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WAUKESHA ELECTRIC SYSTEMS' POSITION ON CLEAN UP OF ENVIROTEMP™ FR3™ FLUID

Background

Cleaning Procedures described in Cooper Power Systems Bulletin S900-20-1 are as follows:

Cleanup of Envirotemp FR3 fluid on surfaces is most effective when the Envirotemp FR3 fluid spills and drips are fresh. S-34™ aqueous cleaner [1] has been found to be effective. Apply cleaner with a pump spray or cloth, followed by hand wiping with a clean cloth and/or spray washing. Refer to the S-34 cleaner Material Safety Data Sheet for information on the chemical content, safety, environmental and health hazards.

A thin film of Envirotemp FR3 fluid will polymerize over time making it increasingly more difficult to clean. The extent of polymerization depends on air exposure time, temperature and UV or sunlight. For example, the extent of polymerization of a thin film of Envirotemp FR3 fluid after 1 day at 100°F in air is minimal, while after 7 days it would be partially polymerized and tacky to the touch. Exposure of a thin film of Envirotemp FR3 fluid to 200°F in air for 5 days would result in polymerization to a dry state.

For partially polymerized Envirotemp FR3 fluid, apply S-34 cleaner with a pump spray and allow a 15 minute soak time at 70°F, followed by hand wiping with a clean cloth using moderate rubbing. Multiple applications may be necessary depending upon the extent of polymerization of the Envirotemp FR3 fluid. Use shorter soak time at higher temperatures and longer soak time at lower temperatures.

For Envirotemp FR3 fluid polymerized to a semi-hard or hard consistency, scraping, light sanding or paint touch-up may be required in addition to vigorous scrubbing. User should consult with their company's policy regarding the use of personal protective equipment.

For spills into the environment, the reporting would typically be the same as for conventional mineral oil. Waterway spills would likely be subject to US Environmental Protection Agency SPCC rules. Soil spills would likely be subject to state regulations, typically on a case-by-case basis. Because of the highly biodegradability of FR3 fluid, the clean up may be easier than with conventional mineral oil. It is less likely that soil dig up would be required.

In the newly published IEEE Std C57.147™-2008 Guide for Acceptance and Maintenance of Natural Ester Fluids in Transformers, Section 9 titled "Safety and Environmental Care Procedures," is a good source of information on this subject and should be consulted.

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[1]Ecolink, Inc., 1481 Rock Mtn. Blvd., Stone Mountain, GA 30083 phone 800-886-8240, www.ecolink.com.



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