

NARRATIVE

TO: Jeng-Hon Su
FROM: Nada Osman
DATE: August 1st, 2022

Facility Name: **Porex Filtration Group**
AIRS No.: 121-00256
Location: Fairburn, GA (Fulton County)
Application #: 28507
Date of Application: July 14th, 2022

Background Information

Porex Filtration Group (hereinafter “facility”) operates a facility for the manufacture of porous plastic products at 500 Bohannon Road in Fairburn, Georgia. The facility is located in Fulton County, which is a non-attainment area for ozone. Equipment at the facility currently includes four drying ovens, one 25 MMBtu/hr boiler, and a variety of manufacturing processes with a particulate control system consisting of nine filter dust collectors and one cyclone.

The primary raw materials processed by the facility are polypropylene and polyethylene, received in the form of beads, pellets, and powders. Raw materials are first processed in one or more of five areas—the White Material Processing Room (WMPR), the Black Material Processing Room (BMPR), Grinding/Screening Operations (GMAC), the Nauta Blender (NBND), and the BioMedical Processing Room (BPR).

A portion of the raw materials processed in BMPR are sent to the Carbon Molding Room (CMGR) before being packaged and shipped, and materials from BPR are sent directly to packaging and shipping. BPR includes the Parts Sintering Areas C – F, and the Tool Room EDM Milling (TEDM). Materials processed in WMPR, BMPR, GMAC, and NBND are routed to one of two parts sintering areas (SNTA or SNTB) and the Belt Fabrication Area (BFAB). Products processed in BFAB are sent directly to packaging and shipping.

Porex Filtration Group currently operates under Air Quality Permit No. 3089-121-0256-B-02-0, issued on February 21st, 2022.

Purpose of Application

On July 14th, 2022, Porex Filtration Group submitted Application No. 28507 for the addition of 112 new process lines and three dust collectors (ID Nos. DC10-DC12) in the BioMedical Process Room (BPR), the addition of one new grinder and one dust collector (ID No. DC06b) to the Grinding/Screening Operation Room (GMAC), the removal of the four drying ovens (ID Nos. DO01-DO04), and the removal of the White Material Process Room (WMPR) dust collector (ID No. DC08). Emissions from WMPR will be routed to Dust Collectors DC09 through DC12. Facility-wide increases of all emissions as a result of the modification

are all less than their cumulative modification emissions thresholds, and therefore, a Public Advisory was not needed.

After the proposed modification, the facility will have the potential to emit particulate matter (PM) in amounts greater than the 100 ton-per-year (tpy) Title V major source threshold if emissions are not controlled; however, they will be required to operate their control equipment at all times while the associated emission units are operating in order to keep after-control PM emissions below 100 tpy. The facility is therefore considered a synthetic minor source. Emissions of all other criteria air pollutants and single and combined hazardous air pollutants (HAP) are each below their respective Title V major source thresholds.

Updated Equipment List

Table 1: Emission Units

Emission Units			Associated Control Devices	
Source Code	Description	Installation Date	Source Code	Description
SNTA	Parts Sintering Area A	2002	DC01	Dust Collector
SNTB	Parts Sintering Area B	2002	DC02	Dust Collector
CMGR	Carbon Molding Room	2002	DC03	Dust Collector
BFAB	Belt Fabrication Room	2002	DC04	Dust Collector
BMPR	Black Material Processing	2002	DC05	Dust Collector
GMAC	Grinding and Screening (with one new grinder added)	2002	DC06a, DC06b	Dust Collector
TEDM	Tool Room EDM Milling	2002	DC07	Dust Collector
WMPR	White Material Processing	2002	DC08 DC09, DC10 DC11, DC12	Dust Collectors
DO01	Dry Oven 1	1986	None	N/A
DO02	Dry Oven 2	1986	None	N/A
DO03	Dry Oven 3	1987	None	N/A
DO04	Dry Oven 4	1987	None	N/A
BPR	BioMedical Processing (with 112 new lines added)	2022	DC09, DC10, DC11, DC12	Dust Collectors
NBND	Nauta Blender	2002	CF09	Cyclone Separator/Filter

Modified emission units are in bold and removed emission units are striken-through.

Table 2: Fuel-Burning Equipment

Source Code	Input Heat Capacity (MMBtu/hr)	Description	Installation Date	Construction Date
B1	25.0	Natural Gas/No.2 Oil fired	2001	2001

Emissions Summary

PM emissions from the facility's manufacturing processes are collected by a series of dust collectors and a cyclone; these dust collectors/cyclone are components of an extensive vacuum system that is also responsible for transporting raw materials across different processes within the facility. According to the narrative for Application No. 28146 (dated October 18th, 2021), the facility claimed the dust collectors to be inherent process equipment, rather than control devices, because of their role in the pneumatic transport system. At the time, the Division was not able to definitively agree to their inherency claim because of a lack of decisive information. At the time, the facility-wide PM PTE calculated using the GA Rule (e) limits was below 100 tpy.

After a visit to the facility on June 30th, 2022, the Division was able to conclude that the existing dust collectors should be considered control devices rather than inherent equipment. The four proposed dust collectors (ID Nos. DC06b and DC10-DC12) will also function as control devices. All of the control devices were used to collect waste materials from the process rooms and ship the collected waste to landfills or further treatment. None of the collected materials are used in any manufacturing process onsite. If any of the control devices malfunction, it will not stop the material flow into the processes; the processes will be manually turned off for employee protection (from either fire hazards or breathing hazards). These are the main reasons why all of the control devices are determined to be controls instead of inherent processes.

After-modification, the facility-wide PM PTE based on the GA Rule (e) limit is 105.8 tpy, meaning that the facility can no longer be considered a true minor source of PM based on GA Rule (e) limits. Therefore, the facility's PM PTE after-modification is over the 100 tpy major source threshold, and they will rely on all of the control devices to reduce PM emissions below 100 tpy. The use of all the control devices is considered the synthetic minor limit for PM emissions.

Because the majority of the facility's VOC emissions were produced during the drying process, the removal of all drying ovens (ID Nos. DO01-DO04) will reduce facility-wide VOC emissions. The material sintering manufacturing process does not liquify the materials and therefore does not produce VOC emissions. All other VOC emissions are produced from natural gas combustion in Boiler B1.

Potential emissions were calculated based on 8,760 hours per year of operation and maximum capacity.

Table 3: Facility-Wide Emissions (tpy)

Pollutant	Potential Emissions			Actual Emissions		
	Before Mod.	After Mod.	Emissions Change	Before Mod.	After Mod.	Emissions Change
PM/PM ₁₀ /PM _{2.5}	< 77	3.7	-73.3	2.2	3.7	1.5
NO _x	10.8	10.8	0	10.3	10.3	0
SO ₂	0.1	0.1	0	0.1	0.1	0
CO	9.0	9.0	0	8.7	8.7	0
VOC	2.6	0.6	-2.0	1.9	0.6	-1.3
Max. Individual HAP	0.2	0.2	0	0.2	0.2	0
Total HAP	0.2	0.2	0	0.2	0.2	0

Pollutant	Potential Emissions			Actual Emissions		
	Before Mod.	After Mod.	Emissions Change	Before Mod.	After Mod.	Emissions Change
Total GHG	12,800	12,800	0	11,800	11,800	0

Regulatory Applicability

40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Because Boiler B1 has a heat input capacity between 10 and 100 MMBtu/hr and was installed after June 9th, 1989, it is subject to Subpart Dc. This subpart limits fuel oil sulfur content to 0.5% for Boiler B1. The facility is required to maintain records of fuel suppliers' certifications demonstrating compliance with the fuel oil sulfur content limit. The facility must also maintain monthly fuel consumption records for Boiler B1.

40 CFR 60 Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels

Subpart Kb applies to storage tanks that store volatile organic liquids with capacities that exceed 19,800 gallons. Because the facility's two storage tanks (one 550-gallon isopropyl alcohol tank and one 15,000-gallon No. 2 fuel oil tank) are below the capacity threshold of Subpart Kb, they are not subject to the Subpart.

40 CFR 63 Subpart DDDDD – NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters

Because the facility is not a major source of HAP emissions, Boiler B1 is not subject to Subpart DDDDD.

40 CFR 63 Subpart JJJJJ – NESHAP for Industrial, Commercial, and Institutional Boilers for Area Sources

Because the facility is a minor source of HAP emissions, Boiler B1 is potentially subject to 40 CFR 63 Subpart 6J. In order to be considered a true natural gas boiler and avoid the requirements of Subpart 6J, fuel oil usage will be limited to gas curtailment, gas supply emergencies, or periods of testing on fuel oil for Boiler B1 (for a total of 48 hours of usage).

Georgia Rule 391-3-1-.02(2)(b), Visible Emissions

Georgia Rule (b) limits the visible emissions from all manufacturing processes not to exceed 40% opacity. PM emissions from the new grinder and the new process lines will be controlled by Dust Collectors DC06b and DC10-DC12, respectively, and PM emissions from most of the other manufacturing processes are controlled using an associated control device. Therefore, visible emissions are expected to be compliant with Georgia Rule (b).

Georgia Rule 391-3-1-.02(2)(d), Fuel Burning Equipment

Georgia Rule (d)2.(ii) limits the opacity and rate of emission of fly ash and other particulate matter from fuel burning equipment with a capacity between 10 MMBtu/hr and 250 MMBtu/hr. Boiler B1 burns natural gas and distillate fuel oils that are both considered clean fuels. Therefore, Boiler B1 is expected to comply with both the PM emission limit and visible emission limit of Georgia Rule (d).

Georgia Rule 391-3-1-.02(2)(e), Particulate Matter Emissions from Manufacturing Processes

Georgia Rule (e) limits particulate matter emissions based on process input weight rate. PM emissions from the manufacturing process are controlled by a system of control devices, including four new dust collectors (ID Nos. DC06b and DC10-DC12) that will control emissions from the new grinder and new process lines, respectively. Therefore, the facility is expected to comply with Georgia Rule (e) PM limits.

Georgia Rule 391-3-1-.02(2)(g), Sulfur Dioxide

Georgia Rule (g) limits all fuel burning sources with a heat input capacity below 100 MMBtu/hr to burn only fuel containing no more than 2.5% sulfur, by weight. The requirements of 40 CFR 60 Subpart Dc limits fuel oil sulfur content to 0.5% for Boiler B1, subsuming the Georgia Rule (g) requirement.

Georgia Rule 391-3-1-.02(2)(tt), VOC Emissions from Major Sources

Because the facility is located in Fulton County, it could potentially be subject to Georgia Rule (tt) if the facility-wide VOC PTE is equal to or exceeds 25 tpy. Facility-wide potential VOC emissions are less than 1 tpy after-modification, and therefore, the facility is not subject to Georgia Rule (tt).

Georgia Rule 391-3-1-.02(2)(lll), NOx Emissions from Fuel-Burning Equipment

Georgia Rule (lll) limits NOx emissions from fuel-burning equipment with a heat input capacity between 10 MMBtu/hr and 250 MMBtu/ to a maximum of 30 ppm at 3% oxygen on a dry basis. This rule applies to fuel-burning units that were installed after May 1st, 1999. These requirements apply to the equipment during the period between May 1st and September 30th of each year. The facility is required by GA Rule (lll) to conduct annual tune ups on Boiler B1.

Permit Conditions

Condition 2.1 requires the facility to operate air pollution control equipment at all times while their associated emission units are in operation. This is a Title V Avoidance condition for PM.

Condition 2.2 subjects the Boiler B1 to all applicable provisions of 40 CFR 60 Subpart A and Subpart Dc.

Condition 2.3 limits the facility to firing only natural gas and distillate fuel oil in Boiler B1, with combustion of distillate fuel oil being limited to periods of natural gas curtailment. This is a condition for avoidance of 40 CFR 63 Subpart 6J and subsumes the fuel sulfur requirement of GA Rule (g).

Condition 2.4 limits visible emissions from manufacturing processes to less than 40% opacity, per GA Rule (b).

Condition 2.5 limits the rate and opacity of PM emissions from fuel-burning equipment, per GA Rule (d).

Condition 2.6 limits PM emissions from manufacturing processes based on the applicable process weight rate equation specified by GA Rule (e).

Condition 2.7 limits NO_x emissions from Boiler B1 to 30 parts per million corrected to 3% oxygen (dry basis), per GA Rule (III).

Condition 4.2 requires the facility to maintain an inventory of dust collector filter replacement cartridges.

Condition 5.1 requires the facility to monitor the pressure drop across Cyclone CF09 using a differential pressure indicator and to record the data for each week of operation.

Condition 5.2 requires the facility to perform daily visible emissions checks for the dust collectors (ID Nos. DC01-DC07 and DC09-DC12) and outlines requirements and procedures for performing the checks.

Condition 5.3 requires the facility to develop and implement a Preventative Maintenance Program for the dust collectors (ID Nos. DC01-DC07 and DC09-DC12). Pressure drop reading for each dust collector is required for each week of operation.

Condition 5.4 requires the facility to demonstrate compliance with the GA Rule (III) NO_x limit of Condition 2.7 by performing periodic tune-ups of Boiler B1. Requirements and procedures for performing the tune-ups are included in the condition.

The permit does not require any testing requirements because the control efficiency assumed in the application is very reasonable, and the after-control PM PTE is well below 100 tpy.

Condition 7.1 requires the facility to keep written records of all instances during which distillate fuel oil was fired in Boiler B1 and to, each month, use the records to determine and record the 12-month rolling total of distillate fuel oil combustion in Boiler B1.

Condition 7.2 requires the facility to notify the Division of certain occurrences recorded in accordance with Condition 7.1.

Condition 7.3 requires the facility to record and maintain records of the amount of each fuel combusted in Boiler B1, or to record and maintain records of the amount of each fuel delivered to the facility for combustion in Boiler B1.

Condition 7.4 contains options for verification that each shipment of distillate fuel oil complies with the requirements of Condition 2.3.

Condition 8.2 requires the facility to pay an annual Permit fee to the Division.

Condition 8.3 revokes all previously issued Air Quality Permits, including No. 3089-121-0256-B-02-0.

Toxic Impact Assessment

Potential emission rates for all existing HAP emitted by the facility are each below their respective minimum emission rate (MER) set by Georgia Air Toxics Guidelines, and no change in HAP emissions will result from the modification. Therefore, a toxic impact assessment was not required.

Summary & Recommendations

Porex Filtration Group is a porous plastic parts manufacturer located in Fairburn, GA. The facility has the potential to emit over 100 tpy of PM and will be required to operate their control devices at all times while the associated emission units are operating in order to keep PM emissions below major source levels. Therefore, they are a synthetic minor source.

I recommend that Permit No. 3089-121-0256-S-03-0 be issued to Porex Filtration Group. The Mountain District – Atlanta Office will continue to be responsible for compliance and inspection of this facility.