NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: October X, 2009

Region: Raleigh Regional Office
County: Wilson
NC Facility ID: 9800104
Inspector's Name: Will Wike
Date of Last Inspection: 11/20/2008
Compliance Code: 3 / In Compliance - Inspection

Facility Data

Applicant (Facility's Name): Carolina Classic Mfg Inc

Facility Address:
Carolina Classic Mfg Inc
510 East Jones Street
Wilson, NC 27893

SIC: 3088 / Plastics Plumbing Fixtures
NAICS: 326191 / Plastics Plumbing Fixture Manufacturing

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP:
NSPS:
NESHAP: Subpart WWWW
PSD:
PSD Avoidance:
NC Toxics:
112(r):
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
J Eason Vice President, Manufacturing (800) 775-8827 510 East Jones Street Wilson, NC 27893	J Eason Vice President, Manufacturing (800) 775-8827 510 East Jones Street Wilson, NC 27893	J Eason Vice President, Manufacturing (800) 775-8827 510 East Jones Street Wilson, NC 27893

Application Data

Application Number: 9800104.07A
Date Received: 02/14/2007
Application Type: Modification
Application Schedule: TV-Significant

Existing Permit Data
Existing Permit Number: 05169/T09
Existing Permit Issue Date: 02/14/2007
Existing Permit Expiration Date: 08/31/2010

Review Engineer: Jenny Kelvington

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 05169/T10
Permit Issue Date: October X, 2009
Permit Expiration Date: August 31, 2010

I. Purpose of Application

Carolina Classic Manufacturing, Inc. (Carolina Classic) currently holds Title V Permit No. 05169T09 with an expiration date of August 31, 2010 for a reinforced fiberglass product manufacturing facility in Wilson, North Carolina, Wilson County. This permitting action is a significant modification to the TV permit to add applicable MACT language as specified in 40 CFR 63, Subpart WWW "Reinforced Plastic Composites Production" and requested by Application No. 9800104.07A. The facility uses open molding with fluid impingement non-atomized mechanic application (chopper guns) and follows the compliant coating MACT compliance option.

II. Facility Description

The facility manufactures fiberglass-reinforced bathtubs and shower stalls. Molds are made from a wood frame and built up to a fiberglass mold. The mold is lubricated with Teflon wax. The first application to the mold is a gel coat of only 0.020 inches (20 mils). Then wood for the floors and cardboard for the sides are placed prior to the chop (chopped fiberglass) being applied. The chopped fiberglass is applied with a mixture of resin and a catalyst (methyl ethyl ketone peroxide). The stalls are hand rolled to smooth out imperfections.

They are allowed to air cure for two days, and then are separated from the molds by pulling in combination with forced air and beating with rubber hammers. Diamond, water-wash, hand-held, air-driven, cutting machines are used to trim the excess. They are then QA/QC checked and packaged for shipping.

III. Facility Compliance Status

DAQ has reviewed the compliance status of this facility. During the most recent inspection, conducted on November 20, 2008 by Mr. Will Wike of the Raleigh Regional Office (RRO), the facility was found to be in compliance with all applicable requirements. A Notice of Violation (NOV) was issued to the facility on March 9, 2006 for failure to submit an annual compliance certification (ACC) for calendar year 2005 by the March 1st due date and another NOV was issued on April 17, 2007 for failing to provide stack testing data that demonstrated the non-atomized spray guns used at the facility were indeed MACT compliant. Both violations have been resolved. The facility is considered to be in compliance with their Title V permit at this time.

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IV. Permit Modifications/Changes and ESM Updates

The following table describes the modifications to the current permit as part of this minor modification application.

Page(s)	Section	Description of Change(s)
Attachment	-	- Updated attachment summarizing all changes to permit.
1	Permit Title Page	- Updated permit revision numbers. - Updated effective and issuance dates. - Updated permit application information.
2	Table of Contents	- Deleted Part II in table of contents.
3 - 19	All, Header	- Updated permit revision number.
3	Section 1, permitted equipment table	- Removed footnote defining permit applicability parameters for equipment covered under current 15A NCAC 2Q .0515 minor modification.
5	Section 2.1 A.2.c.ii.	- Added "15A NCAC 02D .2601 (Method 9) for 12 minutes" under the VE monitoring requirement.
7-11	Section 2.2 A.3	- Added MACT WWWW "*National Emission Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production"* permit requirements.
14-22	Section 3	- Updated general conditions with standard language common to all Title V permits.
N/A	N/A	- Removed Part II.

V. Emission Sources/Air Emissions/Regulatory Review

Emission Sources

Eleven (11) reinforced fiberglass composite mold resin spray booths (ES-A through ES-K)
A MACT-compliant low-HAP (styrene) resin is applied to composite molds inside the spray booths. Fumes from the spray booths pass through filters for particulate control and then are vented outdoors through the roof. The filters are normally changed twice weekly when in use. The resin is applied via MACT-compliant non-atomized external mix (Binks LEL) spray guns which produce an "expanding non-misting curtain of liquid by the impingement of low-pressure uninterrupted liquid streams."[1] The spray guns are cleaned with acetone (a non-HAP) in quantities of 50 gallons per week, most of which is collected and shipped off site for reuse.

[1] Meets the definition of *fluid impingement technology, nonatomized mechanical application,* and *open molding* in 40 CFR 63.5935.

Three reinforced fiberglass composite mold gel coat spray booths (ES-L through ES-N)
A MACT-compliant low-HAP (styrene) gel coat is applied to composite molds inside spray booths. Fumes from the spray booths pass through filters for particulate control and then are vented outdoors through the roof. The filters are normally changed twice weekly when in use. The gel coat is applied via MACT-compliant non-atomized external mix (Binks LEL) spray guns. The LEL technology offers high transfer at a low velocity spray. The spray guns are cleaned with acetone in quantities of 50 gallons per week, most of which is collected and shipped off site for reuse.

Two resin mixing tanks (ID Nos. RMR1 and RMR2, 750 gallons each)
Resin run tank (ID No. RMR3, 1,000 gallons), resin run tank (ID No. RMR4, 750 gallons)
Powdered calcium carbonate and aluminum trihydrate are mixed with resin to form a slurry. This slurry is used as a filler material added to the products. The facility normally mixes three slurry batches per day. A wall fan vents these tanks to the outdoors.

Resin storage tank (ID No. RMR6, 5,400 gallons)
Resin storage tank (ID No. RMR7, 2,250 gallons)
These tanks are used for resin storage. The primary tank is RMR6 and holds approximately 45,000 pounds. Overflow is stored in tank RMR7, which has a 20,000 pound capacity.

Air Emissions
VOC/HAP/TAP emissions occur primarily from the evaporation of the cross-linking monomer agent (styrene, both a HAP and a TAP) during curing. The MSDS for the polyester resin shows that styrene comprises 37.5% by weight. The gel coat MSDS lists its styrene content at 28 to 30% by weight. Emission factors for styrene are calculated from Table 1 of 40 CFR 63, Subpart WWWW as follows:

Spray up resin $EF_{resin} = ((0.157 \times \mathbf{0.378}) - 0.0165) \times 2000 = 86$ lb/ton of resin sprayed
Gel coat application $EF_{gelcoat} = ((0.4506 \times \mathbf{0.30}) - 0.0505) \times 2000 = 169$ lb/ton of gel coat applied

Carolina Classic also uses a catalyst containing 43% dimethyl phthalate (DMP, a HAP but not a TAP) and 1% methyl ethyl ketone (MEK, a TAP but not a HAP) by weight. It is added at about a 3 to 100 ratio to the resin and at about a 1 to 80 ratio to the gel coat. The facility conservatively reports all MEK used as emissions and calculates DMP emissions using the same emission factor equations as used for styrene adjusted in direct proportion to vapor pressure. The vapor pressure of DMP is 1 mm Hg @ 100.3C. At that same temperature, the vapor pressure for styrene is estimated at 193 mm Hg.[2]

Resin catalyst $EF_{cat} = (1 \text{ mm Hg}/193 \text{ mm Hg}) \times ((0.157 \times \mathbf{0.43}) - 0.0165) \times 2000 = 0.53$ lb/ton of catalyst
Gel coat catalyst $EF_{cat} = (1 \text{ mm Hg}/193 \text{ mm Hg}) \times ((0.4506 \times \mathbf{0.43}) - 0.0505) \times 2000 = 1.48$ lb/ton of catalyst

In 2008, six spray up resin booths were active and emitted 45.6 tons of VOC including 43.3 tons of styrene. Three gel coat spray booths also emitted 24.1 tons of VOC including 23.9 tons of styrene in 2008. The resin tanks combined have emitted less than 0.1 tons of VOCs per year.

15A NCAC 2D .1111 [40 CFR PART 63 SUBPART WWWW, "*National Emission Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production*"]
All of the permitted emission sources are subject to Maximum Achievable Control Technology (MACT) Subpart WWWW. The facility was required to comply with MACT Subpart WWWW by April 21, 2006 and provided initial notification on August 19, 2003. The facility uses MACT-compliant spray guns and MACT-compliant resin and gel coat. Operations include non-corrosion resistant/non-high strength resin open molding and white/off white pigmented gel coating open molding. The MACT limits organic HAP emissions to no more than 88 pounds per ton for the resin molding and no more than 267 pounds per ton for the gel coat molding[3] and requires the facility to adhere to the work practice standards related to the use of cleaning solvents and the storage and mixing of HAPs. Note, HAP emission limits

[2] Using process calculator at www.processglobe.com.
[3] Table 3 to Subpart WWWW of Part 63—Organic HAP Emissions Limits for Existing Open Molding Sources

do not restrict HAPs emitted from fillers, catalysts, or promoters. Using the relevant equations found in Table 1 to Subpart WWWW of Part 63 and the HAP content of the resin and gel coat used, Carolina Classic estimates HAP emissions from the resin open molding at 86 pounds per ton and from the gel coat operation at 169 pounds per ton. The most recent facility inspection report shows the facility was following work practices in accordance with the MACT. Continued compliance is expected.

VI. Nonattainment/Prevention of Significant Deterioration:

Wilson County is designated as attainment for $PM_{2.5}$ and the 8-hour ozone standard.
Carolina Classic is classified as a major source for PSD purposes. Based on potential emissions the facility is a major stationary source. This permit modification does not involve any modification and therefore there are no PSD implications.

VII. Air Toxics:

This modification does not affect air toxics. Styrene and methyl ethyl ketone (MEK) are the only toxics emitted in appreciable quantities from the site. The facility will continue to be subject to styrene emission limits under 2D .1100. They have demonstrated that MEK is emitted below the toxic permit emission rate (TPER) listed in 2Q .0711.

VIII. Facility Wide Emissions

The following is a summary of the facility wide emissions. Actual emissions come from the 2008 emissions inventory. Potential emissions are taken from the permit application.

Pollutant	Actual Emissions (Tons/Year)	Potential Emissions (Tons/Year)
PM	3.84	22.5
VOC	69.8	521
Styrene (HAP)	69.3	520
Total HAPs	69.3	520

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

Public notice will be performed consistent with the requirements of 15A NCAC 2Q .0521. The notice provides for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice will 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 pursuant will also be provided to EPA.

X. Recommendations

This permit modification application for the Carolina Classic facility located in Wilson, NC, Wilson County has been reviewed by NC DAQ to determine compliance with all procedures and requirements. NC DAQ has determined that this facility is complying or will achieve compliance as specified in the permit with all applicable requirements.

Recommend issuance of Permit No. 05169T10.