



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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August 12, 2013

Mr. Michael Serapiglia
Saint Gobain High Performance
Materials
9 Goddard Road
Northborough, MA 01532

RE: Northborough
Transmittal No.: X253662
Application No.: CE-12-038
Class: SM-25
FMF No.: 131148
AIR QUALITY PLAN APPROVAL

Dear Mr. Serapiglia:

The Massachusetts Department of Environmental Protection (“MassDEP”), Bureau of Waste Prevention, has reviewed your Limited Plan Application (“Application”) listed above. This Plan Approval concerns the operation of a testing and performance assurance process called the Higgins Grinding Test Center (“HGTC”) at the Saint-Gobain Northborough Research and Development Center (“NRDC”) located at 9 Goddard Street in Northborough, Massachusetts (“Facility”).

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 “Air Pollution Control,” regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP’s review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator (“Permittee”) must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

Saint-Gobain Northborough R&D Center High Performance Materials owns and operates the Northborough Research and Development Center (“NRDC”). The NRDC develops and tests a variety of ceramic and synthetic materials and tests a small quantity of high-performance material technologies, including composite grinding and cutting disks. This Plan Approval pertains to Emission Unit #1 and the following equipment at the Higgins Grinding Test Center (“HGTC”): Dry Cut-off Saw, Flap Disc Tester, Thin Wheel Cut-Off, Hammond Lathe, Floor Stand Grinder. The HGTC process has the potential to emit metallic particulate matter (“PM”) and hazardous air pollutants (“HAPs”). The HAPs consist of metallic particulate such as chromium (“Cr”), cobalt (“Co”), lead (“Pb”) manganese (“Mn”) and nickel (“Ni”). All of the grinding and cutting equipment associated with the HGTC process are equipped with individual ventilation hoods. Each hood is designed to capture dust generated from these processes and are ducted to a Donaldson Torit baghouse.

The baghouse will control PM and HAPs from all of these processes at a rate of 0.0002 grains/actual cubic foot which is consistent with Best Available Control Technology (“BACT”) for these processes. The dust collection system is equipped with a spark detection and suppression system and explosion deflagration panels. The baghouse is exhausted to the atmosphere.

In addition to the HGTC, the NRDC facility has three (3) emergency generators. Two (2) of the generators were installed prior to March 2006 and are not subject to Environmental Results Program certification (“ERP”). A third generator was installed in 2007 and is subject to ERP requirements. They are included in the following list of EUs (#8) but are not subject to this Plan Approval. The research and development labs (EU #7) are exempt from obtaining a Plan Approval. The estimated emissions from EU # 7 and EU #8 are included in the facility wide emissions.

The HGTC ventilation system has extra pick-ups for additional test machinery which may be installed at a later date. These future emissions will not exceed emission limits for EU#1 identified in Table 2.

Saint-Gobain Northborough R&D Center currently holds the following Air Quality Plan Approvals issued by the MassDEP:

Transmittal no.	EU#	Emission Unit Description	Pollutant	Annual Limit Ton/year
W16423	2	Lab Scale Rotary Kiln	NOx	1.00
W030684	3	Pilot Scale Sandpaper Making process	VOC	1.00
W028206	4	Pilot –scale adhesive coating Process	VOC HAP	4.90 4.90

Transmittal no.	EU#	Emission Unit Description	Pollutant	Annual Limit Ton/year
W033484	5	Lab Scale Polyimide Synthesis Process	VOC	0.95
W049599	6	Lab scale Corona Treater	Acetone Ozone VOC Ammonia	2.60 0.25 0.25 0.25
NA	7	Lab emissions **	VOC HAPs	3.2 3.2
NA	8	Combustion equipment*	NOx VOC	7.2 0.6

Note:

*Combustion equipment consists of two (2) emergency generators rated at 250 kW and one (1) emergency generator rated at 225kW. Emissions are based on each unit operating no more than 300 hours per year.

**Lab emissions are estimated from the existing labs

Table Key:

VOC= Volatile Organic Compounds

HAP= Hazardous Air Pollutant

NA= Not applicable

NOx= Nitrogen Oxides

2. EMISSION UNIT (EU) IDENTIFICATION

The Emission Unit (“EU”) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Design Capacity	Pollution Control Device (PCD)
1	Higgins Grinding Test Center (HGTC) Process	1. Dry Cut-off Saw: 60 cuts per hour 2. Flap Disc Tester: shortens the sacrificial metal ring by 1.5 inches per 24 hour 3. Thin Wheel Cut-Off: 40 cuts per hour 4. Hammond Lathe: reduces the sacrificial stainless steel cylinder by 1 inch per hour 5. Floor- Stand Grinder: sacrificial cast iron is removed at 1/16 inch per press and 62.5 grinding presses per hour.	Donaldson –Torit cartridge reverse jet dust collector (Model No. DFO-3-24) with a capacity of 19,150 acfm (180 ⁰ F) and, equipped with ultra-web synthetic nanofiber filter cartridges or equivalent to control inorganic hazardous air pollutants and particulate matter. The unit is equipped with a pulse jet cleaning system.

Table 1 Key:

Acfm= actual cubic feet per minute

EU# = Emission Unit Number

PCD = Pollution Control Device

⁰F= degrees Fahrenheit

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Emission Limits as contained in Table 2 below:

Table 2			
EU#	Air Contaminant	Emission Limit	
		Short Term	Long Term (tons/year) ³
1	Particulate matter (PM) ¹	0.0002 Gr/ACF 0.0146 lb / hr and 15 lbs/mo ²	0.0875
	Total Hazardous Air Pollutants (metallic HAPs)	0.76 lbs/mo and 0.001 lb / hour	0.0045
	Worst-case Individual HAP (Chromium)	0.38 lb/month and 0.0005 lb/hr	0.002
2	NOx	1.0 lb/hr	1.0
3	VOC	< 1 ton / mo	1.0
4	VOC	1000 lbs/mo	4.9
	HAPS	1000 lbs/mo	4.9
5	VOC	< 1 ton/month	0.95
6	VOC	< 1 lb/hr	0.25
	Acetone	< 1 lb/hr	2.6
	Ozone	< 1 lb/hr	0.25
	Ammonia	< 1 lb/hr	0.25
7	VOC	3.2 tons/mo	3.2
	HAPs	3.2 tons/mo	3.2
8	NOx	7.2 tons/mo	7.2
	VOC	0.6 tons/mo	0.6
Facility wide*	PM	< 1ton/mo	< 1.0
	NOx	8.2 tons/mo	8.2
	VOC	6.3 tons/mo	10.9
	Total HAP	4.0 tons/mo	8.1
	Single HAP	4.0 tons/mo	8.1
	Ammonia	< 1 lb/hr	< 1.0
	Ozone	< 1 lb/hr	< 1.0
	Acetone	< 1 lb/hr	2.6

Table 2 Notes:

* Facility wide emissions include estimated maximum emissions from EU 7&8, plan approval limits for EU 2-6

1. PM consists of ≤ 99.2% by weight of ≤ 2.5 micron particles and 0.8% by weight of > 2.5 microns and ≤ 10 microns before control. (TR#X253662)

2. Pounds/month= pounds per calendar month

3: Tons/ year= tons per rolling consecutive 12 month period

Table 2 Key:

EU# = Emission Unit Number
 Total HAPs = Total Hazardous Air Pollutants
 NA=Not Applicable
 > = Greater than
 Lb/hr= pound per hour
 Lbs/mo= pounds per month
 NOx= Nitrogen oxides
 Gr/ACF= grains per actual cubic foot

PM = Particulate Matter (Total)
 Single HAP = maximum single Hazardous Air Pollutant
 % = Percent
 ≤ = Less than or equal to
 Tons/mo= tons per month
 VOC = Volatile Organic Compounds

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
	1. The Permittee shall install a magnehelic to continuously monitor the pressure drop across the air pollution control device to ensure that the device is properly operating according to manufacturer’s specifications.
	2. The Permittee shall inspect the collection hopper monthly to ensure the amount of dust collected does not exceed 75% of the capacity of the drum and the cover to the hopper is securely in place to prevent water infiltration or dust release.
	3. The Permittee shall conduct a compliance test on the baghouse within 180 days from the date of this Plan Approval.
	4. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	5. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13.

Table 3 Key:

CMR = Code of Massachusetts Regulations
 USEPA= United States Environmental Protection Agency

EU# = Emission Unit Number
 %= percent

Table 4	
EU#	Record Keeping Requirements
1	1. The Permittee shall track the hours of HGTC operation.
	2. The Permittee shall manually record the pressure differential on a daily basis.
	3. The Permittee shall track annual PM/HAP (total and individual) emissions on a monthly and 12-month rolling period basis.
	4. The Permittee shall locate the SOMP in close proximity to the air pollution control equipment for easy reference.
	5. The Permittee shall maintain adequate records on site to demonstrate compliance with all operational, production and emission limits contained Table 2 above.
	6. The Permittee shall maintain a copy of this Plan Approval, the plan approval application and the most -up-to-date Standard Operating and Maintenance Procedure (SOMP) for the HGTC process area and the control equipment onsite.
	7. The Permittee shall maintain a record of routine maintenance activities performed on the HGTC dust collector and the monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	8. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved HGTC process and control equipment. The records shall include, at a minimum, date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates returned to compliance operation.
	9. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
Facility Wide	10. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU# = Emission Unit Number

EU(s)= Emission Unit(s)

PCD = Pollution Control Device

SOMP = Standard Operating and Maintenance Procedure

HGTC= Higgins Grinding Test Center

PM / HAP= Particulate Matter/ Hazardous Air Pollutant

USEPA = United States Environmental Protection Agency

Table 5	
EU#	Reporting Requirements
1	1. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
Facility wide	2. Excess emissions resulting from equipment malfunctions shall be reported on the source registration forms.
	3. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	4. The Permittee shall notify the Central Regional Office of MassDEP, BWP Permit Chief by telephone 508-767-2845, email, CERO.Air@massmail.state.ma.us, or fax 508-792-7621 as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance (s), corrective actions taken, and action plan to prevent future exceedance(s).
	5. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30 days from MassDEP's request.
	6. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:
 CMR= Code of Massachusetts Regulations
 EU# = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
1	1. The Permittee shall ensure that the bag house operates such that the emission limits in Table 2 are not exceeded.
	2. The Permittee shall ensure that the pressure drop across the cartridge filter unit is operating in the range of 0.5 – 6.0 inches of water gauge or a range determined during the compliance stack test.
	3. The Permittee shall have sufficient approved cartridge filters on site in the event that any or all of the filters are in need of replacement or in lieu of having replacement filters onsite, the Permittee shall shutdown EU 1 in the event of a filter failure until such time as replacement filters can be installed.
	4. The air pollution control equipment shall be equipped with an audio-visual alarm to alert the operator if the unit, including its cleaning device, is operating outside its approved operating set points or if a malfunction is occurring.
	5. In the event of a device malfunction, such as a high level alarm, the grinding equipment and collector shall be shut down manually and the collector inspected and repaired per the manufacturer’s recommendations.
	6. The cartridge collection system shall be equipped with a spark detection / suppression system to ensure that sparks do not reach the dust collector.
	7. The Permittee shall ensure that the cartridge filter unit discharges into a sealed damper/ hopper system in a manner that does not allow particulate matter to escape to the ambient environment.
	8. The Permittee shall ensure that the particulate discharged into the hopper is properly managed and disposed of, in accordance with 310 CMR 30.000, if applicable.
	9. The Permittee shall conduct preventative maintenance and good housekeeping on the Donaldson Torit baghouse in accordance with the manufacturer’s specifications and the Plan Approval application (TR# X253662), incorporated herein by reference.
	10. The Permittee shall operate the HGTC only when the particulate capture and control equipment is in proper operating condition.
Facility-wide	11. Any prior Plan Approvals issued under 310 CMR 7.02 shall remain in effect unless specifically changed or superseded by this Plan Approval. The Facility shall not exceed the emission limits and shall comply with approved conditions specified in the prior Plan Approval(s) unless specifically altered by this Plan Approval.

Table 6 Key:

ACF= actual cubic foot

EU# = Emission Unit Number

CMR= Code of Massachusetts Regulations

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that

discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.” The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (inches)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
1	31	24	40-50	70

Table 7 Key:
 EU# = Emission Unit Number
 °F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.
- K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Maria L' Annunziata by telephone at 508-767-2748, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Roseanna E. Stanley
Section Chief
Bureau of Waste Prevention

Enclosure

ecc: Northborough Board of Health
Fire Department
MassDEP - Yi Tian, Kim McCoy
Steven Babcock, AMEC