

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N589844072

FACILITY: MASTER FINISH COMPANY		SRN / ID: N5898
LOCATION: 2020 NELSON SE, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Aaron Mulder , CEO		ACTIVITY DATE: 04/10/2018
STAFF: April Lazzaro	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced, scheduled inspection.		
RESOLVED COMPLAINTS:		

Staff, April Lazzaro arrived at the facility to conduct an unannounced, scheduled inspection and met with John Mulder, President. Shortly thereafter Aaron Mulder, chief Executive Officer, Dan Vander Mass, Environmental Manager and John Haley, Maintenance Supervisor joined us.

FACILITY DESCRIPTION

Master Finish Company is a plating facility that conducts chrome and nickel plating on metal substrates. There are five areas or departments, pre-plate, barrel plating of nickel alloy onto steel, auto rack plating line also called the Cycle Master and the Hoist line, and the nitric acid rack cleaning operation. I informed Mr. Mulder of the AQD state-wide initiative to inspect chrome plating operations for data on Perflurooctane sulfonic acid, also known as PFOS. Mr. Mulder informed me that Master Finish was a part of the 2013 trials to switch to PFOS free surfactants/fume suppressants and have not used PFOS containing materials since then. Master Finish is also involved in national PFOS meetings representing the plating/finishing industry. The facility operates pursuant to three Permits to Install (PTI) although it was discovered that two additional permits for this facility exist for this location that were previously unaccounted for. PTI No. 276-69 was for old chrome plating equipment that is no longer present at the facility. A void request has been sent to Lansing. The equipment permitted as PTI No. 35-14 was never installed, and since it has passed the 18-month installation window with no plan to install the equipment, a void request has been sent to Lansing. PTI No. 76-94 is for the existing nitric acid rack stripping operation. Master Finish Company was unaware that there was a permit for this, and a copy was provided to them. PTI No. 75-94B covers two decorative hexavalent chrome plating tanks known as EUCHROME1, three decorative trivalent chrome plating tanks known as EUCHROME2, and an electrolytic passivation bath that meets the definition of chromium anodizing known as EUPASSIVATION which are part of the Hoist Line. The hexavalent chrome emissions are controlled through the use of mist suppressant and a composite mesh pad scrubber and the trivalent chrome emissions are limited through use of mist suppressant. PTI No. 74-94A is for the single hexavalent chrome plating tank known as chrome tank 6 which is exhausted to a composite mesh pad scrubber; acid tank 7 and cleaner tank 88. The barrel plating of nickel alloy is internally vented and exempt from permitting pursuant to Rule 285(2)(r).

COMPLIANCE EVALUATION

During the pre-inspection meeting, we discussed at length the surface tension limit exceedance that occurred on May 22, 2017. Mr. A. Mulder explained that they had done a plating line chrome tank clean out, wherein they transfer the contents of the chrome tank to a dedicated separate holding tank, then clean out any solids at the bottom. Then, the same liquid is sent back to the plating line, which is all done without any electrical current. Once the tank gets a chance to settle a bit, they take a surface tension reading. Usually, this takes place on Saturday with the surface tension reading taken Sunday/Monday morning prior to production. In this instance, the change out took place on Sunday. In the estimation of the company, the tank did not get a chance to settle with all the mist suppressant going back up to the top. The first pre-production reading taken measured 49.6 dynes/cm. After an additional add of mist suppressant and time, they re-tested and the surface tension reading was at 31.2 dynes/cm. Due to the fact that there was no current in the tank or plating activities to liberate chromium, a violation will not be cited at this time.

During the roof top inspection it was noted that Master Finish had changed the ventilation on the woods nickel tank. Previously it was internally vented and as such exempt from permitting per Rule 285(2)(r). In July of 2017, Master Finish changed the ventilation to an external system with a composite mesh pad scrubber installed on the roof. I questioned Master Finish as to what exemption the tank currently

operates under and explained that it no longer qualifies for Rule 285(2)(r) because it is not internally vented. Master Finish had not evaluated this change to determine if it needs a permit, and as such no records were available at the time of the request. The AQD sent a letter formally requesting an exemption demonstration pursuant to Rule 278a. Additionally, the AQD requested that Master Finish add this scrubber to the O&M Plan/Malfunction Abatement Plan pursuant to Rule 911. The pressure drop gauge read 2" H₂O at the time of the inspection. Master Finish informed me that they currently have hired a consultant to conduct calculations to determine whether the woods nickel unit is exempt from permitting.

The Hoist Line (PTI No. 75-94B) scrubber was visually inspected for leaks and composite mesh pad breakthrough. Even though I brought a flashlight to look inside, it was not effective and as such a thorough internal pad inspection was not successful. The inlet pressure drop gauge read 0.8" H₂O and the outlet pressure drop gauge read 2.8" H₂O. The acceptable range as listed in the O&M Plan is listed as 0.04-3.0" H₂O. The scrubber pressure drop was within the parameters of the O&M Plan, however a review of those parameters has been requested to verify that they meet the manufacturer's recommended range. This information has not yet been received. Photos of the exterior of the scrubber are also attached. While no current leaks were observed, a review of the photos indicate there have been many patch jobs on the exterior of the unit and overall level of maintenance unclear. This is evidenced by a variety of missing screws etc. In the attached photo, you can see this and the residential homes adjacent to the facility. Quarterly inspections are part of the O&M Plan, and Master Finish indicated there have been no issues, while the pictures tell a different story. See attached for an example of the maintenance log. Maintenance could be improved on this unit and Master Finish has committed to doing so.

The Cycle Master Line (PTI No. 74-94A) scrubber was visually inspected for leaks and composite mesh pad breakthrough. Similarly to the Hoist Line scrubber, I could not easily see inside to inspect the pad even though I had brought a flashlight. A small liquid leak was occurring at a seal. The inlet pressure drop gauge read 0.1" H₂O and the outlet pressure drop gauge read 3.6" H₂O. The acceptable range as listed in the O&M Plan is listed as 0.01-3.8" H₂O. Photos of this are attached. The scrubber pressure drop was within the parameters of the O&M Plan, however a review of those parameters has been requested to verify that they meet the manufacturer's recommended range. This information has not yet been received. Master Finish staff were able to stop this small leak prior to me leaving the facility, and as such it will not be cited as a violation. As indicated above, maintenance could be improved on this unit and Master Finish has committed to doing so.

The current O&M Plan was last updated in 2013, and due to the small leak I requested that the plan be updated. Master Finish submitted two sheets of paper as part of the maintenance schedule in response. As such, I clarified that I wanted an updated O&M Plan (and provided the current plan as an example of my expected re-submittal). Additionally, in the O&M Plan, the checklist has the pressure drop range that is considered acceptable. In the plan narrative it states that "compliance with the air permit requires that pressure reading must be within +/- 2 inch of water from the established MFC standard". This is an incorrect interpretation of the permit language. The permit states that "if the pressure drop across the control varies by more than +/- 2 inch of water gauge, from the pressure drop determined during the compliance testing or as specified by the manufacturer, the permittee shall document and review O&M procedures. With a current inlet pressure drop range of 0.01"-3.8", that could mean that an inlet pressure drop of negative 1.99" is still acceptable per this plan. A negative pressure drop on the inlet would not be acceptable, and would be an indication of improper operation. I have requested in writing via e-mail (attached) that the manufacturer submit the recommended ranges to the AQD for clarification. This information has not yet been received.

The Nitric Line (PTI No. 76-94) scrubber appeared as expected, and I was told that the stack and fan were recently replaced due to failure of the fan. Master Finish stated that they were replaced with identical equipment. The Nitric Line scrubber should be added to the O&M Plan as well.

The Hoist Line and the Cycle Master Line were visually inspected inside the facility, although the Cycle Master Line was not plating at the time of the inspection. Mr. Mulder stated that there have been no recent tank replacements, however there have been various tank liner replacements.

The trivalent chromium includes the surfactant/wetting agent as part of the package of ingredients, which appears acceptable. The term package doesn't literally mean in the same container, it is

synonymous to the proper combination of different chemicals that are used to make up the correct balance in the tank to conduct quality plating.

CONCLUSION

The AQD sent a letter formally requesting an exemption demonstration pursuant to Rule 278a. The response letter was received prior to the deadline and the company has identified Rule 291 as the appropriate exemption for the woods nickel tank. The written demonstration and calculations for this exemption, which is based on uncontrolled potential to emit has been placed in the file.

Master Finish was in compliance at the time of the inspection.

NAME *April Laggard*

DATE 6-19-18 SUPERVISOR *HB*