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Bureau of Air Mgt. (AIR/3)

DEPARTMENT OF NATURAL RESOURCES
Southeast District
Air Compliance Inspection

DATE OF INSPECTION: October 12, 1981

DATE OF PRIOR INSPECTION: April ~~20~~ 17, 1979

FACILITY INFORMATION:

Name Freeman Chemical Corporation
Address Railroad Street
City Saukville
County Ozaukee
Classification - Minor
Area - Nonattainment for Ozone

CONTACTS: Paul W. Schaefer, Plant Manager
James Reyburn, Solid Waste
David Seitz, Air Management

COMPLIANCE SUMMARY:

Source (Process #)	Regulation	Status
Solid Waste Incinerator	NR 154.11(6) Visible Emissions	In Compliance
	NR 154.11(5) Particulate Emissions	In Compliance
Waste-water Incinerator	NR 154.11(6) Visible Emissions	In Compliance
	NR 154.11(5) Particulate Emissions	In Compliance
Tank Farm	NR 154.13(2) Storage of VOC's	Exempt (see paragraph on Tank Farms)
Resin Manufacturing	NR 154.13(11) Other Direct Hydrocarbon Sources	In Compliance

FACILITY DESCRIPTION:

This facility manufactures alkyd, polyester, and urethane resins. As described in AP-40, polyester resins may be manufactured from saturated or unsaturated polyhydric alcohols and polybasic acids. Alkyd resins are a form of polyester resins. Monobasic acids, usually naturally occurring fatty acids are used. Heat and catalysts are required in the chemical reaction. Urethane resins are formed by the reaction of a polyester resin with tolyene diisocyanate and water. An emulsifying

agent, polymerizing catalyst and silicone lubricant are also used. The plant contains approximately 90 material storage tanks and several reaction vessels. The plant processed nearly 25,000 tons of materials annually. Emissions from this plant are currently being studied. Therefore, no quantity is available as yet.

SOURCE DESCRIPTION:

Resin Manufacturing

These processes are condensation reactions carried out in several reaction kettles. Condensers are used to control organic vapor emissions and simultaneously collect water which evolves in the reaction. This is the wastewater which is injected into the incinerator. It is reported that the wastewater contains xylene in a 2% concentration.

Tank Farm

The plant has storage facilities for raw and finished materials and also for thinning of resins with solvents. Vapor pressures of all items in this facility fall below regulatory levels for volatile organic compound storage.

Solid Waste Incinerator

The incinerator contains a primary combustion chamber and a secondary chamber with an afterburner. Xylene is used as a primary fuel.

Wastewater Incinerator

This incinerator contains only a primary combustion chamber. The operator indicated that wastewater is not injected until he feels the temperature is sufficient for good destruction of xylene in the wastewater. The temperature is estimated to be 1800°F and may require 2 hours before the combustion chamber is brought to this temperature. Currently the temperature is not monitored but, Freeman Chemical indicates that a continuous recorder has been ordered. The operator indicated that at maximum operating capacity, 30,000 gallons of wastewater can be disposed of per 24 hours of operation. Autoignition temperatures for the forms of xylene range from 867°F to 982°F. Evaporative cooling from the injection of the wastewater may be significant resulting in poor combustion of the xylene fraction.

OBSERVATIONS AND ADDITIONAL COMMENTS:

It was indicated that this plant is no longer receiving wastewater for incineration from the company's plant in Virginia. Instead, we are told the wastewater is being sent to a facility in North Carolina for disposal. It was further indicated that Freeman Chemical has interim status as a hazardous waste storage facility, disposal facility, and transporter under the federal RCRA (Resource Conservation Recovery Act, 1976) regulations. Solid waste is enforcing the state's rules which

have been adopted under this program. These rules deal more effectively with the incineration of Freeman's wastewater, which may or may not be classified as hazardous under the RCRA regulations. Freeman is in the process of forming an opinion on this issue. They indicated they are conducting various tests as required in the federal regulations to certify the wastewater as nonhazardous.

DS:bg

cc: Bureau of Air Management (2) - AIR/3
Gary Edelstein-SW

Submitted By:

David F. Seitz

Noted:

Larry Nightingale