



Navy Environmental Quality Fact Sheet



Do you use industrial wipe rags?

Would you like to improve this process in the following areas?

- **Meet environmental compliance regulations.** Reduce hazardous waste disposal and eliminate the need for industrial wastewater pretreatment. Media areas are wastewater and hazardous waste.
- **Improve workers' safety and health.** Possible reduction in the storage of hazardous wastes.
- **Increase productivity.** System requires additional personnel to operate equipment.
- **Save money.** Lower laundry operating costs and reduce hazardous waste disposal costs.



Ozone Laundry System at PWC San Diego

*An Ozone Laundry System provides a new, low-cost, environmentally friendly option for cleaning soiled or oily industrial wipe rags. Naval industrial activities typically use fabric rags for wipe cleaning and spill cleanup. Most activities either dispose of the soiled rags as hazardous or solid waste, recycle the rags using a commercial laundry service, or clean the rags using a conventional hot-water laundry. The ozone laundry system offers improvements over existing conventional laundry systems, including the following: 70% less water pollution, when the Chemical Oxygen Demand (COD) of the wastewater was used as a measure of pollution; and 27% lower operating costs. These savings resulted from the elimination of the need for hot water, reductions in water use, shorter cycle times, and less laundry chemicals. It also eliminates the rag counting and management costs associated with use of a commercial laundry service. **This technology has been successfully demonstrated at Public Works Centers San Diego and Pearl Harbor.***

How can you achieve these improvements?

Use an ozone laundry system to recycle industrial wipe rags.

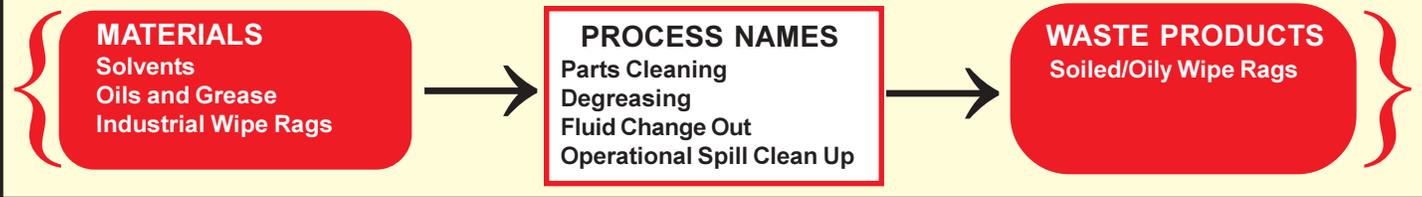
How does this system work?

The system consists of an industrial washing machine that has been modified to add a pump/piping loop. Soiled industrial wipe rags are laundered in cold water with the addition of gaseous ozone that is generated using a corona discharge ozone generator.

How will this system save you money?

This system eliminates hazardous waste disposal costs, rag laundry service management costs, and minimizes laundry operating costs. Depending on the current rag disposal process, activities may expect an ozone laundry system to have a payback period of less than two years.

Typical Process Flow Diagram



How can this technology eliminate or reduce pollution?

This technology recycles soiled industrial wipe rags, many of which are currently disposed of as hazardous waste. Implementation of this technology will result in the following pollution reductions:

- Reduce the volume of hazardous waste.
- Reduce the generation of water pollution when compared to a conventional industrial laundry.

Which installations can benefit most from this technology?

This technology can be used at activities that handle soiled industrial wipe rags. Typical activities include:

- Naval air stations
- Naval stations
- Public works centers
- Remote activities

How can this technology reduce regulatory compliance concerns?

Wastewater from the ozone rag laundry system may be discharged directly to the sanitary sewer system without pre-treatment. Implementation of this technology will result in the following regulatory compliance benefits:

- Helps activities meet the pretreatment and effluent limits of their NPDES permit (40 CFR 122).
- Helps activities meet pretreatment standards for discharges of wastewater into a POTW (40 CFR 403).
- Reduction in hazardous waste helps facilities meet the requirement of waste minimization under RCRA, 40 CFR 262.41 (a) (6).



Achieving Environmental Compliance Through Pollution Prevention

Every day the Navy faces the challenge of operating and maintaining the fleet while complying with environmental regulations. This burden can be reduced by using pollution prevention technologies and methods to reduce compliance requirements. This fact sheet is one in a series designed to encourage activities to use pollution prevention technologies and methods. The overall goal of this series is to promote sustained environmental compliance at the lowest life-cycle cost.

For additional information, contact:

Naval Facilities Engineering Service Center (NFESC) User Data Package for Ozone Oily Rag Laundry System UDP-2007-ENV, December 1999. (Web: <https://www.denix.osd.mil/denix/Public/Library/Air/Oilyrag/udp2007.html>)

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