

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

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|--|-------------------------------|---------------------------|
| FACILITY: CERTAINTEED CEILINGS CORP | | SRN / ID: B1479 |
| LOCATION: 200 S MAIN STREET, LANSE | | DISTRICT: Upper Peninsula |
| CITY: LANSE | | COUNTY: BARAGA |
| CONTACT: Scott Kemppainen , Process Engineer | | ACTIVITY DATE: 02/14/2020 |
| STAFF: Michael Conklin | COMPLIANCE STATUS: Compliance | |
| SUBJECT: Targeted inspection for FY 20. | | SOURCE CLASS: SM OPT OUT |
| RESOLVED COMPLAINTS: | | |

Facility: CertainTeed Ceiling Corporation (SRN: B1479)
Location: 200 S Main St, L'Anse, MI 49946
Contact(s): Scott Kemppainen, Process Engineer, 906-524-3054

Regulatory Authority

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

Facility Description

CertainTeed is a construction materials company that produces exterior and interior building products, including roofing, siding, fencing, decking, railing, trim, insulation, gypsum and ceilings. The company is a subsidiary of Saint-Gobain, a French multinational corporation that manufactures and distributes building materials. The L'Anse facility produces a variety of ceiling tiles manufactured from mineral wool, paper, clay, perlite, and starch. The ceiling tiles are produced in a range of sizes, textures, edge details, and acoustic ratings for a variety of applications in offices, schools, and other public buildings.

The CertainTeed L'Anse facility is located at 200 South Main Street, L'Anse, Baraga County, Michigan, an area that is currently in attainment for all criteria pollutants. The facility is considered a synthetic minor source for NOx and a true minor source for all other criteria pollutants. On October 16, 2019, Permit to Install (PTI) No. 315-01C was issued for the installation of new equipment and increased emission limits to go along with proposed increase in production due to another CertainTeed facility shutting down. Specifically, the source installed two additional perlite expanders and increased the VOC emission limit for coating operations.

Process Description

The CertainTeed facility consists of two "sides" for ceiling tile production: the "wet-end" and the "fabrication-end". The wet-end involves the preparation and mixing of ingredients, including mineral wool, pulped paper, clay slurry, expanded perlite, and starch, to form the solids portion of the ceiling tiles. Crude perlite is expanded through vertical natural gas-fired expansion furnaces before it is conveyed into the mixed material. A wet mat is formed on the Fourdrinier Board Machine from a mixture consisting of dry ingredients, chemicals, and water. The wet mat is then processed through a coater, heat exchanger, and the Coe dryer to form the solid tile material. Following the wet mat formation and drying process, the tile is transferred to the fabrication-end where it is cut, textured, coated, and packaged for shipment.

Emissions

CertainTeed contains natural gas-fired equipment, including perlite expander furnaces, dryers, and a boiler. Pollutants emitted from the combustion of natural gas-fired equipment includes nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and trace amounts of sulfur dioxide. Higher temperatures of burning and longer residence time results in higher NOx emissions. CO and VOC emissions are directly related to combustion efficiency. Higher combustion temperatures, longer residence times, and well mixing of fuel and combustion air results in greater combustion efficiency and lower emissions of CO and VOCs. Emissions of sulfur oxides are low since processed natural gas contains a very low sulfur content. PM emissions are also low since natural gas is a gaseous fuel. Nitrous oxide and methane emissions are related to the combustion temperature and amount of excess oxygen. Perlite expansion and fabrication of the ceiling tiles produces emissions of particulate matter (PM). A

series of cyclones and fabric filters are used to collect material and control fine particulates from the perlite expansion process. Cartridge filter baghouses are used to collect particulate emissions from saws during the cutting and trimming processes on the fabrication-end.

Volatile organic compounds (VOCs) are emitted during coating operations with solvent-based and water-based coatings. A coating can consist of resins, pigments, solvents, diluents, reducers, and thinners. Resins and pigments usually make up the solid (non-evaporative or non-volatile) portion of the coating. The volatile portion of the coating can consist of water, solvents, diluents, reducers, and thinners. These compounds evaporate during the application and curing of the coating. All unrecovered solvent can be considered potential emissions of VOCs.

Emissions Reporting

CertainTeed is required to report its annual emissions to Michigan Air Emissions Reporting System (MAERS). The following table lists the source total emissions for the reporting year 2018.

| Pollutant | Emissions (TPY) |
|-----------|-----------------|
| CO | 1.2 |
| PM10 | 8.5 |
| PM2.5 | <1 |
| NOx | 39.7 |
| SO2 | <1 |
| VOC | 3.1 |

Regulatory Analysis

CertainTeed is considered an opt-out source for NOx and a true minor source for all other criteria pollutants because the potential-to-emit (PTE) is below 100 tpy. The source is considered an area source for hazardous air pollutants (HAPs) because the PTE of a single HAP is less than 10 tpy and the PTE of combined HAPs is less than 25 tpy. CertainTeed is permitted under source-wide PTI No. 315-01C and all other previous PTIs have been voided.

Compliance History

The facility has not received any violation notices in the past five years. The facility was last inspected in September of 2015 and was found to be in compliance with all applicable air quality rules and federal regulations at that time.

Inspection

On February 14, 2020, I conducted a scheduled inspection on CertainTeed. I arrived at the office building and met with Process Engineer, Scott Kemppainen and Engineering Manager, Dale Damsteegt. I explained to Mr. Kemppainen that the purpose of the inspection was to ensure compliance with PTI No. 315-01C and all other applicable air pollution control rules and federal regulations. The inspection began by taking a tour of the facility and reviewing permitted emission units. Following the tour, some records were provided, and others were submitted via email.

EU-FOURDRIN&COE

This emission unit consists of the wet-end process, made up of the Fourdrinier board machine, backsizer coater, heat exchanger, and the natural gas-fired Coe dryer. This emission unit has minimal emissions and thus does not have special conditions. All stacks and vents were accounted for on the inspection.

EU-BOILER

This emission unit is a Cleaver-Brooks boiler with only natural gas-firing capability and rated at 12,550,000 Btu/hr. The boiler provides process heat for the manufacturing of the ceiling tiles. In a follow up email, Mr. Kemppainen provided the natural gas usage records for the boiler. For 2019, the boiler burned 28 MMCF of natural gas.

EU-MAINLINE

After the boards come out of the Coe dryer, they enter the main trunk of the fabrication-end. The main trunk then splits off into one of two directions: the main line or the custom line. EU-MAINLINE consists of the main trunk and the main line. Processes in this emission unit include cutting, coating, and drying.

Saws on EU-MAINLINE are controlled by baghouses MAC#1, MAC#2, and MAC#3. During the inspection, the two coating booths on the mainline had their respective water wash systems installed and operating (SC IV.1).

EUNEWCUSTOMLINE

The custom line also contains trim saws, coaters, and dryers. SC III.1 requires the BMH dryer to not cure tiles at temperatures greater than 500 degrees Fahrenheit. During the inspection it was observed the three burners were operating at 445 degrees Fahrenheit. A system controller next to the dryer provides the operating burner temperature (SC VI.1). Mr. Kemppainen provided a sample of the daily temperature record sheet for the BMH dryer (SC VI.2). Temperature recordings for the three zones of the dryer area are performed each hour of a shift. During the inspection of the custom line, the JBL spray booth was in operation along with the water wash system (SC IV.1).

FG-COATING

The facility utilizes three coating booths that exhaust to the atmosphere. Two are located within the mainline, and the other is in the custom line. CertainTeed makes their own batch coatings from raw ingredients and water. Records provided show the content concentrations of each ingredient, the gallons of each ingredient in a batch, along with the density, water content, and VOC content of each ingredient (SC V.1). The records also provide the calculated density, VOC content (with and without water as applied), and water content for each mix coating from the mix ratio of each ingredient in the batch (SC VI.1 and 2). Currently, CertainTeed uses nine different coatings between their three spray booths. Each booth contains a water wash system to control coating particulates. Between the nine mixed coatings, the highest VOC content without water is 0.0156 lb/gal. All the coatings as applied are below the 0.23 lb/gal minus water material limit (SC II.1). It was stated during the inspection and noted in the records provided that the company has not used Rheolate 450 since October 2019 (SC VI.2).

Using the calculated VOC content minus water for mixed coatings as applied, the facility calculates the monthly VOC mass emission calculations using the following equation:

*gallons of mixed coating used/month * lbs VOC/gallon of mixed coating (minus water) * (1-(% water content by volume/100)) = lbs VOC/month.*

A 12-month rolling sum is then calculated to determine the total tons for a yearly period. For the periods of January 2019 through December 2019, the total VOC emissions were 1.80 tpy (SC VI.2). This shows compliance with the 14.0 tpy 12-month rolling emission limit (SC I.1).

The facility is also required to track the content percentage, usage, and mass emission calculations of acetaldehyde, acrylamide, and glutaraldehyde. The ingredients Dur-O-Cote and Vinnol CE 35 contain acetaldehyde, Vinnol CE 35 also contains acrylamide and formaldehyde, and Nalcon 7637 contains glutaraldehyde. The facility tracks the monthly material usage of each of the ingredients for the mixed coatings and multiplies the weight percent of a given compound by the monthly ingredient usage to calculate the mass emissions of that compound. The records provided show the facility is meeting the three emission limits for acetaldehyde, acrylamide, and glutaraldehyde as listed under FG-COATING in PTI No. 315-01C.

FG-PERLITE_EXPAND

PTI No. 315-01C added an additional perlite expansion system. It was observed during the inspection that this was in the process of being constructed. The project will add two perlite expander furnaces with respective cyclones and fabric filter collectors. Although there will be four expander furnaces on-site, only three will be in operation.

The perlite expansion process begins with raw granular perlite delivered to the facility and stored in a silo until it is conveyed via bucket elevator to the use bin that feeds the expansion furnaces by gravity. The perlite is heated at the bottom of the furnace and begins to soften with trapped moisture vaporizing. The vaporization process causes the perlite to expand allowing it to be pneumatically conveyed by suction fan into the primary collector. The cyclone (primary collector) collects about 90% of the expanded perlite and exhausts the other 10% to a baghouse (secondary collector). Additional expanded perlite, collected in the secondary collector, is routed to another baghouse (tertiary collector) before being fed into the wet-end system.

During the inspection of the perlite expansion system, two expansion furnaces were in operation along

with the primary and secondary collectors for each furnace, and the shared tertiary collector (SC IV.1). It was observed that only natural gas is being burned via burners at the bottom of the furnace (SC II.1). No asbestos material is being processed in the furnaces, only raw perlite (SC III.1).

After the inspection of the furnaces, the cyclones and baghouses were inspected for visible emissions and fugitive dust. No visible emissions were observed from the product collectors, only steam was observed from the secondary collectors (SC II.1). There was no evidence of fugitive dust from collected material in spent filters being introduced to the outer air (SC III.2). Differential pressure gauges are installed on the product collectors and monitored from a computer (SC IV.2). The pressure drop across each baghouse is recorded once per week (SC VI.1). Records indicate the pressure drop stays consistent around 0.04 in wc for the secondary collectors, and 0.06 in wc for the tertiary collector. Visible emission checks are also being recorded once per week (SC VI.2 and 3). Since January 2018, records indicate that visible emissions from the baghouses are 0% opacity (SC VI.4). FG-PERLITE_EXPAND contains emission limits that are enforceable through General Condition (GC) 13. This condition states that the department can require the permittee to conduct testing to show compliance with the emission limits. Since the permittee is monitoring and recording the differential pressure and opacity weekly, testing will not be required at this time.

FG-MACS

The three cartridge filter dust collectors, MAC#1, MAC#2, and MAC#3, are used to collect and control particulates from saws on the fabrication-end. The collected waste material is re-used at the wet-end of the process. PTI No. 315-01C requires the stacks, SV0017, SV0018, and SV0019, to be raised from 14.25 ft to 35 ft. A letter notifying the department that this occurred on 11/15/2019 was received on 11/21/2019 (SC VII.1 and VIII). During the inspection, the three baghouses were in operation and were pulsing during cleaning cycles (SC IV.1,3,5). From the computer, the differential pressure across MAC#1 was 8.0 in wc, 3.9 in wc across MAC#2, and 3.4 in wc across MAC#3 (SC IV.2,4,6). Records were provided showing weekly visible emission checks and differential pressure recordings (SC VI.1-6). Records indicate that no visible emissions have been observed (SC I.1).

FG-WHEELABRATOR

The Wheelabrator tile etch machine is part of the main line and routes particulate emissions to an internally vented cartridge filter dust collector. At the time of the inspection, the Wheelabrator tile etch machine was not operating and thus no visible emissions were observed (SC I.3). It was observed there was pipes that collect the fines from the etch machine and pneumatically convey them to the dust collector (SC IV.1). No asbestos waste is processed through the tile etch machine (SC II.1). The dust collector is equipped with a pressure drop gauge that is monitored from the computer (SC IV.2). The monitoring parameters for all dust collectors on-site can be monitored from one interface. Records were provided showing visible emission checks and differential pressure recordings being performed on a weekly basis (SC VI.1-4). There was no stack observed from the dust collector leaving the interior of the facility (SC VIII.1).

FGFACILITY

CertainTeed records monthly and 12-month rolling natural gas records for the facility in MCF. Records indicate the 12-month rolling sum for the facility stays between 570,000 MCF and 590,000 MCF (SC VI.1). This is well within the 1.28×10^9 CF 12-month rolling material limit for the facility (SC II.1). Records are also being kept for monthly and 12-month rolling NOx emission calculations (SC VI.2). The facility uses an emission factor of 100 lb NOx/10⁶ CF from AP-42, Chapter 1.4: Natural Gas Combustion. Records indicate the 12-month rolling sum stays consistent around 29 tpy (SC I.1).

This emission unit also contains a source-wide formaldehyde emission limit of 0.35 tpy. The facility uses two ingredients in their mix coatings that contain formaldehyde from records provided. These ingredients are Vinnol 4530 and Vinnol CE 35. Currently, the facility is only using Vinnol CE 35 according to their coating formulation data. This material contains 0.01% by weight of formaldehyde. Monthly and 12-month rolling emissions of formaldehyde are being recorded. With this emission limit being new from PTI No. 315-01C, the records begin in October 2019. To date, records indicate the 12-month rolling formaldehyde emissions to be 0.00088 tpy (SC VI.3).

Compliance

Based on this inspection, CertainTeed is in compliance with PTI No. 315-01C and all applicable rules and regulations.



Image 1(FG-PERLITE EXPAND) : Construction of new perlite expander furnaces.



Image 2(Product Collectors) : The primary, secondary, and tertiary collectors for the perlite expander furnaces.

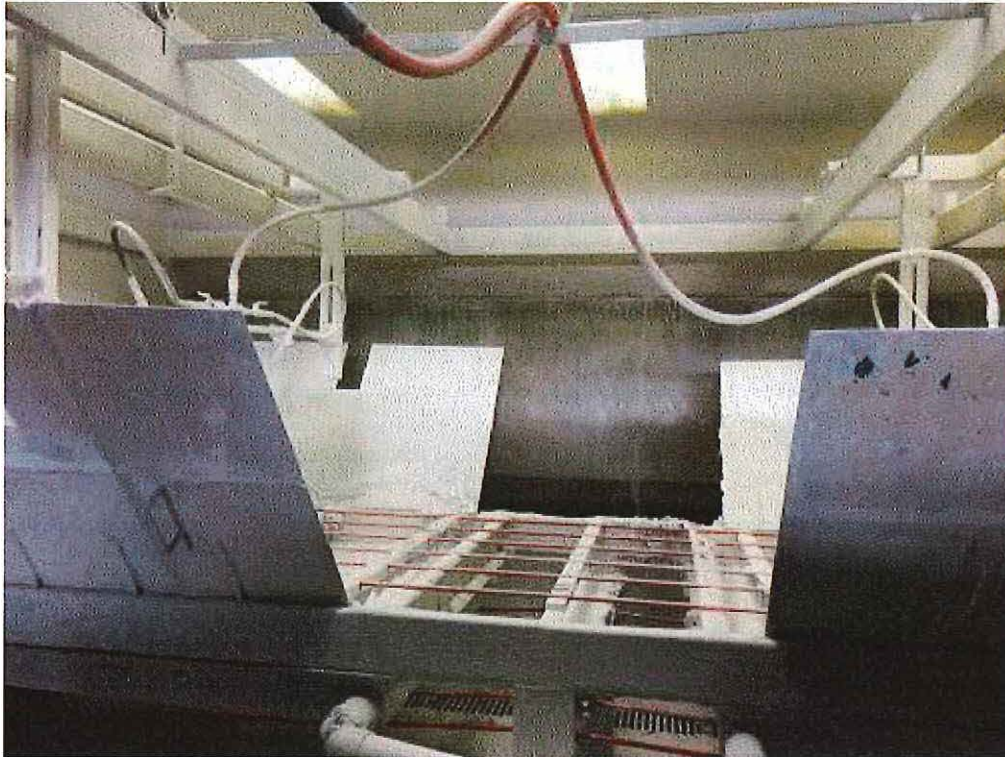


Image 3(Spray Wash) : Spray wash for coating booth.





Image 4(BMH Dryer) : Device to monitor and control the temperature of the BMH dryer in EUNEWCUSTOMLINE.

NAME Michael Melin

DATE 3/5/20

SUPERVISOR ELF

