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

N681827633

FACILITY: Linn Products Inc		**SRN / ID:** N6818
LOCATION: 1200 Lipsey Drive, CHARLOTTE		**DISTRICT:** Lansing
CITY: CHARLOTTE		**COUNTY:** EATON
CONTACT: Mark Korienek , Maintenance/Tooling Manager		**ACTIVITY DATE:** 10/22/2014
STAFF: Michelle Luplow	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Scheduled, unannounced compliance inspection.		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow
Other AQD Staff Present: Keisha Williams, Toxics Unit

Personnel Present: Mark Korienek, Maintenance/Tooling Manager (mkorienek@linnproducts.net)
Joe Kolwick, General Manager (jkolwick@linnproducts.net)

Purpose:
Conduct an unannounced scheduled compliance inspection of Linn Products. Facility was last inspected September of 2009.

Facility Background:
Mark Korienek, Maintenance/Tooling Manager for Linn Products, said that 70-80% of the time they acid and base-etch and anodize aluminum power sunroof tracks for various automobile manufacturers, including Toyota and GM. The remaining 20% of the treated parts are for the architectural (conveyors, hinges, etc) industry. Other processes onsite include buffing(exempt per Rule 285(l)(vi)), pressing, and stamping (both exempt per Rule 285(l)(i)).

Inspection:
K. Williams and I arrived at Linn Products at approximately 11:00 a.m. October 22, 2014 and met with Mark Korienek. I provided M. Korienek with an "Environmental Inspections: Rights and Responsibilities" brochure as well as a May 2012 Permit to Install Exemptions handbook. M. Korienek said that the entire scrubber system for both the anodizing and etching processes, including the stacks, was replaced approximately 3.5 years ago. M. Korienek said this was done to accommodate the added volume associated with the installation of an acid etch tank that occurred approximately 1.5 years ago in early 2012. He said that the ERM consulting firm in Grand Rapids worked closely with Linn Products to ensure that the new scrubber system was sufficient for handling the additional tank. The additional tank is used for a hydrofluoric acid etch process for the cosmetic appeal of the aluminum parts. Linn Products has provided a Rule 290 exemption demonstration for the hydrofluoric acid etch tank. The replacement of the old packed bed scrubber systems for both emission units is exempt per Rule 285(d) because the new equipment has an equivalent control efficiency of 99% (99% efficient to 2 microns for the anodizer's mist eliminator and 99% efficient to 6 microns for the caustic etch/strip scrubber). The control efficiencies for the previous equipment was also 99% efficient according to permit engineer Jeff Rathbun's permit evaluation.

PTI 141-00A
Permit for 3 aluminum anodizing tanks containing H_2SO_4 (EUALANODIZING), and aluminum etch and strip tanks containing NaOH (EUETCHSTRIP). The emissions from these processes are controlled by their own separate scrubber systems. The permit describes the scrubber systems as packed bed scrubbers; however, Linn Products has replaced the packed bed scrubbers with composite mesh pads (CMP) for the EUALANODIZING scrubber (Enforcer III) and a fume scrubber (MW-300) for the caustic EUETCHSTRIP tanks.

EUALANODIZING
Process/Operational Restriction 1.1 requires that no more than 7200 square feet per hour be processed through the anodizing equipment. M. Korienek provided me with records from late September through mid-October. He said Linn Products runs 2 12-hour shifts 3 – 4 days per week. He provided me with a list all square footage run through the anodizing process from 9/24/14 through 10/15/2014. He calculated square footage per hour by dividing by 24 (two 12-hour shifts). None of the operational days exceeded 7200 square feet per hour. Additionally, M. Korienek said that the most each rack hold is 1000 square feet and Linn Products has the capability of only treating 6 racks per hour; therefore, on any given day, Linn Products would never exceed 6000 square feet per hour. Linn Products is in compliance with Special Condition (SC) 1.1 as well as SC 1.6 for keeping records on file of the amount of parts treated per hour.

Maximum sq. ft. of material/hour running through anodize process

Date:	Square Feet:	Production Hours:	Sq Ft per Hour:
9/24/2014	86,753	24	3,615
9/25/2014	50,435	24	2,101
9/29/2014	78,521	24	3,272
9/30/2014	77,321	24	3,222
10/1/2014	85,414	24	3,559
10/6/2014	74,685	24	3,112
10/7/2014	79,236	24	3,302
10/8/2014	99,607	24	4,150
10/13/2014	68,162	24	2,840
10/14/2014	99,476	24	4,145
10/15/2014	51,593	24	2,150

SC 1.2 requires that the scrubber system for the anodizing process be operated according to manufacturer's specifications for the pressure drop and liquid flow rate. SC 1.3 requires that the scrubber system for EU ALANODIZING be equipped with a pressure drop indicator and liquid flow indicator; SC 1.4 and 1.5 require that the pressure drop of the scrubber be monitored once per week and that the liquid flow rate of the scrubber be monitored on a continuous basis, respectively. SC 1.5 also requires that the liquid flow indicator have an alarm that sounds when the liquid flow rate drops below the manufacturer's recommended minimum liquid flow rate.

M. Korienek said that the Enforcer III scrubber has a nameplate allowable pressure drop range of 1" – 5" w.g. at Stage 4 of the scrubber. He said they monitor the pressure drop once per week. Although the permit does not require pressure drop records be kept, M. Korienek provided me with pressure drops for the anodizing (acidic) process for the past month. As indicated in the table below, Linn Products has maintained appropriate pressure drops for the Stage 4 scrubber. Linn Products is in compliance with SC 1.3 and 1.4.:

Anodizer acid mist eliminator (inches of H_2O):

	Stage 1	Stage 2	Stage 3	Stage 4
9/24/14 -	1.9	.1	.4	1.8
10/1/14 -	2.1	.1	.3	2.1
10/8/14 -	2.0	.2	.4	1.8
10/15/14 -	1.9	.1	.3	2.0

M. Korienek said that the liquid flow rate is determined by liquid flow indicators that are monitored daily and that the flow runs at 70 gallons per minute (gpm) 6 times per day for 30 second intervals. The manufacturer's acceptable range is 60 – 80 gpm. M. Korienek said the water level alarm sounds when the tank level drops below 75% full, at which point he said the refill cycle is automatically initiated. Linn Products is in compliance with SC 1.2 and 1.5 at this time.

The required stack height for the EUALANODIZING scrubber is 25 feet above ground level. M. Korienek reported via email that the new stack height for the scrubber is 33.5 feet. Linn Products is in compliance with this condition.

EUETCHSTRIP

Process/Operational Restriction 2.1 requires that no more than 7200 square feet per hour be processed through the EUETCHSTRIP equipment. M. Korienek provided me with records from late September through mid-October. He said the same number of square feet that is processed through EUALANODIZING is also processed through EUETCHSTRIP. As with the EUALANODIZING material limit evaluation, none of the operational days exceeded 7200 square feet per hour. Linn Products is in compliance with SC 2.1 as well as SC 2.6 for keeping records on file of the amount of parts treated per hour.

SC 2.2 requires that the scrubber system (MW-300) for the etching/stripping process be operated according to manufacturer's specifications for the pressure drop and liquid flow rate. SC 2.3 requires that the scrubber system for EU EUETCHSTRIP be equipped with a pressure drop indicator and liquid flow indicator; SC 2.4 and 2.5 require that the pressure drop of the scrubber be monitored once per week and that the liquid flow rate of the scrubber be monitored on a continuous basis, respectively.

M. Korienek said that the MW-300 scrubber has a nameplate allowable pressure drop range of 1" – 4" w.g.. He said they monitor the pressure drop once per week. Although the permit does not require pressure drop records be kept, M. Korienek provided me

with pressure drops for the etching process for the past month. As indicated in the table below, Linn Products has maintained pressure drops for the scrubber within manufacturer's specifications. Linn Products is in compliance with SC 2.3 and 2.4 at this time:

Etch/Strip Caustic Scrubber (inches of H_2O):

9/24/14 – 2.5
10/1/14 – 2.5
10/8/14 - 2.8
10/15/14 - 2.6

M. Korienek said that the liquid flow rate is determined by liquid flow indicators that are monitored daily and that the flow runs at 7.5 gallons per minute (gpm) 8 times per day at 60 second intervals, which occurs between 7 and 8 a.m.. This process he explained blows down the dirty water from the scrubber, and new water is replaced in the lower tank at this time. The manufacturer's acceptable range is 44 – 88 gpm. M. Korienek said a total of 60 gpm is flushed through the system between 7 and 8 a.m. Linn Products is in compliance with SC 2.2 and 2.5 at this time.

The required stack height for the EUETCHSTRIP scrubber is 26 feet above ground level. M. Korienek reported via email that the new stack height for the scrubber is 35.25 feet above ground level. Linn Products is in compliance with this condition.

Miscellaneous

There are 2 natural gas-fired ovens located onsite for heat treating parts. We verified onsite that the 3-chambered oven is rated at 10 MMBTU/hr and the other oven, "Oven #13", is rated at 1 MM BTU/hr. These are exempt from a permit to install per Rule 282(a)(i) for ovens that fire natural gas, rated at 10 MMBTU/hr or less and are used for heat treating metals.

Hydrofluoric Acid Etch Tank Rule 290 Demonstration

Linn Products' consultant, Andrea Reigler from ERM, conducted a worst-case scenario of emissions from the hydrofluoric acid etch tank to demonstrate compliance with Rule 290 and negate the need to get a permit.

Linn Products says that they would use no more than 270 lb/day of ammonium hydrogen difluoride in the tank and that 90% (wt%) of this is hydrofluoric acid (HF). For argument's sake I have assumed that the other 10% (which is accounted for in the MSDS) is ammonia. HF has an annual ITSL of 14 ug/m3 and ammonia has a 24 hr ITSL of 100 ug/m3, both of these compounds fall under Rule 290(a)(II)(A) for noncarcinogenic air contaminants with ITSLs greater than or equal to 2.0 ug/m3. The emission limits for these compounds is therefore 500 lb/month controlled emissions.

According to the calculation sheet for a 31-day month (see attached) and only assuming 90% of the 270 lbs is emitted (based on emissions of HF), Linn Products would be emitting 376.6 lb/month using a 95% control efficiency. However, to account for the additional 10%, I have assumed ammonia is also emitted (based on the MSDS sheet provided), and therefore 100% of the 270 lbs is being emitted. Using a 31-day month and 95% control efficiency, the estimated emissions for HF and ammonia are 418.5 lbs/month, which is under the 500 lb/month limit required in Rule 290 at worst-case scenario. They also provided me with monthly emissions from 10/1/2012 through 10/1/2014, and none of the lbs/month have exceeded worst-case scenario usages. Linn Products is in compliance with Rule 290 and therefore the acid etch tank is exempt from being permitted.

Linn Products is in compliance with all state and federal regulations at this time.

NAME Melissa Taylor DATE 11-14-14 SUPERVISOR M. Mucha