

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

**Air Permit Review**

Permit Issue Date: **date, 2009**

**Region:** Raleigh Regional Office  
**County:** Orange  
**NC Facility ID:** 6800076  
**Inspector's Name:** Brian Bland  
**Date of Last Inspection:** 04/24/2009  
**Compliance Code:** 3 / Compliance - inspection

<b>Facility Data</b>			<b>Permit Applicability (this application only)</b>
<b>Applicant (Facility's Name):</b> Armacell LLC  <b>Facility Address:</b> Armacell LLC 7600 Oakwood Street Extension Mebane, NC 27302  <b>SIC:</b> 3086 / Plastics Foam Products <b>NAICS:</b> 32615 / Urethane and Other Foam Product (except Polystyrene) Manufacturing  <b>Facility Classification: Before:</b> Title V <b>After:</b> Title V <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V			<b>SIP:</b> <b>NSPS:</b> <b>NESHAP:</b> <b>PSD:</b> <b>PSD Avoidance:</b> <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b>
<b>Contact Data</b>			<b>Application Data</b>
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<b>Application Number:</b> 6800076.09B <b>Date Received:</b> 06/26/2009 <b>Application Type:</b> Renewal <b>Application Schedule:</b> TV-Renewal <b>Existing Permit Data</b> <b>Existing Permit Number:</b> 08153/T15 <b>Existing Permit Issue Date:</b> 03/10/2009 <b>Existing Permit Expiration Date:</b> 03/31/2010
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<b>Review Engineer:</b> Mark Cuilla  <b>Review Engineer's Signature:</b> <b>Date:</b> <b>date, 2009</b>		<b>Comments / Recommendations:</b> Issue 08153/T16 <b>Permit Issue Date:</b> <b>date, 2009</b> <b>Permit Expiration Date:</b> <b>date, 2014</b>	

**I. Purpose of Application**

This permitting action is a renewal of an existing Title V permit pursuant to 2Q .0513. The existing Title V permit (**08153T15**) was issued on **March 10, 2009**, and is scheduled to expire on **March 31, 2010**. The renewal application was received on **June 26, 2009**, or at least nine months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

**II. Facility Description**

The facility is a manufacturer of rubber mat, rubber tube, and extruded polyethylene foam. Specific operations include extrusion and curing operations as part of the rubber mat and tube lines and polyethylene foam/insulation extrusion system.

### III. History/Background/Application Chronology

**June 26, 2009** – Permit application **6800076.09A** was received for the renewal of the Title V air permit.

**July 6, 2009** – Received Raleigh Regional Office P&O Review from Dena Pittman.

**July 30, 2009** – DRAFT permit sent to Permittee and RRO for comment prior to public notice and EPA review.

**date, 2009** – DRAFT sent to 30-day public notice and 45-day EPA review prior to issuance.

### IV. Permit Modifications/Changes and ESM Discussion

The following table describes the modifications to the current permit as part of the renewal process.

Page(s)	Section	Description of Change(s)
Attachment	Insignificant activities	-edited equipment descriptions per current ESM guidelines
Cover	-	-amended all dates and permit revision numbers
All	Header	-amended permit revision number
3-4	Equipment table	-edited equipment descriptions per current ESM guidelines
5	2.1 A.1.a	-added ID numbers
6	2.1 A.1.b 2.1 A.1.c 2.1 A.1.d 2.1 A.1.f 2.1 A.1.g	-updated shell language -added ID numbers -added monitoring language for uncontrolled sources -added reporting language for uncontrolled sources -added ID numbers
7	2.1 A.2.a 2.1 A.2.c	-added ID numbers -added ID numbers
8	2.1 B 2.1 B.1.a 2.1 B.1.b	-edited equipment descriptions per current ESM guidelines -added ID numbers -updated shell language
9	2.1 B.1.c 2.1 B.1.d 2.1 B.2 2.1 B.3.a 2.1 B.3.b	-added ID numbers -added shell reporting language -added 2D .0516 shell language -added ID numbers -corrected cross reference
9-10	2.1 B.3.c	-added ID numbers and corrected cross reference
10	2.1 B.3.d	-added recordkeeping requirements
11	2.1 D.1 2.1 D.1.b	-corrected rule citation -updated shell language
12	2.2 A 2.2 A.1 2.2 A.1.a 2.2 A.1.b 2.2 A.1.c	-clarified applicable equipment list -corrected rule citation -added ID numbers -updated shell language -added ID numbers
14	2.2 B (table) 2.2 B.1	-added reference to 112(r) requirements -corrected rule citation
15	2.2 B.1.d	-corrected pollutant reference from VOC to HAP

Page(s)	Section	Description of Change(s)
17	2.2 B.3	-corrected rule citation
18	2.2 B.5	-added 112(r) language
Attachment	List of Acronyms	-updated shell list of acronyms (v2.22.1)

Note. ESM was checked and all equipment/control device descriptions were brought up to date with current guidelines.

## V. Regulatory Review

The facility is currently subject to the following regulations:

15A NCAC 2D .0515, Particulate Emissions from Miscellaneous Industrial Processes  
15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources  
15A NCAC 2D .0521, Control of Visible Emissions  
15A NCAC 2D .0958, Work Practices for Sources of Volatile Organic Compounds  
15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions  
15A NCAC 2Q .0317, Avoidance Conditions (for 15A NCAC 2D .0530, Prevention of Significant Deterioration, 15A NCAC 2D .0531, Sources in Nonattainment Areas, and 15A NCAC 2D .1111, Maximum Achievable Control Technology)  
15A NCAC 2Q .0711, Emission Rates Requiring a Permit

A regulatory review for the existing sources will not be included in this document.

However, as part of this permit renewal, the following permit conditions have been added to the permit:

1. 15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources. It should be noted, that although the applicable regulation table of Section 2.1 B listed 2D .0516, the actual permit language was absent from the permit. No compliance issues result because of this absent language as all applicable sources fire natural gas and therefore, have no specific monitoring/recordkeeping/reporting requirements.
2. 15A NCAC 2D .2100, Risk Management Program – Section 112(r) of the Clean Air Act. See Section VI of this Document for a discussion.

## VI. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

**NSPS** – The Permittee is not currently subject to any New Source Performance Standards. This permit renewal does not affect this status.

**NESHAPS/MACT** – The Permittee is currently operating under facility-wide emission limits for hazardous air pollutants (HAPs) in order to avoid the applicability of major source Maximum Achievable Control Technology Standards. The permit limits emissions of any single HAP to less than 10 tons per year and to less than 25 tons per year for any combination of HAPs. These limitations establish this facility as a Title III minor facility. To ensure compliance, the Permittee is required to calculate HAP emissions monthly using consumption and HAP material content records with the consideration of thermal oxidizer control efficiency. Specific recordkeeping and reporting requirements are also established. This permit renewal does not affect this status.

EPA has begun promulgating area source MACTs under Part 63. These standards, if applicable, apply to minor sources of HAPs (i.e., those defined as Title III minor). As stated above, this facility has requested to be defined as a Title III minor facility by permit restriction. A review of the currently promulgated area source MACTs indicate that none currently apply. Part 63, Subpart OOOOOO, National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication, was specifically targeted for review of applicability. As titled, this Subpart limits applicability to facilities that produce or fabricate flexible polyurethane foam. As described, this facility produces polyethylene foam materials; therefore, this area source MACT does not apply.

**PSD** – This PSD major stationary source is currently subject to the following avoidance conditions:

1. Section 2.1 D limits actual volatile organic compound emissions from three polymer extrusion lines (**ID Nos. PEI-4 through PEI-6**) to less than 249 tons per consecutive 12-month period in order to avoid applicability of 15A NCAC 2D .0530, Prevention of Significant Deterioration. To ensure compliance, the Permittee is required to operate a continuous monitoring device for blowing agent injection rates for each extruder at all times isobutane is used. Specific recordkeeping and reporting requirements are also established. This permit renewal does not affect this status.
2. Section 2.2 A.1 limits actual volatile organic compound emissions facility-wide (except for polymer extrusion lines **ID Nos. PEI-1 through PEI-3**) to less than 200 tons per consecutive 12-month period in order to avoid applicability to 15A NCAC 2D .0531, Sources in Non-attainment Areas. This condition was added when Orange County was designated as non-attainment for ozone. The County has since been redesignated as attainment but the permit condition remains. To ensure compliance, the Permittee is required to calculate VOC emissions monthly using consumption and VOC material content records with the consideration of thermal oxidizer control efficiency. Specific recordkeeping and reporting requirements are also established. This permit renewal does not affect this status.

Historical look at PSD permitting –

(From Mike Brandon’s Air Permit Review – **April 29, 2005/08153R09** modification to add two extruders, Step I of two-step significant modification):

*PM<sub>10</sub> and VOC emissions were limited in the permit for the addition of two extruders in 2004 to avoid PSD and Title V. 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 Compact participant. Therefore, the VOC emissions increase 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 the two new extruders for a facility-wide total of “less than” 200 tons per year, or not to exceed 199 tons. The facility is now a major facility subject to NAA review for any future significant increase on VOCs/NOx. A condition was added for this limit with monitoring, recordkeeping, and reporting.”*

(From Mike Brandon's Air Permit Review **June 20, 2005/08153T10** second step of two-step significant modification, 12-month submittal requirement):

*EPA commented "Although the 99 tpy VOC limit was taken originally for title V avoidance purposes, it became linked to NSR when the area was designated nonattainment for 8-hour ozone. That is, the 99 tpy limit served to make the source a synthetic minor source for nonattainment NSR (NNSR) purposes. A key point, however, is that this was not a NNSR avoidance limit. If the source owner simply wanted to modify the existing units (the existing minor source) and increase emissions from the existing units, the increase in emissions could be up to 99 tpy without triggering NNSR requirements. Going from a minor to a major does not itself trigger NNSR unless the increase itself is major. The complication in this case is that a new line is being added and the apparent desired outcome is a 198 tpy limit for the entire source (old lines + new lines). The hard stance would be to say that assigning a source-wide limit including the old lines voids the previous synthetic minor status for the old lines and, therefore, the new line should be viewed as a modification of an existing major source and should receive a limit of <40 tpy to avoid NNSR. The solution to preclude this perception would be to retain the enforceable 99 tpy limit for the old lines and to impose a separate enforceable 99 tpy limit on the new line. However, given (a) that "source" means all units, (b) that in this case the increase for all units combined (old and new) is not in and of itself major, and (c) that the 99 tpy limit on the old lines was not a NNSR-avoidance limit, I believe you would be acting consistently with the minor-to-major source change concept in setting a source-wide limit for both the old and new lined combined at 198 tpy. My comfort level would be higher with the separate permit limits approach mentioned above, but I do not believe this approach is essential."*

(From Jenny Kelvington's Air Permit Review **March 10, 2009/08153T15** one step significant modification):

*Under PSD, a major stationary source is defined as any one of 28 named source categories with the potential to emit 100 tons per year (tpy) or more or any other stationary source with the potential to emit 250 tpy or more of any CAA regulated pollutant. Armacell is not one of the 28 listed source categories. Hence, the major source threshold is 250 tpy of any regulated pollutant. The facility is currently a minor PSD source subject to a facility-wide limit of less than 200 tons per year of VOC emissions. This limit was established to avoid a non-attainment area (NAA) new source review (NSR) when Orange County was designated as non-attainment for ozone. Armacell has requested that the NAA/NSR avoidance condition remain for all VOC sources currently at the facility. In addition, Armacell has asked that the proposed new and modified polymer extrusion lines (**ID Nos. PEI4 through PEI6**) be limited to 249 tpy of VOC emissions to avoid PSD. Following modification, the facility's classification will be changed to PSD major, as it will have the potential to emit less than 449 tpy of VOCs.*

**112(r)** – The latest facility inspection report states "Due to its maximum inventory of isobutene, Armacell is subject to 112(r) regulations and submitted a RMP to the EPA in 2006. However, this plan was not submitted on or before the date on which isobutane was first present above the threshold quantity, so an NOV/NRE, dated May 30, 2006, was sent for this violation of 15A NCAC 2D .2103." As a result of this action and to prevent additional compliance issues, the renewed permit has been modified by adding Section 2.2 B.5. This Section requires that the Permittee update its RMP plan once every five years beginning with the initial submittal on **August 31, 2006** as follows:

**5. 15A NCAC 2D .2100: RISK MANAGEMENT PROGRAM – SECTION 112(r) OF THE CLEAN AIR ACT**

a. The Permittee is subject to Section 112(r) of the Clean Air Act and shall comply with all applicable requirements in accordance with 40 CFR Part 68.

**Recordkeeping/Reporting** [15A NCAC 2Q .0508(f)]

b. The Permittee submitted a Risk Management Plan (RMP) to EPA pursuant to 40 CFR Part 68.150 on **August 31, 2006**.

c. The Permittee shall revise and update the RMP submitted under 40 CFR 68.150 by **August 31, 2011**, and at least once every five years after that date or most recent update required by 40 CFR 68.190(b)(2) through (b)(7), whichever is later.

**CAM** – 40 CFR 64 requires that a continuous compliance assurance monitoring plan be developed for all equipment located at a major facility, that have pre-control emissions above the major source threshold, and use a control device to meet an applicable standard. The following table indicates all current equipment/control device relationships:

<b>Emission Source ID No.</b>	<b>Emission Source Description</b>	<b>Control Device ID No.</b>	<b>Control Device Description</b>
MX1 MX2 MX3 MX4 MX5 MX7 MX8	Raw material bins Weigh bins Mixer Compound station Batch station Super sack stands Transporters	CD-MX	One fabric filter
MX9	Day bins	CD-MH	One cartridge type filter
BO1 through BO3	Three natural gas-fired batch ovens	CD-01	One natural gas-fired regenerative thermal oxidizer
LO2b	Mat line consisting of one natural gas-fired high temperature cure oven and one natural gas-fired pre-cure oven exhausting into three vents		
LO4	Tube line natural gas-fired high temperature curing oven		
SRM	Scrap reclaim machine	DC1	One cartridge type filter
MS	Polyethylene mixing system dust collection system	DC2	One cartridge type filter

The following table indicates the regulations applicable to each emission source/control device relationship:

<b>Emission Source ID No.</b>	<b>Control Device ID No.</b>	<b>Applicable Regulations</b>	<b>Pollutant/CAM Required?</b>
MX1 MX2 MX3 MX4 MX5 MX7 MX8	CD-MX	2D .0515 2D .0521	Particulates. No, PM <sub>10</sub> potential <100 tpy. Visible emissions. No, not criteria pollutant.
MX6	CD-MH	2D .0515 2D .0521	Particulates. No, PM <sub>10</sub> potential <100 tpy. Visible emissions. No, not criteria pollutant.
BO1 through BO3	CD-01	2D .0515 2D .0516 2D .0521 2Q .0317 2Q .0317 2D .0958 2Q .0711 2D .1806	Particulates. No, CD not installed for PM control. Sulfur dioxide. No, CD not installed for SO <sub>2</sub> control Visible emissions. No, not criteria pollutant. VOCs. No, emission cap exemption. HAPs. No, emission cap exemption. VOCs. No, work practice standards only. TAPs. No, not criteria pollutants. Odor. No, not criteria pollutants.
LO2b	CD-01	2D .0515 2D .0516 2D .0521 2Q .0317 2Q .0317 2D .0958 2Q .0711 2D .1806	Particulates. No, CD not installed for PM control. Sulfur dioxide. No, CD not installed for SO <sub>2</sub> control Visible emissions. No, not criteria pollutant. VOCs. No, emission cap exemption. HAPs. No, emission cap exemption. VOCs. No, work practice standards only. TAPs. No, not criteria pollutants. Odor. No, not criteria pollutants.
LO4	CD-01	2D .0515 2D .0516 2D .0521 2Q .0317 2Q .0317 2D .0958 2Q .0711 2D .1806	Particulates. No, CD not installed for PM control. Sulfur dioxide. No, CD not installed for SO <sub>2</sub> control Visible emissions. No, not criteria pollutant. VOCs. No, emission cap exemption. HAPs. No, emission cap exemption. VOCs. No, work practice standards only. TAPs. No, not criteria pollutants. Odor. No, not criteria pollutants.
SRM	DC1	2D .0515 2D .0521	Particulates. No, PM <sub>10</sub> potential <100 tpy. Visible emissions. No, not criteria pollutant.
MS	DC2	2D .0515 2D .0521	Particulates. No, PM <sub>10</sub> potential <100 tpy. Visible emissions. No, not criteria pollutant.

Potential uncontrolled PM<sub>10</sub> emissions from the mixing equipment were estimated as follows:  
 -Maximum potential throughput is based on 7,617 pounds of chips per hour.  
 -Uncontrolled emissions factor from AP42, Section 6, Chapter 6, Table 6.6.2-1 of 0.4 pounds uncontrolled PM per 1000 pounds of material.

(7,617 lbs chips/hour) x (0.4 lbs PM/1000 lbs material) x (8760 hours/year) x (1 ton/2000 lbs)  
= 13.3 tons PM/year

#### VII. Facility Wide Air Toxics

The Permittee has made a demonstration that emissions of several listed toxic air pollutants are each below their toxic pollutant emission rate. The permit requires that the Permittee submit a permit application prior to exceeding any listed TAP. In addition, the permit requires that a regenerative thermal oxidizer (**ID No. CD01**) be operated any time the batch ovens (**ID Nos. BO1 through BO3**) or high temperature oven (**ID No. LO4**) is operating. The thermal oxidizer shall have a minimum temperature of 1500 degrees Fahrenheit. This permit renewal does not affect this status.

#### VIII. Facility Emissions Review

The following table represents the latest years' emission inventories from the facility:

Pollutant(s)	2006 Actual Emissions (tpy)	2007 Actual Emissions (tpy)
CO	9.72	10.06
NO <sub>x</sub>	13.79	12.59
PM <sub>10</sub>	19.31	16.80
SO <sub>2</sub>	0.08	0.06
VOC	124.40	126.24
Total HAP/TAP	4.72	4.17

#### IX. Stipulation Review

The facility was last inspected on **April 24, 2009** by Mr. Brian Bland of the RRO. At that time, "the facility appeared to be in compliance with all permitting requirements."

#### X. Public Notice/EPA and Affected State(s) Review

Pursuant to 15A NCAC 2Q .0521, a notice of the DRAFT Title V Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30-day 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 and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above. There are no affected States or Local Programs within 50 miles of the facility.

#### XI. Conclusions, Comments, and Recommendations

A professional engineer's seal was not required for this renewal.

A consistency determination was not required for this renewal.

RRO recommends issuance of the permit and **was presented** with a DRAFT permit prior to notice and issuance.

RCO concurs with RRO's recommendation to issue the renewed air permit.