

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

B720550123

FACILITY: Knauf Insulation, Inc.		SRN / ID: B7205
LOCATION: 1000 E NORTH ST, ALBION		DISTRICT: Kalamazoo
CITY: ALBION		COUNTY: CALHOUN
CONTACT: Adam Estes , Technical Specialist, Corporate HSE		ACTIVITY DATE: 08/15/2019
STAFF: Amanda Chapel	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection of facility		
RESOLVED COMPLAINTS:		

On August 15, 2019 Air Quality Division’s (AQD) Amanda Chapel and Rachel Benaway (staff) arrived at Knauf Insulation LLC (facility) located at 1000 East North Street, Albion Michigan at 8:50 am to conduct an unannounced air quality inspection. The purpose of the inspection was to determine compliance with the Renewable Operating Permit (ROP) MI-ROP-B7205-2015b and Permits to Install 26-15D and 206-18 and all applicable state and federal air regulations. The following will summarize plant operations and facility compliance status.

The facility manufactures batt and blow-in-wool fiberglass insulation for residential, commercial, and industrial applications. The product is produced by taking sand, cullet, and additives and blend them together. This is sent to the furnace and is melted, fiberized, and either made into blow-in or mat insulation, packaged, and shipped off site. The last inspection was on August 16, 2017 and the facility was not in compliance at that time. The facility is a major PSD source and is major for VOCs, PM10, and CO. They are subject to 40 CFR Part 60 New Source Performance Standards (NSPS), Subpart PPP. They recently switched over technology to Knauf ECOSE binder technology which is phenol and formaldehyde free which makes them no longer a major source of HAPs and no longer subject to 40 CFR Part 63, Subpart NNN.

Staff drove around the facility to observe if any emissions or odor were present. There were no emissions or odors observed around the facility. We entered the facility and contacted Mr. Kevin Keen, Plan Manager who met us at the door and walked us to his office. We told him we were there to do an unannounced air quality inspection and said there would be both a plant walk through and a records review associated. Since the plant’s main environmental contact, Mr. Adam Estes, works offsite, Mr. Keen was going to need to contact him for the records review portion of the inspection. During the records review portion, Mr. Estes was on the phone and remotely took control of Mr. Keen’s computer and walked us through all the recordkeeping in the spreadsheets. We asked general questions of the plant’s operation. There have been no changes since the last inspection. FG-ML1ALB continues to be shut down until they can upgrade the line. Mr. Keen said that could be in December of 2020. In the meantime, conveyors have been removed and the line has been inoperable since January 2016.

The facility has an HMI software system that monitors process protection and control device parameter data on a continuous basis. The HMI software calculates 4-hour averages for all control device parameters and the system will send a notification to environmental staff if parameter set points established during emission testing may be exceeded under 40 CFR Part 60, Subpart PPP. Under this regulation, monitoring exceedances are defined as a value less than 70% of the lowest values recorded and/or a value higher than 130% of the highest value recorded during the most recent, successful performance test.

Mr. Keen gave us a tour of the facility. Required PPE is a hard hat, safety vest, safety glasses, hearing protection, and steel-toes boots. Longer hair needs to be up above the shoulders. The following will summarize staff observations, plant operations, and facility compliance status.

SOURCE WIDE CONDITIONS:

The facility is required to maintain and operate a 24-hour telephone reporting system to receive calls from area residents. Mr. Estes had a photo of the number out of the phonebook in the records. The number is 269-629-4792. It is still listed as Guardian in the phone book and he said they are working to get the name updated but it was a slow process.

The facility is also required to maintain facility-wide HAP emissions, both individual and aggregate HAPs

on a monthly and 12-month rolling basis. The HAP containing materials at the facility are Hexavalent Chromium, Lumulose, and Adjucal. The facility includes HAP content and weight percentage of each HAP contained in the HAP containing materials in their records. The facility also tracks Chromium emissions, but they are a byproduct of the hexavalent chromium, so they are not included as an additive that is tracked. Emissions for July 2019 were 0.0006 tons of Chromium, 0.0015 tons of 1,4 dioxane, and 0.0015 tons of ethylene oxide were emitted. The 12-month rolling total for HAPs was 0.0603 tons.

The facility appears to be in compliance with all requirements for the source wide conditions.

The following table summarizes the control device descriptions, operational parameters, gauge calibration dates, average 2019 test values, and parameters rates observed during the inspection. The furnace baghouses are equipped with a bag leak detection (BLD) systems. The BLDs, baghouse and scrubber pressure drop, and flow rate gauges are all calibrated quarterly. A bag leak detection maintenance/calibration form was obtained for 7/15/19 and is attached to this report as well as a daily dust collector maintenance check list.

EU: Control Device	Op. Parameter	Calibration Date	March/May 2019 Test Ave.	Inspection Value
ML2ALB Form Scrubber 1	Pressure Drop ("H2O)	8/6/19	7.59	7.61
	Flow Rate (gpm)	8/6/19	248.26	236.0
ML2ALB Form Scrubber 2	Pressure Drop ("H2O)	8/6/19	8.65	8.27
	Flow Rate (gpm)	8/6/19	247.52	212.6
ML2ALB Form Scrubber 3	Pressure Drop ("H2O)	8/6/19	8.92	8.51
	Flow Rate (gpm)	8/6/19	246.93	226.2
ML2ALB Cool Scrubber 1	Pressure Drop ("H2O)	8/6/19	7.93	6.75
	Flow Rate (gpm)	8/6/19	139.22	141.6
WBW: East 1A Scrubber	Pressure Drop ("H2O)	8/6/19	7.40	7.65
	Flow Rate (gpm)	8/6/19	249.43	301.6
WBW: East 1B Scrubber	Pressure Drop ("H2O)	8/6/19	8.09	9.16
	Flow Rate (gpm)	8/6/19	237.50	211.3
WBW: West 1C Scrubber	Pressure Drop ("H2O)	8/6/19	7.89	7.36
	Flow Rate (gpm)	8/6/19	243.78	243.5
WBW: West 2 Scrubber	Pressure Drop ("H2O)	8/6/19	7.77	8.16
	Flow Rate (gpm)	8/6/19	246.75	265.9
Furnace # 2 South Mactiflo Baghouse	Pressure Drop ("H2O)	7/25/19	3.9	3.9
	BLD (mg/m3)	7/25/19	0.15	0.28
Furnace 1.3&4: N. Rayjet Baghouse	Pressure Drop ("H2O)	7/25/19	3.5	3.8
	BLD (pico amps)	7/25/19	21.9	16.6
Furnace 1.3&4: S. Rayjet Baghouse	Pressure Drop ("H2O)	7/25/19	1.43	2.5
	BLD (pico amps)	7/25/19	14.73	7

EU-MATHAND:

This emission unit consists of equipment used for raw material receiving, conveying, weighing, mixing, storage, and feeding to the glass furnaces. The facility called this batch receiving. This area is controlled by internally and externally vented baghouses. We stepped outside the door to observe the loading operations. The materials are delivered by trucks, tankers, and rail cars. There are about 2-5 deliveries per day on average. This is stored in silos and then mixed to the appropriate recipe and then sent throughout the plant to the furnaces. The unloading is done a covered, three-sided building to control emissions. I obtained a copy of the weekly batch house opacity check sheet. If visible emissions are seen, there is a section for corrective actions or preventative measures taken to be recorded.

The facility is also recording the identity and weight of the raw materials delivered in tons/12-month rolling time period. The records for 2019 were reviewed.

The facility appears to be in compliance with the conditions in EU-MATHAND.

EU-FURNACE#2:

This furnace is the furnace for EU-ML2ALB line. It is currently the largest operational furnace at the facility. It discharges molten glass to channels that flow into a natural gas fired forehearth that feeds the fiberizers. The emissions are routed to the South Mactiflo baghouse. A second baghouse is installed and maintained as backup when maintenance is being performed on the main baghouse.

The following is testing results compared to the emission limits:

PM10	0.23 lb/ton glass pulled	Testing demonstrated less than 0.23 lbs/ton of glass pulled per hour	July 26-28, 2016
PM10	0.92 lbs/hr	0.216 lbs/hr	July 26-28, 2016

The rest of the associated equipment associated with the furnace is vented internally. The fiberizers associated with Furnace #2 have continuous pull rate monitors. If an alarm goes off, it is logged on a daily sheet and is logged in the HMI system. Mr. Estes notes the alarms whose code matches anything that could be an excursion of emission limits. If it is over 2-hours then the event is logged in the recordkeeping and emissions are tracked. There had been no malfunctions resulting in an exceedance over 2 hours in 2019. This SOP is used for all requirements on equipment requiring logging alarms.

In July, the facility emitted 526.52 lbs/VOC and the 12-month rolling total was 3.12 tons per year (tpy).

The facility appears to be in compliance with the conditions of EU-FURNACE#2.

EU-ML1ALBFORMING/EU-ML1ALBCURING/FG-ML1ALB:

This line was shut down on 1/31/16 and has not run since. The facility plans to upgrade this line to Knaf technology in 2020. They will be obtaining a PTI to do this upgrade before work is done. For this reason, this emission unit was not evaluated for compliance.

EU-FACESIZEPKG:

This emission unit consists of the sizing and packaging area for all resonated and non-resonated production lines combined and includes facing, trimming, dicing, and laminating operations. Most of the facing and all of the laminating operations were associated with ML1ALB and are no longer operational. The facility tracks cleaning material and inks associated with production, packing, and general plant cleaning as part of this emission unit. The facing material used on ML2ALB comes with adhesive already applied and the facility heats the material up to attach the facing.

In July 2019, the facility emitted 248.44 lbs of VOC and the 12-month rolling total was 3.67 tpy which is well under their limit of 31 tons/12-month rolling.

The facility appears to be in compliance with the conditions in EU-FACESIZEPKG.

FG-WBWALBFORMING:

This emission unit is covered by PTI 26-15D as the emissions limits have been increased since the ROP was issued. This is the facility's non-resinated fiberglass forming and collection process consisting of natural gas fired rotary spin fiberizers and conveyORIZED collection screens that use an externally vented venturi scrubber and silicone and/or dedusting oil. The alarm system on the scrubbers is the same one discussed in Furnace #2 and is monitored continuously. The line also includes a dicing operation with fugitive emissions from the use of an anti-static additive, silicone and/or dedusting oil application that uses internally vented particulate controls.

A stack test was completed in March and a re-test occurred in May. Below are the stack test results.

PM/PM10/PM2.5	Limit: 5.33 lb/ton glass pulled per hour	Testing demonstrated less than 5.33 lb/ton glass pulled per hour	Tested May 29, 2019
PM	Limit: 11 lb/ton glass pulled 2-hour avg	Testing demonstrated less than 11 lb/ton glass pulled 2-hour average	Tested May 29, 2019
PM/PM10/PM2.5	Limits: 23.98 pph hourly	Testing: 18.24 pph hourly	Tested May 29, 2019

The highest amount of glass pulled was below the daily limit of 119 tons/glass per day. Their 12-month rolling amount of glass pulled was under the limit of 39,420 tons.

The records show current SDS or manufacturers data for the raw material used in the emission unit. This information is contained in the spreadsheet used for recordkeeping. The HMI computer system monitors the pressure drop and the liquid flow rate.

The facility appears to be in compliance with the conditions in EU-WBWALBFORMING.

EU-BINDERMIX:

The binder mixing system includes ECOSE ingredient storage tanks, ECOSE binder mix tanks, and process water tanks. There is no phenol/formaldehyde binder mix stored on site. The facility tracks VOC and density of the raw material used in EU-BINDERMIX using SDS of manufacturer data. This is also included in the recordkeeping spreadsheet.

The facility appears to be in compliance with the conditions in EU-BINDERMIX.

FG-ML2ALB:

This emission unit is covered by PTI 26-15D as the emission limits have increased since the ROP was issued. This is the facility's resinated fiberglass forming and collection process consisting of natural-gas fired rotary spin fiberizers, one conveyORIZED collection screen, and binder and de-dusting agent/wax spray applicators as well as one conveyor-fed natural gas fired curing oven with cooling section. It is controlled by a high efficiency wet scrubber system.

A stack test was completed in March. Below are the stack test results.

PM/PM10/PM2.5	Limit: 5.59 lb/ton glass pulled per hour	Testing demonstrated less than 5.59 lb/ton glass pulled	Tested March 19-21, 2019
PM	Limit: 11 lb/ton glass pulled 2-hour avg	Testing demonstrated less than 11 lb/ton glass pulled 2-hour average	Tested March 19-21, 2019
PM/PM10/PM2.5	Limits: 25.19 pph hourly	Testing: 21.12 pph hourly	Tested March 19-21, 2019
Ammonia	Limit: 5.2 lb/ton glass	Testing demonstrated	Tested March 19-21,

	pulled hourly	less than 5.2 lb/ton glass pulled hourly	2019
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The facility tracks the amount of glass pulled daily. The highest amount of glass pulled daily was below the limit of 108 tons/glass per day. The facility is also limited to use no more than 100 lbs of de-dusting oil per ton of glass pulled. January was the month where this ratio was the highest in 2019. The monthly and 12-month rolling weight of glass pulled is being tracked.

The highest VOC emissions for this emission unit were in January 2019 with 51.87 lbs with a 12-month rolling VOC emission of 0.31 tpy which is well below their limit of 79 tpy VOC. The alarm system is set like the rest of those in the facility with the same SOP.

PTI 206-18 was issued for EU-ML2ALBFORMING to allow the facility to install a new mix tank as part of the process. A letter was received on 2/12/19 notifying the department that the dedusting agent tank was installed but not yet operational. It became operational on 3/18/19.

The facility appears to be in compliance with the conditions in FG-ML2ALB.

FG-FURNACE1,3&4:

This emission unit consists of Furnace #1 for FG-ML1ALB which is not in operation and Furnace #3 and #4 for FG-WBWALBFORMING. Testing results are below:

PM10	0.46 lb/ton glass pulled	Testing demonstrated less than 0.46 lb/ton glass pulled	July 26-28, 2016
PM10	2.08 lbs/hr	0.205 lbs/hr	July 26-28, 2016

The furnaces are monitored by the HMI software like the other emission units in the facility. The leak detection system is operated continuously. Information about the operating parameters and calibration information is in the above chart with the scrubber and furnace information. The alarm system protocol is the same as the other emission units on site.

In July, the PM10 emissions from this emission unit were 150.84 lbs, the chromium emissions were 0.29 lbs, and the VOC emissions were 1187.44 lbs. The 12-month rolling emissions for the pollutants are 0.96 tpy PM10, 0.0017 tpy Chromium, and 6.8 tpy VOC.

The facility appears to be in compliance with all the conditions in FG-FURNACE1,3,&4.

FG-RULE290:

This flexible group was traditionally used for trial substitute materials but most of the R&D is now done down in Shelbyville, Indiana.

The facility appears to be in compliance with all the conditions in FG-RULE290.

FG-COLDCLEANERS:

The facility has two cold cleaners on site. One is a Graymills Parts Cleaner installed in 2000 and one is a Crystal Clean Parts Washer model number 60779 installed in 2010. All this information is contained in the facility's recordkeeping spreadsheet.

We observed the Crystal Clean Parts Washer during the inspection. The lid was closed and a part was drying in the drying tray. It is filled with Crystal Clean 106+ mineral spirits and it is serviced by Crystal Clean. There were operating procedures posted clearly on the tank. It is not heated.

The facility appears to be in compliance with all the conditions in FG-COLDCLEANERS.

FG-RICEMACT:

This flexible group consists of all the diesel fired emergency generators on site which includes two 490

HP Detroit Diesel engines and one 823 HP CAT 3412 engine. The 250 HP Olympian engine was discontinued from use last year and has been rendered inoperable. All engines are fired on ultra-low sulfur diesel per fuel vendor data which is supplied to the facility. All engines have a non-resettable hours meter. Current readings:

Detroit diesel #1 (North): 557 hours
Detroit diesel #2 (South): 533.7 hours
CAT 3412: 616 hours

They are tested weekly for 30 minutes but not under load. The oil filters are checked and all are dated. Every year the oil is changed and all of the fluids are changed. The hoses are inspected for cracks. They were last changed in 2018. There was a log of the weekly maintenance checks visible on the engines. The VE checklist for each engine was located in the room with the Detroit Diesel engines.

The facility appears to be in compliance with all conditions in FG-RICEMACT.

FG-NSPSIII:

The two diesel emergency generators that were under this condition were replaced with one 900 BHP CAT model C18 from 2006. This met the requirements for exemption 285(2)(g) and a permit was not needed to replace the generator. The facility believes this generator is not subject to this NSPS and will be asking to have this removed during the ROP renewal.

The hours meter reads 214.1 hours and 12/28/18 is the last time the oil filter was changed. Currently, this engine undergoes the same maintenance as the engines subject to the RICEMACT.

Facility appears to be in compliance with all conditions in FG-NSPSIII.

FG-CAM_UNITS:

Scrubber control equipment for both resinated forming lines and the non-resinated forming processes are subject to Compliance Assurance Monitoring (CAM) under 40 CFR 64.6. The permittee is required to continuously measure scrubber pressure drop and liquid flow rate at least once every 4-hours during operation for the resinated lines. They are required to continuously monitor scrubber pressure drop and liquid flow rate every 4-hours for the non-resinated line.

The indicator range for the lines was established during the last round of testing. The scrubbers were last calibrated earlier in August, 2019 as noted in the large table at the beginning of the report. The facility submits to the department semi-annual reports of monitoring deviations and downtimes based on the HMI software.

The facility appears to be in compliance with all conditions in FG-CAM_UNITS.

FG-FIBERIZATION:

This flexible group consists of all process equipment associated with the conversion of the existing fiberization process to the Knauf fiberization process in PTI 26-15A. The facility is required to calculate and keep records of the annual emissions of PM_{2.5} and PM₁₀ from FGFIBERIZATION in tons per calendar year. The permittee shall submit records of the annual emissions of PM_{2.5} and PM₁₀ to the department within 75 days following the end of each reporting year if both occur, the actual emissions of PM_{10/2.5} exceed the baseline actual emissions by a significant amount and the calendar year actual emissions differ from the pre-construction projection.

The current PM_{10/2.5} emissions are being tracked by the facility. The total fiberization emissions are 32,848.57 lbs.

Process equipment that has been identified as exempt from permitting requirements in prior AQD inspections include multiple natural gas fired space heaters with a maximum design capacity of < 0.4 MMBtu/hr that are exempt under Rule 282(2)(b)(i). These are located primarily in the packaging and warehousing sections of the facility.

We thanked Mr. Keen and Mr. Estes for their help and time and left the facility about 1:00 pm. Staff went

to observe any emissions that could be seen from the stacks and there were no visible emission present at the time.

At the time of the inspection, the facility appears to be in compliance with Renewable Operating Permit (ROP) MI-ROP-B7205-2015b and Permits to Install 26-15D and 206-18 and all applicable state and federal air regulations.

NAME Austin OuelDATE 11/26/19SUPERVISOR RIL 11/24/19