Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

February 24, 2016

Mr. Robert Burkhart
A. Schulman Custom Compounding
53 Millbrook Street
Worcester, MA 01606-2817

RE: Worcester
Transmittal No.: X269454
Application No.: CE-16-002
Class: SM-25
FMF No.: 289656
AIR QUALITY PLAN APPROVAL

Dear Mr. Burkhart:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Air and Waste, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns the proposed construction and operation of process equipment and control devices at your plastics compounding facility located at 53 Millbrook Street in Worcester, 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-N, 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

The Facility has been in operation since 1996 as a plastics compounding company. It was previously known as ECM Plastics and became A. Schulman Custom Compounding ("the Permittee") in 2012. The Facility has not previously obtained Plan Approvals under 310 CMR 7.00.

On June 21, 2012, ECM Plastics sent a self disclosure to MassDEP indicating that it had the potential to emit air contaminants exceeding the Plan Approval thresholds in 310 CMR 7.02. On December 5, 2012, MassDEP issued Administrative Consent Order ACOP-CE-12-9017-27A, which in part required ECM Plastics to submit a Plan Application. Plan Application Transmittal No. X255097 was submitted on April 3, 2013, and on May 28, 2014, MassDEP issued Air Quality Approval Transmittal No. X255097. On November 3, 2014, MassDEP issued Administrative Amendment No. X255097-A1. On February 9, 2016, the Permittee submitted the present Administrative Amendment Application.

The Permittee processes a variety of polymer resins and other chemicals at this Facility to form customized resin pellets according to each customer's specifications. The Facility does not manufacture any specific plastic product. The manufacturing processes consist of sizing, pulverizing, blending and extruding the raw materials.

The processes generate airborne particulate matter ("PM") emissions. The Facility has exhaust hoods placed over the process points where fugitive PM is generated (typically loading and unloading points). The hoods are designed and placed to collect as much of the fugitive PM as practical, but do not collect 100%. The hoods tie into exhaust headers which lead to several baghouses, also called dust collectors, which control the PM emissions. The baghouses are as follows:

- Existing baghouse designated as Dust Collector ("DC") #1 serving the extruders and vented inside the building.
- Existing DC #2 serving various mixers and blenders. DC #2 currently vents outdoors, and its two exhaust stacks will be modified after this Plan Approval to vent above the roof.
- Existing DC #3 serving Pulverizer #2. DC #3 currently vents outdoors and its exhaust stack will be modified after this Plan Approval to vent above the roof.
- Existing DC #4 serving Pulverizer #1 and vented outdoors. DC #4 was installed after the first Plan Approval Transmittal No. X255097 was issued. It is noted here that both of the pulverizers are directly piped to their respective DCs, without hoods, and therefore achieve 100% capture.

The extruders generate small amounts of volatile organic matter ("VOC") emissions as well as PM. The VOC is primarily fugitive emissions from the die heads, with much smaller emissions from the extruder vacuum pump system. This VOC is typically high molecular weight compounds which are condensable at room temperature. Hoods mounted over the die heads collect the VOC (with the collection efficiency as high as is practical), and the hood exhaust then flows to Smog Hog electrostatic precipitators. The Smog Hogs control the VOC emissions and vent inside the building with no external stacks.

Some of the raw materials used at this Facility contain chemicals that are listed Hazardous Air Pollutants (HAP) and therefore the Facility PM and VOC emissions also contain a certain amount of HAP. HAP compounds are small fractions of the listed ingredients, and the highest one listed in current use is about 3%. For the sake of conservative assumptions in calculations, the Permittee will assume that emissions contain 6% HAP.

The Permittee performed emission testing in 2012 and 2013 to quantify the PM and VOC emissions and the level of control achieved by the baghouses and Smog Hogs. The results from the emission testing were used to calculate the potential emissions for this Plan Application.

MassDEP has determined that the emission limits in Table 2 of this Plan Approval represent Best Available Control Technology ("BACT) for this Application. The emission limits will be achieved by the use of the baghouses and Smog Hogs to control PM and VOC, and include both uncollected fugitive emissions and after-control emissions. In addition, the Permittee will use Best Management Practices ("BMP") to control the levels of dust inside the building, serving also to reduce PM emissions from wall mounted exhaust fans to the ambient air.

The Permittee may rearrange the existing process equipment and add new process equipment as well, provided that the Facility remains within the limits on potential emissions set in this Plan Approval.

The Facility is not subject to New Source Performance Standards (NSPS) under 40 CFR Part 60 or to National Emission Standards for Hazardous Air Pollutants (NESHAPS) under 40 CFR Part 61 and 63.

This Plan Approval Transmittal No. X269454 amends and supersedes Plan Approval Transmittal No. X255097 and Administrative Amendment No. X255097-A1.

2. EMISSION UNIT (EU) IDENTIFICATION

Each 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	Extruders (Note 1)	na	DC #1 (Note 2) Smog Hogs (Note 3)
2	Pulverizer #1	na	DC #4
3	Pulverizer #2	na	DC #3
4	Sources connected to DC #2, Duct A (Note 4)	na	DC #2
5	Sources connected to DC #2, Duct B (Note 5)	na	DC #2

Table 1 Notes:
Note 1: EU #1 includes 19 different extruders grouped together at the time of this Plan Approval. These include the following:

A. The proposed extruder unit, originally labeled unit #12, will now be labeled Extruder #1. The total number of production based extruder units will still be the same, i.e. 11 units, now labeled Extruder #1 through 11 .
B. LS1 through LS4, and LT1 through LT4, which are R&D units.

Note 2: Extruders #8, LS-1, LS-4, & LT-3 are *not* connected to DC #1.
Note 3: Extruder #LS-1 is *not* connected to a Smog Hog.
Note 4: EU #4 includes the following: Paddle Blender, Ribbon Blender, Henschel Mixer, Welex Mixer, and Tumbler.
Note 5: EU #5 includes 5 Double Cone blenders, #1 through #5.

Table 1 Key:
EU# = Emission Unit Number
PCD = Pollution Control Device
DC = Dust Collector
na = Not Applicable

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

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

Table 2					
EU#	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit (Notes 1, 2 & 3)**		
			Lb/hour	**TPY**	**TPM**
1	1. 36,500,000 pounds per year throughput	PM	0.311	0.596	0.298
		VOC	0.739	1.417	0.709
		HAP (single)	0.044	0.085	0.043
		HAP (total)	0.063	0.121	0.060
2	2. 2,300,000 pounds per year throughput	PM	0.0001	0.0005	0.0002
		HAP (single)	6.45×10^{-6}	2.91×10^{-5}	1.46×10^{-5}
		HAP (total)	6.45×10^{-6}	2.91×10^{-5}	1.46×10^{-5}
3	3. 5,000,000 pounds per year throughput	PM	0.0002	0.0011	0.0005
		HAP (single)	1.48×10^{-5}	6.33×10^{-5}	3.16×10^{-5}
		HAP (total)	1.48×10^{-5}	6.33×10^{-5}	3.16×10^{-5}
4	4. 10,000,000 pounds per year throughput	PM	0.485	0.298	0.149
		HAP (single)	0.029	0.018	0.009
		HAP (total)	0.029	0.018	0.009
5	5. 50,000,000 pounds per year throughput	PM	0.242	0.292	0.146
		HAP (single)	0.015	0.017	0.009
		HAP (total)	0.015	0.017	0.009
Facility-wide	None	PM		1.187	0.594
		VOC		1.417	0.709
		HAP (single)		0.121	0.060
		HAP (total)		0.156	0.078

Table 2 Notes:
Note 1: Emission limits include both after-control and fugitive emissions.
Note 2: All baghouses shall achieve either 99.9% collection efficiency or 0.001 grains per actual cubic foot exhaust, whichever is less stringent.
Note 3: The Permittee shall use the emission factors presented in Table 2A to calculate emission rates.

Table 2 Key:
EU# = Emission Unit Number
PM = Total Filterable Particulate Matter
VOC = Volatile Organic Compounds
HAP (single) = maximum single Hazardous Air Pollutant
HAP (total) = total Hazardous Air Pollutants

Lb/hour = pounds per hour
TPM = tons per month
TPY = tons per consecutive12-month period

Table 2A			
Air Contaminant	**EU #**	**Emission Factor**	**Assumed Overall Control Efficiency, %**
PM	1-Loading	85.03 pounds per million pounds throughput	71.35
	1-Extruding	6.27 pounds per million pounds throughput	0
	2	42.18 pounds per million pounds throughput	99
	3	42.18 pounds per million pounds throughput	99
	4	526.90 pounds per million pounds throughput	88.67
	5	54.78 pounds per million pounds throughput	78.71
VOC	1-Extruding	141.61 pounds per million pounds throughput	45.36
HAP (single)-PM	1-Loading & Extruding	6% of calculated total PM emissions	
HAP (single)-VOC	1-Extruding	6% of calculated total VOC emissions	
HAP (total)	1	The sum of HAP-PM individual and HAP-VOC individual	
HAP (single)	2 -5	6% of each emission unit's calculated total PM emissions	
HAP (total)	2-5	6% of each emission unit's calculated total PM emissions	

Table 2A Key:
% = percent
EU# = Emission Unit Number
PM = Total Filterable Particulate Matter
VOC = Volatile Organic Compounds
HAP (single) = maximum single Hazardous Air Pollutant
HAP (total) = total Hazardous Air Pollutants.

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:

Table 3	
EU#	**Monitoring and Testing Requirements**
1	1. The Permittee shall monitor the Smog Hogs parameters specified in Table 6.
1, 2, 3, 4, &5	2. The Permittee shall monitor the baghouses parameters specified in Table 6.
	3. The Permittee shall monitor raw material throughputs to ensure compliance with the operational limits in Table 2.
Facility-wide	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:
EU# = Emission Unit Number
USEPA = United States Environmental Protection Agency

Table 4	
EU#	**Record Keeping Requirements**
Facility-wide	1. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve-month period (current month plus prior eleven months). These records shall be compiled no later than the 15th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping.
	2. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	3. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EUs and PCDs approved herein on-site.
	4. The Permittee shall maintain a record of routine maintenance activities performed on the approved EUs, PCDs and 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.

Table 4	
EU#	**Record Keeping Requirements**
	5. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EUs and PCDs and monitoring equipment. At a minimum, the records shall include: 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 and monitoring equipment returned to compliant operation.
	6. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	7. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	8. 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
PCD = Pollution Control Device
SOMP = Standard Operating and Maintenance Procedure
USEPA = United States Environmental Protection Agency

Table 5	
EU#	**Reporting Requirements**
Facility-wide	1. 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).
	2. 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 three (3) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Permit Chief at MassDEP within ten (10) 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).
	3. The Permittee shall report to MassDEP every three years, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.
	4. 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.

Table 5	
EU#	**Reporting Requirements**
	5. 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.
	6. 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.

Table 5 Key:
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 is subject to and shall comply with the Special Terms and Conditions as contained in Table 6:

Table 6	
EU#	**Special Terms and Conditions**
1	1. Extruders #8, LS-1, LS-4, & LT-3 are not connected to DC #1and shall not be used to process dusty products.
	2. Extruder #LS-1 is not connected to a Smog Hog and shall not be used to process high VOC products.
1	3. The Permittee shall operate the Smog Hogs at all times the extruders are operating. The following parameters shall be kept within the specified ranges: a. Pre-filter pressure drop: 0-1.5 inches water b. Intermediate filter: 0-0.5 inches water c. Carbon/final filter section: 0.25-3 inches water d. In addition, the precipitator indicator lights, which indicate the need to replace sets of precipitators, shall be kept in proper working order.
1-5	4. The Permittee shall operate the baghouses at all times the various process equipment are operating. The filter pressure drop shall be kept within the specified ranges: a. DC #1: 0.25-5 inches water b. DC #2: 0.1-5 inches water c. DC #3 & #4: 0.25-5 inches water

Table 6	
EU#	**Special Terms and Conditions**
1-5	5. The Permittee shall ensure that the the hoods used to collect fugitive emissions from various points on the processes are kept in good repair, and that the operators are trained to position the hoods effectively to collect the fugitive emissions.
Facility Wide	6. The Permittee shall ensure that indoor dust levels are minimized by employing Best Management Practices which shall include, but is not limited to, cleaning up spilled materials promptly, floor sweeping and/or vacuuming, and proper handling of collected dust.

Table 6 Key:
EU# = Emission Unit Number
VOC = Volatile Organic Compounds
DC = Dust Collector

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."

C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

Table 7 (Note 1)				
EU#	**Stack Height Above Roof (feet)**	**Stack Inside Exit Dimensions Feet**	**Stack Gas Exit Velocity Range (feet per second)**	**Stack Gas Exit Temperature Range (°F)**
2	10	1.25	25-55	110
3	15	1	25-55	110
4	10	1.25	25-45	65-90
5	10	1.25	25-45	65-90

Table 7 Notes:

Note 1: The baghouse and the smog hogs used for EU#1 vent inside the building. EU # 2, 3, 4 and 5 currently vent outside although each of the stacks will be modified to meet the specifications of Table 7.

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. 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.

7. 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 Paul Dwiggins by telephone at 508-767-2760, or in writing at the letterhead address.

Roseanna E. Stanley
Permit Chief
Bureau of Air and Waste

Enclosure

ecc: Worcester Dept. of Inspectional Services 'inspections@worcesterma.gov'
Worcester Fire Department 'wfd_chief@worcesterma.gov'
MassDEP/Boston - Yi Tian
Ramboll Environ—Alan Kao