** The use of these systems, instead of traditional solvents, may make the difference between needing an air permit and avoiding one. This may be an especially good suggestion for businesses that are just above the permit threshold. POTWs that have metal problems associated with the discharge of aqueous cleaners may want to suggest this alternative, as no discharges are made to the POTW with this system.

**SEP:** Depending on the penalty size, a portion of the monetary penalty could be offset through the use of these units that greatly reduces hazardous waste generation. Businesses could also support an educational campaign that would instruct similar operations on the pros and cons of the different parts-washing units, highlighting environmental compliance issues.

**Aqueous parts washing:** A case study conducted in California between 1997 and 1999 details the successful switch from solvent to aqueous parts washing. Most aqueous parts-washing options decrease the toxicity and sometimes the quantity of hazardous waste generated. It does not eliminate hazardous waste generation though, as aqueous solutions become contaminated with regulated metals when

used. Even if the solution passes a TCLP test, it may still fail POTW discharge standards. For this reason, caution should be used when a company switches to an aqueous cleaner. However, the shop and the entire community can benefit from the great reductions in VOCs.

The summary of the detailed study, complete with comparison charts, is available at [www.dtsc.ca.gov/docs/sppt/pptd/pp/docs/ppfactsheetsautorepair.html](http://www.dtsc.ca.gov/docs/sppt/pptd/pp/docs/ppfactsheetsautorepair.html). The study looked at all shop sizes and types, as well as different aqueous units. Units ranged in cost from \$700 to \$10,000, with paybacks as short as three months and as long as seven years.

**Permitting:** This type of P2 alternative is very beneficial for businesses needing to reduce their VOCs, especially where local limits may be more strict due to local non-attainment conditions. Caution against false perceptions and waste media transfer is needed.

**SEP:** This type of P2 option could be used for an air, water, or hazardous waste SEP. Other ideas related to the use of these parts washers include sponsoring educational or on-site consultation related to the advantages and environmental compliance issue concerning aqueous parts washing.

**Solvent distillation:** On-site distillation of solvents works well for operations that use large amounts of solvent such as fleet maintenance, painting operations, or manufacturers that do a lot of degreasing. For example, one shop's annual solvent purchases went from 100 drums to three drums per year after purchasing a distillation unit. An average distillation unit costs about \$6000; returns 90-97% clean solvent, and for a shop that uses approximately 500 gallons of solvent a year in a painting operation, the payback period is about two years.

**Permitting:** If raw product purchases are greatly reduced, then an air permit avoidance or lower classification may be allowed. Hazardous waste generation remains constant.

**SEP:** The use of this type of technology could be part of a hazardous waste or air P2 enforcement project. It could also be a portion of a multimedia SEP project where applicable.

**Antifreeze recycling:** Waste antifreeze can be recycled in three different ways: on-site recycling, off-site recycling, and through mobile recycling services. On-site recycling closes the loop, as waste antifreeze contaminants are removed by filtration, distillation, reverse osmosis, or ion exchange. Critical antifreeze properties are then restored with additives. Typical filtration or ion-exchange units have the capacity of treating four to five gallons an hour and can cost anywhere from \$3,000 to \$14,000 per unit capital cost.

**Permitting:** This type of P2 information could be shared with large fleets and municipalities when they apply for air, waste, or water permits.

**SEP:** The use of this type of technology could be part of a hazardous waste or wastewater SEP. It could also be a portion of a multimedia SEP project where applicable. This could also be a POTW or HHW type of project.