

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N588657946

FACILITY: MERCURY DISPLACEMENT INDUSTRIES		SRN / ID: N5886
LOCATION: 25028 US 12 EAST, EDWARDSBURG		DISTRICT: Kalamazoo
CITY: EDWARDSBURG		COUNTY: CASS
CONTACT: Mike Brewers , Plant Manager		ACTIVITY DATE: 03/23/2021
STAFF: Rachel Benaway	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: On-site inspection to verify compliance with all state and federal air use regulations.		
RESOLVED COMPLAINTS:		

Due to Covid-19 health and safety precautions, all AQD inspections are now announced and scheduled prior to entry to a facility. The purpose of this scheduled inspection on 3/23/2021 by AQD staff, Rachel Benaway, was to verify Mercury Displacement Industries (MDI) (N5886) compliance with air use Permit to Install (PTI) #50-18A and all state and federal air use regulations. MDI is located at 25028 U.S. 12 East in Edwardsburg, MI. The facility produces mercury relays and float switches and is a minor source of HAPS. Mike Brewers is the Plant Manager and the contact for the facility.

Permitted equipment at the facility consists of 2 welding booths (EU-WELDROOM), mercury dispensing fill station (EU-FILLSTATION), soldering stations (EU_SOLDERSTATION), epoxy pouring stations (EU-EPOXYPOURING), 2 curing ovens (EU-CURINGOVENS), and a storage area (EU-STORAGE).

There were no visible emissions observed outside of the facility and no odors detected within the limits of the parking lot. The facility is operating 5 days a week, 1 shift per day and has approximately 30-40 employees. The facility has no boilers and reports that no major modifications, removals, or installations of equipment have occurred since the last inspection on 6/6/2016.

Mercury is stored in an 800 lb container and transferred to a smaller dispensing container at the fill station where the switch tubes are filled manually. The tubes are transferred in wooden holding crates to the welding stations where plungers are inserted. At the welding stations, a vacuum pump replaces oxygen with hydrogen or argon before the tubes are welded closed. This process is exhausted outside in a sporadic/intermittent manner resulting in the inability to conduct typical stack test operations (SV-WELDROOM-01 and -02). The switch tubes are emersed in a leak detection fluid before leaving the welding stations.

The soldering stations that further process the switches have a hood that vents to a stack on the roof (SV-SOLDERSTATION).

The epoxy pouring stations further process the plastic float assemblages. The plastic float switch cases are made by a reaction injection mold process and are then cured in the ovens that exhaust through a stack on the roof (SV-EPOXYPOURING). Staff received an MSDS for the epoxy.

The facility uses methylene chloride for parts washing in a 5-gallon dip tank that was installed in the mid 1990's. The cleaner is exempt via Rule 281(h) but is subject to 40 CFR 63 Subpart T. Staff received an MSDS for the methylene chloride. The facility reported purchasing 615 pounds (1 drum) last year on 4/8/2020 and 600 pounds on 10/14/2020. Methylene chloride is recovered in

a "still" in the warehouse that was purchased in 1993 and is exempt under Rule 285(u). Since the facility uses less than one ton of methylene chloride a year, they are not subject to 40 CFR 63 Subpart 6H.

FG-MDI

PTI #50-18A

SC	Condition	COMPLIANT?	Y	N
I.1	EU-SOLDERSTATION Hg limit: 10,000 ng/m ³		X	
I.2	EU-FILLSTATION Hg limit: 40,000 ng/m ³		X	
I.3	EU-EPOXYPOURING Hg limit: 4,000 ng/m ³		X	
I.4	EU-CURINGOVEN Hg limit: 10,000 ng/m ³		X	
III.1	Shall not manufacture more than 1,560 switches in EU-WELDROOM a day		X	
III.2	Equipment shall be maintained to minimize generation of fugitive emissions		X	
III.3	Handle all Hg in manner to minimize fugitive emissions		X	
III.4	Shall not operate FG-MDI more than 8 hours a day		X	
III.5	BMPP		X	
V.1	Test monthly during operation for 12 months		X	

SC V.1 requires the facility to submit 12 consecutive months of emissions testing with a Lumex detector. Records of this testing have been submitted in a timely manner since the issuance of this PTI. Mr. Brewers was completing the testing for this month on the roof as Staff arrived for this inspection.

Monitoring/Recordkeeping:

PTI #50-18A

SC	Condition	COMPLIANT?	Y	N

VI.1	Keep records of date and description of spills, estimate amount spilled and emissions	X	
VI.2	Keep records of operating hours on a daily basis	X	
VI.3	Keep records of test results on file	X	
VI.4	Keep records from EU-WELDROOM: Number of common (Large) switches produced Number of small switches produced Total number of switches produced	X X X	
VI.5	Keep records of number of pounds of Hg purchased on a monthly basis	X	
VII.1	Notify AQD w/in 48 hours of any spill 100 grams or greater	NA	
VII.2	Submit semi-annual report: Jan-June 30 (July 31) and July-Dec 31 (Jan 31) Daily records of switch production for EU-WELDROOM Daily hours of operation for FG-MDI Monthly Hg purchase records Test results performed	X X X X X	

The facility is tracking the scrap Hg accumulated each day but was not including this value in their submitted records. Staff requested that this amount is added into their records to show compliance with SC VI.1. The facility recently submitted their semi-annual reports from July to December 2020, but Mr. Brewers resubmitted them after adding the scrap Hg column and added records for January and February 2021 to complete a current records review. Records are included with this report.

At this time, the facility appears to be in compliance.

NAME Rachael Benaway

DATE 5/12/2021

SUPERVISOR RIL 5/19/21