

Air Permit Review

CDS ID No. 3713500076

Region: Raleigh Regional Office
County: Orange
NC Facility ID: 6800076
Inspector's Name: George Stinagle
Date of Last Inspection: 04/23/2002
Compliance Code: W/In Violation W/regard To Proc Compliance

Facility Data			Permit Applicability (this application only)	
Applicant (Facility's Name): Armacell LLC Facility Address: Armacell LLC 7600 Oakwood Street Extension Mebane, NC 27302 SIC: 3086 / Plastics Foam Products NAICS: 32615 / Urethane and Other Foam Product (except Polystyrene) Manufacturing Facility Classification: Before: Title V After: Title V Fee Classification: Before: TitleV/NAA After: Title V/NAA			SIP: NSPS: NESHAP: PSD: PSD Avoidance: NC Toxics: 112(r): Other: First Time Title V	
Contact Data			Application Data	
Facility Contact	Authorized Contact	Technical Contact	Application Number: 6800076.05C Date Received: 04/27/2005 Application Type: First Time TV Application Schedule: TV Existing Permit Data Existing Permit Number: 08153/R09 Existing Permit Issue Date: 04/29/2005 Existing Permit Expiration Date: 03/31/2010	
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Review Engineer: Mike Brandon Review Engineer's Signature: _____ Date: 04/28/05		Comments / Recommendations: Issue 08153/T10 Permit Issue Date: PROPOSED Permit Expiration Date: 03/31/10		

I. Introduction

This facility has requested removal of their synthetic minor condition and requires a first time Title V Operating Permit. This first time Title V Air Permit application Review intends to convey all pertinent emissions data, rules, policies, and engineering assumptions used to construct the Title V operating permit. The primary source of information used to construct the permit is the above referenced air permit application.

II. Background Information

The Title V operating permit replaces an existing Air Quality Construction and Operation Permit No. 08153R09 that was issued on April 29, 2005 and is currently scheduled to expire on March 31, 2010.

Armacell LLC submitted a complete Title V application to the Division of Air Quality on April 28, 2005 pursuant to the permit R09 requirement (15A NCAC 2Q .0504) for the submittal within one year of changing the facility status from synthetic minor (i.e., April 29, 2006). The permit is required to go to public notice pursuant to 15A NCAC 2Q .0521.

III. Facility Description

This facility produces rubber mat, rubber tube, and extruded polyethylene foam.

IV. Statement of Compliance

The facility is presently in compliance with all applicable regulations and permit conditions. The applicant has also certified that the facility will be in compliance with any applicable requirements taking effect during the term of the permit and will meet such requirements on a timely basis.

V. Summary of Emission Sources and Control Devices

The following table identifies all emission sources and associated control devices for which the First Time Title V Operating Permit is being issued.

Emission Sources	Emission Source Description	Controls	Control System Description
Material Mixing			
MX1	raw material bins	CDMX	dust collection system with fabric filter (3,157 square feet of filter area)
MX2	weigh bins		
MX3	mixer		
MX4	compound station		
MX5	batch station		
Curing			
BO1	natural gas-fired batch oven (0.88 million Btu per hour heat input)	CD01	natural gas-fired regenerative thermal oxidizer; 5.0 million Btu per hour heat input
BO2	natural gas-fired batch oven (0.88 million Btu per hour heat input)		
BO3	natural gas-fired batch oven (0.88 million Btu per hour heat input)		
LO4	tube line natural gas-fired high temperature curing oven (7.5 million Btu per hour heat input)		
LO1	tube line natural gas-fired pre-cure oven (10.65 million Btu per hour heat input)	NA	NA
LO2	mat line natural gas-fired pre-cure oven (2.6 million Btu per hour heat input)	NA	NA
LO5	mat line natural gas-fired high temperature cure oven (4.6 million Btu per hour heat input)	CD02	natural gas-fired regenerative thermal oxidizer; 8.0 million Btu per hour heat input
Polyethylene Insulation Extrusion System			
PEI	three polyethylene insulation extruders	NA	NA
SRM	scrap reclaim machine	DC1	cartridge filter (1,711 square feet of filter area)
MS	polyethylene mixing system dust collection system	DC2	cartridge collector (1,140 square feet of filter area)

VI. Emission Source-by-Source Evaluation

A. Materials Mixing

Dust collection system with fabric filter (ID No. CDMX) on:
raw material bins (ID No. MX1)
weigh bins (ID No. MX2)
mixer (ID MX3)
compound station (ID No. MX4)
batch station (ID No. MX5)

Polyethylene Insulation Extrusion System

scrap reclaim machine (ID No. ESSRM) with cartridge filter (ID No. DC1)
polyethylene mixing system dust collection system (ID No. MS) with cartridge filter (ID No. DC2)

1. Description

The materials mixing system is where rubber and proprietary ingredients are stored, weighed out, mixed together and cut into process sized pieces. The area includes a vented 84-inch mill that exhausts only heat to the atmosphere and was not included on the permit equipment list.

The polyethylene extrusion units are for the processing of the continuously extruded material. The production requires the use of a blowing agent that is neither HAP nor TAP and contained in a pressure tank. This pressure tank is not considered an emission unit and is not included on the permit equipment list.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate emissions	For process weigh rates less than or equal to 30 tons per hour $E = 4.10P^{0.67}$ where E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
visible emissions	20 percent opacity	15A NCAC 2D .0521

a. **15A NCAC 2D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES**

i. Regulatory Analysis

Each source of particulate emission must comply with the process weight rate determined emission limit. The rubber mixing system sources each have an allowable emission limit of about five pounds per hour; and the estimated emission rate for all the sources together is about 1.4 pounds per hour based on a fabric filter grain loading of 0.01 grains per cubic foot of exhaust. These operations are conducted in a semi continuous mode for the materials mixing system and continuously for the extrusion system. It is anticipated that all sources will comply with the allowable limits because of the use of fabric and cartridge filters on the dust collection systems for these process equipment

ii. Monitoring Requirements

The Permittee is required to perform monthly visual inspections of each collection system ductwork and filter/cartridge housing for leaks; and perform an annual initial inspection of filter housing structural integrity and filter condition.

iii. Recordkeeping Requirements

The Permittee is required to maintain records of all inspections and equipment repair.

- iv. Reporting Requirements
Semi annual reports require a summary of monitoring activity and any equipment repair.

b. **15A NCAC 2D .0521: CONTROL OF VISIBLE EMISSIONS**

- i. Regulatory Analysis
Visual emissions from each source may not exceed 20 percent opacity. Compliance with this limitation is anticipated due to the use the thermal oxidizers.
- ii. Monitoring Requirements
The Permittee is required monitor emissions from each source daily to verify that no abnormal emission is occurring.
- iii. Recordkeeping Requirements
The Permittee is required to maintain records of all inspections.
- iv. Reporting Requirements
Semi annual reports require a summary of monitoring activity and any anomalies.

B. Curing

regenerative thermal oxidizer (ID No. CD01) on;
 batch oven (ID No. BO1),
 batch oven (ID No. BO2),
 batch oven (ID No. BO3), and
 tube line high temperature cure oven (ID No. LO4).
 tube line pre-cure oven (ID No. LO1)
 mat line pre-cure oven (ID No. LO2)
 regenerative thermal oxidizer (ID No. CD02) on;
 mat line high temperature cure oven (ID No. LO5)

1. Description
This equipment are used to cure the rubber products. The thermal oxidizers control HAP, TAP, condensable VOC emissions, and odor. They are required for odor and TAP control only.
2. Applicable Regulatory Requirements
The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate emissions	For process weigh rates less than or equal to 30 tons per hour $E = 4.10P^{0.67}$ where: E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
visible emissions	20 percent opacity	15A NCAC 2D .0521
volatile organic compounds	Facility-wide potential emissions shall not exceed 200 tons per consecutive 12-month period. (See Section VII.A.1. - Multiple Emission Sources)	15A NCAC 2Q .0317 NAA NSR AVOIDANCE
HAP	Facility wide emissions shall be less than 10 tons per consecutive 12-month period for any single hazardous air pollutant and less than 25 tons per consecutive 12-month period for all hazardous air pollutants. (See section VII.A.1. - Multiple emission Sources)	15A NCAC 2Q .0317 MACT AVOIDANCE

Regulated Pollutant	Limits/Standards	Applicable Regulation
volatile organic compounds	Work Practice Standards (See Section VII.A.2 - Multiple Emission Sources)	15A NCAC 2D .0958
toxic air pollutants	Toxic air pollutant emissions shall not exceed the levels listed in 2Q .0711 unless ambient standards are not exceeded. (See Section VII.A.3. - Multiple Emission Sources) State-enforceable only.	15A NCAC 2Q .0711
odors	Odorous emissions must be controlled. (See Section VII.A.4. - Multiple Emission Sources) State-enforceable only	15A NCAC 2D .1806

- a. **15A NCAC 2D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES**
 - i. Regulatory Analysis
 These are sources of particulate, VOC, HAP and TAP emissions. Each source must comply with the process weight rate determined emission limit. These operations are conducted in a batch mode. Emissions estimates show that the no control device is necessary for the equipment to comply with the particulate emission rate.
 - ii. Monitoring/Recordkeeping Requirements
 The Permittee is required to maintain production records that specify the types of materials processed.
 - iv. Reporting Requirements
 No reporting is required.

- b. **15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES**
 - i. Regulatory Analysis
 Emissions from this natural gas-fired source are limited to 2.3 pounds per million Btu heat input. There is contribution from the raw materials heated in the form of carbon disulfide (2,900 pounds per year), which will convert after thermal oxidation to approximately 2,442 pounds per year of sulfur dioxide for all cure ovens. Prorated emissions for the natural gas fired ovens will be about 0.02 pounds per million Btu heat input. Compliance is expected.
 - ii. Monitoring, Recordkeeping, and Reporting Requirements
 None of the above is required for natural gas firing.

- c. **15A NCAC 2D .0521: CONTROL OF VISIBLE EMISSIONS**
 - i. Regulatory Analysis
 Visual emissions from each source may not exceed 20 percent opacity. Compliance with this limitation is anticipated due to the use of control equipment.
 - ii. Monitoring Requirements
 The Permittee is required monitor emissions from each source daily verify that no abnormal emission is occurring.
 - iii. Recordkeeping Requirements
 The Permittee is required to maintain records of all inspections.
 - iv. Reporting Requirements
 Semi annual reports require a summary of monitoring activity and any anomalies.

C. Polyethylene Insulation Extrusion System

three polyethylene extruders (ID No. PEI)

1. Description

Polyethylene pellets are pneumatically transferred to the mixing system and then the extruder where it is heated combined with a blowing agent under pressure. After extrusion, the blowing agent expands to produce the foam. The blowing agent is neither HAP nor TAP and slowly escapes the product over time. All emissions are assumed to occur at time of production and storage on site. The previous construction permit was for the addition of two extruders for a total of four. However, the Permittee requested that the permit be changed for the installation of only one additional extruder for a total of three.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
volatile organic compounds	Facility-wide potential emissions shall not exceed 200 tons per consecutive 12-month period. (See Section VII.A.1. - Multiple Emission Sources)	15A NCAC 2Q .0317 NAA NSR AVOIDANCE
HAP	Facility wide emissions shall be less than 10 tons per consecutive 12-month period for any single hazardous air pollutant and less than 25 tons per consecutive 12-month period for all hazardous air pollutants. (See section VII.A.1. - Multiple emission Sources)	15A NCAC 2Q .0317 MACT AVOIDANCE
volatile organic compounds	Work Practice Standards (See Section VII.A.2 - Multiple Emission Sources)	15A NCAC 2D .0958
toxic air pollutants	Toxic air pollutant emissions shall not exceed the levels listed in 2Q .0711 unless ambient standards are not exceeded. (See Section VII.A.3. - Multiple Emission Sources) State-enforceable only.	15A NCAC 2Q .0711
odors	Odorous emissions must be controlled. (See Section VII.A.4 . - Multiple Emission Sources) State-enforceable only	15A NCAC 2D .1806

VII. Multiple Emission Source Limits

A. Facility Wide

All facility emission sources are subject to these limits and/or standards:

Regulated Pollutant	Limits/Standards	Applicable Regulation
volatile organic compounds	Facility-wide potential emissions shall not exceed 200 tons per consecutive 12-month period.	15A NCAC 2Q .0317 NAA NSR AVOIDANCE
HAP	Facility wide emissions shall be less than 10 tons per consecutive 12-month period for any single hazardous air pollutant and less than 25 tons per consecutive 12-month period for all hazardous air pollutants.	15A NCAC 2Q .0317 MACT AVOIDANCE
volatile organic compounds	Work Practice Standards	15A NCAC 2D .0958
toxic air pollutants	Toxic air pollutant emissions shall not exceed the levels listed in 2Q .0711 unless ambient standards are not exceeded. State-enforceable only.	15A NCAC 2Q .0711

Regulated Pollutant	Limits/Standards	Applicable Regulation
odors	Odorous emissions must be controlled. State-enforceable only	15A NCAC 2D .1806

1. 15A NCAC 2Q .0317: NAA NEW SOURCE REVIEW and MACT AVOIDANCE CONDITION for MAJOR SOURCE CLASSIFICATIONS

PM10 and VOC emissions were limited in the permit for the addition of two extruders in 2004 to avoid PSD and Title V (i.e., 250 and 100 tons per year, respectively). The 2004 permit (R07) changed the facility status from small to synthetic minor. The source has requested to remove the limitations for synthetic minor in order to expand the extrusion operations, which will allow facility wide emissions to exceed 100 tons per year. Orange County has been designated non-attainment for VOC/NOx and is not an Early Action Compact participant. Therefore, the VOC emissions increases must be evaluated for applicability to non-attainment new source review.

The actual facility VOC emissions prior to this modification were determined to be the allowable ("less than" 100 tons per year) because the actual emissions from the first two extruders had not been historically established (i.e., operated for two years). The facility will be allowed to add an additional "less than" 100 tons per year of VOC emissions for the installation of one new extruder for a facility wide total of "less than" 200 tons per year. The facility is now a major facility subject to NAA review for any future significant increase in VOC/NOx. A condition was added for this limit with monitoring, recordkeeping and reporting that states the thermal oxidizers will not be used to demonstrate compliance with the limits. The references to PM10 avoidance were removed as potential emissions estimates show only about 12 tons per year from this facility.

In addition to the above, the Permittee has requested that a MACT avoidance condition be added to the permit even though potential emissions presently do not approach the HAP thresholds for a HAP major source designation. This was incorporated into the above NAA avoidance limit.

2. 15A NCAC 2D .0958: WORK PRACTICES FOR SOURCES OF VOLATILE ORGANIC COMPOUNDS

This permit requirement applies facility wide and provides housekeeping and work practice standards to prevent fugitive emissions of VOC to the atmosphere. Monthly inspections are required to ensure the work practice and housekeeping standards are being implemented. Records of inspections are required and semi annual reporting of deviations.

3. TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REPORTING REQUIREMENT

The facility presently emits 13 TAPs, each of which is below its respective TPER. The Permittee is required to operate the regenerative thermal oxidizers (ID Nos. CD01 and CD02) any time the batch ovens (BO1, BO2, and BO3) or high temperature ovens (LO4 and LO5) are operating. The set point for thermal oxidizer control shall be 1500° F.

4. 15A NCAC 2D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS

This "state enforceable only" permit requirement applies facility wide and prohibits the Permittee from operating the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary. This provision has no recordkeeping or reporting requirement and is complaint based. It is not likely that any complaints will be received from this facility as a rendering plant is located next door.

VIII. General Conditions

The General Conditions section of the Title V Operating Permits lists additional applicable rule requirements that the Permittee must adhere to, as with any other permit condition. These requirements in general are common to all Title V facilities. The general conditions include provisions such as annual fee payment, permit renewal and expiration, transfer of

ownership or operation, property rights, submission of documents, inspections and entry procedures, reopen for cause, and severability.

IX. Insignificant Activities

The insignificant activities listed in the application have been reviewed and verified. Because an emission source or activity is insignificant does not mean that the emission source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement. Categorically exempt significant activities are not included on this list.

X. Public Notice

Pursuant to 15A NCAC 2Q .0521, a notice of the Title V Operating Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list, affected states, and EPA.

XI. Recommendations

The initial Title V application for Armacell LLC has been reviewed by the DAQ to determine compliance with all procedures and requirements under 15A NCAC 2Q .0500 and 40 CFR Part 70. The DAQ has made a preliminary determination that the facility will achieve compliance as specified in the permit with all applicable requirements. Therefore, the DAQ is proposing to issue the Title V Operating Permit upon completion of the public comment period and the EPA review.