ADEQ Arizona Department of Environmental Quality

RESOURCE SUMMARY

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Pollution Prevention (P2) for Automotive Maintenance and Repair

The automotive maintenance and repair industry handles a variety of toxic substances. With some planning and the following tips, you can help reduce pollution as well as save money.

Inventory and Planning

Conduct an audit, identifying waste streams and opportunities to reduce those waste streams. Use First-in, First-out (FIFO) to avoid the accumulation of expired products; computerize inventory so employees can check if parts/materials are in stock before placing an order; and train employees on how to identify, segregate and manage hazardous waste.

Also, try scheduling similar jobs together to process multiple cars that need primer or paint. Then, you can prevent accumulation and disposal of waste paint by managing raw paint inventory.

Painting

Mix only the amount of paint needed, mixing small amounts first until the color matches. Consider keeping a color library[4] and using computerized mixing.

Clean surfaces thoroughly before painting to prevent reapplication. Use low or no Volatile Organic Compound (VOC) paints, avoiding paints that contain toxic metals like cadmium, chromium and lead. Instead, consider using water-based primers and paints.

Consider removing the specific vehicle part that needs painting prior to painting to reduce overspray, using coating application methods with high transfer efficiencies and using High Volume Low Pressure (HVLP) systems.[4]

Follow paint and spray gun instructions from manufacturer to ensure optimal use. Also make sure to train employees on proper use of spray guns and equipment, and use automatic paint gun washers with filtration systems to extend solvent life, save time and reduce solvent evaporation loss.[1]

Consider laundering reusable wipes. See EPA's Final Rule: 2013 Conditional Exclusions From Solid Waste Hazardous Waste for Solvent-Contaminated Wipes.[5]

Parts Cleaning

Determine if a part needs to be clean and how clean it needs to be. Use dry pre-cleaning methods such as wire brushing before placing parts in solution, and manual brushing to remove some solids and increase the life of bath solvent. A two-stage cleaning system ensures the final wash is clean.[1]

Use water-based cleaning solution with low or no VOCs,[2] and consider aqueous cleaning units such as microbial sink tops, spray cabinets, ultrasonic or immersion type units.[3] Use a parts cleaner system with ultrasonic or mechanical agitation, and consider installing on-site solvent recovery equipment.

Eliminate the use of hazardous cleaners and lubricants containing chlorinated solvents. Only turn a parts washer on when cleaning parts, unless you are using a microbial sink unit, since microbes need a heated environment.[3]

Monitor and maintain solution quality. Remove sludge and oil as needed.[2]

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Consider filtering your aqueous solution to extend the life of the solution.[2] Drain parts well before removal, and install drip trays near cleaning units to drain clean parts. Collect the drainage and return to parts washing equipment.

Only use solvent-based cleaners for the specific purpose in the self-contained system, and ensure solvent sinks are operating properly and well maintained.

Additional P2 Tips

- Use fewer toxic cleaners, solvents and antifreeze containing Propylene glycol. Check out EPA's Safer Choice[6] to identify safer chemicals and products for performing the task.
- Consider using an on-site antifreeze recycler or have a recycling service collect used antifreeze for recycling.
- Use brake pads and shoes that do not have asbestos or copper.
- Use longer lasting synthetic oils.
- Use alternative to aerosol cans such as manual pump cans or spray bottles that can be refilled.
- Practice good housekeeping techniques to avoid/minimize spills.
- Use lead-free solder and wheel weights.[7]
- Consider bio-based brake cleaners or engine degreasers.
- Recycle and reuse radiator flush with an on-site closed loop, recirculating flush system.[7]

References

[1] DTSC's Paint Spray Gun Cleaning.
[2] MA Office of Technical Assistance Water Based Parts Cleaning.
[3] Thurston County Business Pollution Prevention Program, Aqueous Parts Washers.
[4] DTSC Pollution Prevention and Compliance Opportunities Checklist.
[5] EPA's Final Rule 2013 Conditional Exclusions from Solid Waste and Hazardous Waste for Solvent-Contaminated Wipes.
[6] EPA's Safer Choice Program.
[7] Make the Switch presentation by Green and Clean Program, Boston Public Health Commission.

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