Navy Environmental Quality Fact Sheet

Do you manually clean livefront electrical switchgear?

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

- ***Meet environmental compliance regulations***. Reduce use of solvents and hazardous waste disposal. Media area is hazardous waste.
- ***Improve workers' safety and health***. Eliminate worker exposure to chemical solvents. Protective equipment is required.
- ***Increase productivity***. Clean livefront electrical switchgear without power outages.
- ***Save money***. Reduce costs associated with power outages. Reduce labor costs for cleaning operations.

Swtichgear Cleaning at NAVSTA San Diego

Carbon Dioxide (CO_2) pellet media blasting is a technique used to clean energized power distribution equipment as an alternative to chemical solvent cleaning. Navy public works center personnel are periodically required to clean large electrical load interrupter (livefront) switches. The current maintenance practice is to de-energize the equipment with a scheduled power outage, then manually wipe surfaces with rags, using synthetic oil, grease, or a chlorinated solvent. With the carbon dioxide pellet media blasting technique, maintenance can be performed without having to de-energize the equipment with a power outage. Particles are propelled at high velocities from a nozzle to impact and safely clean the equipment surface. The contaminant is then swept up or blown away from the equipment. This technique eliminates the difficulty of scheduling power outages and the high costs associated with night or weekend cleaning operations. ***This technology has been successfully demonstrated at Naval Station San Diego.***

How can you achieve these improvements?

Use CO_2 pellet blasting equipment for cleaning livefront electrical switchgear.

How does this equipment work?

Contaminants are removed from the equipment surface by the impact of CO_2 pellets. The high velocity flow shears and lifts the contaminant off the surface with minimal or no surface damage and leaves no residual waste.

How will this equipment save you money?

Eliminates scheduled power outages and avoids the high costs associated with night or weekend cleaning operations. Typical cost to implement is $160,000, including mounting truck.

Typical Process Flow Diagram

How can this method eliminate or reduce pollution?

The use of CO_2 pellet blasting equipment will not result in significant pollution reductions because of the relatively small amounts of materials used for cleaning livefront electrical switchgear. The primary benefit of this technology is in performing maintenance operations without having to schedule a power outage and de-energize the equipment.

Which activities can benefit most from this method?

This technology can be used at installations that are required to regularly clean load interrupter switches. Typical activity impacted will be:

- Navy public works centers

How can this method reduce regulatory compliance concerns?

Use of CO_2 pellet blasting equipment for cleaning livefront electrical switchgear will result in the following regulatory compliance benefit:

- Reduction in hazardous waste helps facilities meet the waste minimization requirement 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 Technical Report, TR-2091-ENV, "Cleaning of Livefront Electrical Switchgear using Carbon Dioxide Pellets at Navy Installations," May 1998.

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