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Parts Washers

This guidance document has been produced by the Nebraska Department of Water, Energy, and Environment (DWEE) to provide information about the hazardous waste generated by parts washers and common types of parts washers. Parts washers are used to clean dirt, oils, grease, and other materials from mechanical parts. The regulations applying to this topic can be found in Nebraska [Title 128 – Hazardous Waste Regulations](#).

Solvents

Parts washers use a wide variety of solvents in the cleaning process. Common solvents include organic compounds such as N-methylpyrrolidon (NMP), glycol ethers, petroleum distillates, aqueous detergents, terpenes, and microbial enzymes. Some cleaners use a combination of organic solvents and water. Non-hazardous solutions may become hazardous after washing parts due to elevated concentrations of heavy metals or toxic organic substances. Some halogenated organic solvents such as 1,1,1-trichloroethane (TCA) and 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113) are being phased out due to concerns about their impact on air quality and human health.

Hazardous Waste

Spent parts washer solvents may be a hazardous waste due to containing a “listed” hazardous waste or by exhibiting a characteristic of hazardous waste. “Listed” hazardous waste can be contained within the solvent itself or can be generated by the solvent mixing with a “listed” waste. “Listed” wastes are not determined by analytical testing but by knowing if the solvent is, or has been mixed with, a “listed” waste. Refer to Title 128, Chapter 3, §§[013](#) - [016](#) for full descriptions of “listed” hazardous wastes.

If it is not known whether the waste contains a “listed” hazardous waste, then analytical testing of the waste is required to determine if the waste exhibits one or more of the following characteristics of hazardous waste:

1. Ignitability – Flash point below 140°F (60°C)
2. Corrosivity – pH below 2.0 or above 12.5
3. Reactivity
4. Toxicity – Contains one or more constituents found in Title 128, Chapter 3, Table 3 above regulatory levels

Analytical Testing of the Waste

Analytical testing of waste generated by each parts washer is required to determine if any characteristics of hazardous waste are present in the waste. Documentation of testing results and sampling techniques used for each parts washer must be maintained on-site.

Retesting is required when there is any process change in the facility or parts washer, or a change in the solvents used that affects the waste generated by the parts washers. Variable waste streams will require more frequent testing.

Analytical testing of waste for waste determinations must be based on the waste generated on-site and you must perform your own waste determination. Solvent supply services that pick up spent solvent and replace it with new solvent may provide a waste determination. These are not considered to be adequate waste determinations by DWEE.

For more information on performing hazardous waste determinations, see the DWEE Guidance Document titled "Waste Determinations & Hazardous Waste Testing."

Types of Parts Washers /Suppliers

Batch Washers

Batch washer systems clean multiple parts in one run. The most common types are immersion tanks and spray cabinets that use agitators, oscillators, sprayers, and ultrasonics in the cleaning process.

Aqueous and Semi-Aqueous Cleaning Washers

Aqueous and semi-aqueous washer systems are usually spray cabinets that use detergents or terpene-based solvents diluted with water rather than straight organic solvents.

Ultrasonic Cleaning Washers

Ultrasonic washer systems use a transducer to create millions of tiny bubbles that expand and collapse to produce a scrubbing action on the part being cleaned.

Filtration Washer Systems

Filtration washer systems work by filtering the solvent so that it can be reused. Typically, two types of filters are used in stages and the solvent can go years before being considered "spent." Some replacement solvent is required periodically to account for losses due to drag-out and evaporation.

Bioremediation Washer Systems

Bioremediation washer systems use a pad to filter the solvent and enzymes and microbes that "eat" the oils and greases in the solvent. Aqueous solvents are typically used in bioremediation washer systems.

Solvent Distillation Recovery Systems

Solvent distillation units distill the organic solvent and return the cleaned solvent to the parts basin. The distillation bottoms produced during this process must be analytically tested and if hazardous, they must be managed as hazardous waste.

Spent Solvent Reuse System

Solvent reuse washer systems use spent organic solvents “as is” as an actual product. This allows the users of the parts washer solvent to ship the solvent out as a product rather than as a hazardous waste (Title 128, Chapter 2, §003.05A1). Users of this type of washer system must have management practices in place to prevent the introduction of “F” listed solvent waste into their parts washer.

General Guidelines

- Avoid using solvents with a flash point below 140°F (60°C)
- Avoid using F-listed solvents described in Title 128, Chapter 3, Table 4
- Do not allow the use of any other solvents in or over the parts washer to avoid contamination
- Do not allow any non-business-related parts or items to be cleaned in your parts washer to avoid contamination
- Do not add chemicals or detergents to the cleaning water that cause oil to emulsify and pass through oil/water separators, if installed
- Never drain spent organic solvents to any sanitary sewer or septic system
- Do not empty spent aqueous parts washer wastewater into a septic system
- If you drain spent aqueous parts washer wastewater to a sanitary sewer that is connected to a publicly owned wastewater treatment plant, check for any pretreatment requirements of the system
- If you use a solvent service, consider the longest service interval that fits your needs and stagger the servicing months to minimize the amount of waste being generated within a month as it will affect your hazardous waste generator status

RESOURCES:

- DWEE Home Page <https://dwee.nebraska.gov/>

Contacts:

- DWEE Main Number (402) 471-2186
- DWEE Toll Free Number (877) 253-2603
- DWEE Hazardous Waste Compliance Assistant (402) 471-8308
- Email questions to: DWEE.moreinfo@nebraska.gov

DWEE Publications:

- Environmental Guidance Document – “Waste Determinations & Hazardous Waste Testing”
Guidance documents are available on the DWEE website by clicking “Visit Nebraska Department of Environment and Energy (DEE),” selecting “Forms,” and “Publications, Grants & Forms.”
- [Title 128 – Nebraska Hazardous Waste Regulations](#)
Titles are available on the DWEE website by clicking “Visit Nebraska Department of Environment and Energy (DEE),” selecting “Resources and Services,” “Laws & Regulations,” and “Rules & Regulations.”

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