



Do you use chemical cleaners or solvents for cleaning operations?

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

- **Meet environmental compliance regulations.** Eliminate use of hazardous chemical solvents and their associated air emissions for specific applications. Reduce generation of waste solvents. Media areas include air and hazardous waste programs.
- **Improve workers' safety and health.** Reduce exposure to hazardous solvents.
- **Increase productivity.** Reduce labor hours for TRI and NESHAP reporting.
- **Save money.** Reduce hazardous waste disposal costs and regulatory liabilities.



Microbial Cleaner Effectiveness

Cleaning products and chemical solvents containing hazardous compounds are widely used at Navy installations for a variety of operations, including component/equipment cleaning, facilities/workspace cleaning, degreasing, parts washing, and vehicle/equipment maintenance. Microbial/bioremediating products are now available to clean surfaces contaminated by oils, greases, fats, and other hydrocarbon substances. Cultures of microorganisms (microbes) remain dormant in the cleaning solution until it is mixed with water and exposed to the hydrocarbon contaminant. The microbes remediate the contaminants naturally by breaking them down into the harmless by-products of carbon dioxide and water. When the hydrocarbon products have been removed, the microbes ingest each other until the water supply is exhausted and they return to the dormant state. These products may be used in industrial locations where oils, greases, and hydrocarbons may be present, such as concrete shop floors, workspace benches, food handling and preparation surfaces, parking lots, and other equipment/component surfaces. Effectiveness of one microbial cleaning product was successfully demonstrated at Naval Station Mayport. **Microbial cleaning products are available from commercial vendors.**

How can you achieve these improvements?

Use microbial cleaning products.

How does this system work?

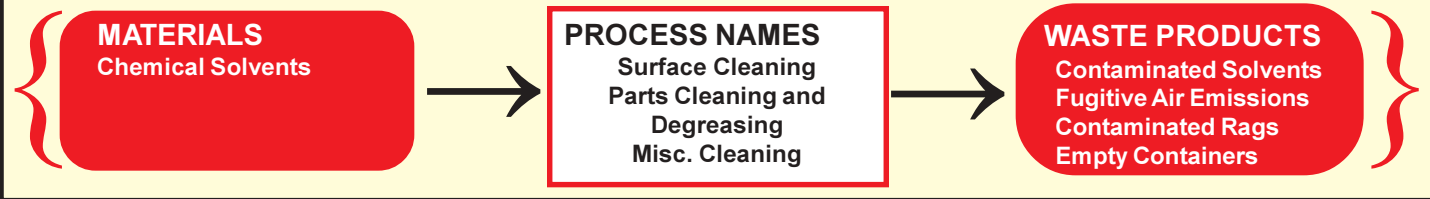
Cultures of microorganisms in the cleaning solution consume, clean, and remediate surfaces contaminated by hydrocarbons, chemicals, oils, fats or greases.

How will this system save you money?

Using microbial cleaners reduces costs associated with reporting requirements and regulatory liabilities. Eliminate hazardous material disposal costs.



Typical Process Flow Diagram



How can this technology eliminate or reduce pollution?

This P2 technology replaces harmful chemical solvents with non-hazardous microbial cleaning products. Implementation will result in the following pollution reductions:

- Eliminates use of hazardous chemical solvents and associated fugitive air emissions.
- Reduces the amount of hazardous waste generated.

Which applications can benefit most from this technology?

Microbial/bioremediating cleaners can be used in processes that use solvents to remove oil, grease, fats, and other hydrocarbons from surfaces, parts, or equipment. Typical applications include:

- Shop floors and parking lots
- Food preparation and handling areas
- Equipment/component cleaning
- Workspace surfaces

How can this technology reduce regulatory compliance concerns?

This technology eliminates the use of hazardous chemical solvents, thereby reducing VOC emissions and waste generation. Implementation will result in the following regulatory compliance benefits:

- Reduction in hazardous waste helps facility meet the waste minimization requirement under RCRA, 40 CFR 262.41 (a) (6).
- May help facilities reduce their generator status and lessen the tasks required to comply under RCRA, 40 CFR 262 (i.e., recordkeeping, reporting, inspections, transportation, accumulation time, and emergency response measures).



Note: Consult with your base Environmental Safety and Health (ESH) Office or the Navy Environmental Health Center (NEHC) before using any biological-based cleaning products. Toxicological evaluations/analyses may be required to determine if personal protective equipment or measures are necessary.

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.

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