NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: date, 2011

Region: Winston-Salem Regional Office
County: Wilkes
NC Facility ID: 9700023
Inspector's Name: Eric Hudson
Date of Last Inspection: 12/15/2010
Compliance Code: 3 / Compliance - inspection

Facility Data	Permit Applicability (this application only)
Applicant (Facility's Name): Gardner Glass Products Inc **Facility Address:** Gardner Glass Products Inc 600 Elkin Highway North Wilkesboro, NC 28659 **SIC:** 3231 / Products Of Purchased Glass **NAICS:** 327215 / Glass Product Manufacturing Made of Purchased Glass **Facility Classification: Before:** Title V **After:** Title V **Fee Classification: Before:** Title V **After:** Title V	**SIP:** **NSPS:** **NESHAP:** **PSD:** **PSD Avoidance:** **NC Toxics:** **112(r):** **Other:**

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Jill Edwards Environmental Manager (336) 651-9300 PO Box 1570 North Wilkesboro, NC 28659	Roger Miller Vice President of Manufacturing (336) 651-9300 PO Box 1570 North Wilkesboro, NC 28659+1570	Jill Edwards Environmental Manager (336) 651-9300 PO Box 1570 North Wilkesboro, NC 28659

Application Data

Application Number: 9700023.11A and 9700023.11B
Date Received: 04/04/2011 and 5/17/2011
Application Type: Renewal and Significant Modification
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 02207/T08
Existing Permit Issue Date: 01/31/2007
Existing Permit Expiration Date: 12/31/2011

Review Engineer: Mark Cuilla **Review Engineer's Signature:** **Date:** date, 2011	**Comments / Recommendations:** **Issue** 02207/T09 **Permit Issue Date:** date, 2011 **Permit Expiration Date:** date, 2016

I. Purpose of Application

This permitting action is for:

1. a renewal of an existing Title V permit pursuant to 2Q .0513. The existing Title V permit **(02207T08)** was issued on **January 31, 2007**, with an expiration date of **December 31, 2011**. The renewal application was received on **April 4, 2011**, 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; and
2. significant modification to add a new color glass coating line consisting of one curtain and two roll coaters **(ID Nos. CG1, CG2.1 and CG2.2)**. This source was observed by Eric Hudson of the WSRO on his **December 15, 2010** facility inspection. The source had been constructed without an air quality permit but as of yet has not been operated. He subsequently sent a letter requesting that an applicability determination for this source be submitted. As a result of these actions it was determined that a permit modification was necessary prior to the operation of the source (see Section III of this Document for a dated history for details).

II. Facility Description

The facility is a glass mirror manufacturer.

III. History/Background/Application Chronology

January 31, 2007 – Permit **02207T08** issued as a Title V renewal.

October 30, 2007 – Permit Applicability Determination Letter No. 1123 received for the installation of a spray booth to produce small quantities of a direct to glass painted product. DAQ's response, dated **November 19, 2007**, noted that because of uncertain air toxics emissions/potential increase, a permit application would be required prior to construction.

December 21, 2007 – The Permittee provided addition NC air toxic information in regards to the request to add a direct to glass painted product spray booth (App. Det. No. 1123 above). DAQ's response, dated **January 11, 2008**, determined that the proposed spray booth may be treated as an insignificant activity. *This permit renewal has added this source as described*.

December 15, 2010 – Eric Hudson of the WSRO completed the annual inspection of the facility. While on inspection he observed that a new color glass coating line had been constructed without an air quality permit. His inspection report noted that although the equipment had been constructed, it had not been operated.

December 21, 2010 – Eric Hudson of the WSRO sent a compliance determination letter to the Permittee requesting that an applicability determination letter for the new color glass coating line be submitted to DAQ by **January 24, 2011**.

January 31, 2011 – Permit Applicability Determination Letter No. 1723 received for the installation of the color glass coating line. DAQ's response, dated **February 9, 2011**, determined that because of potential VOC increases, a permit application was required prior to operation of the source.

April 4, 2011 – Permit application **9700023.11A** received as a Title V renewal application. Application deemed complete for processing.

May 17, 2011 – Permit application **9700023.11B** received as a significant modification. Application was deemed complete for processing once permit fee and local zoning were received. Application was consolidated into TV renewal application **9700023.11A** on **September 6, 2011**.

May 27, 2011 – Received WSRO "Comments and Recommendations" document in response to receipt of renewal application.

June 1, 2011 – Mark Cuilla sent an email to Jill Edwards of Gardner Glass in order to provide options for VOC avoidance and NC toxics. Specifically, he noted that the Permittee could either:

1. take a 40 ton per year source VOC limit; or
2. take a 250 ton per year facility VOC limit,

in order to avoid applicability of the PSD regulations to this modification and facility. He also noted that this modification would trigger a toxics review of the facility because of potential emissions increase. Again the Permittee was offered options:

1. to review facility-wide toxics emissions for those being increased and perform a modeling demonstration if it was determined that potential facility-wide emissions were above the respective TPER; or
2. take the TPER limitations as enforceable permit limits facility-wide.

The Permittee responded in a **July 22, 2011** email that they were in favor of a facility-wide emission limit for VOC of 250 tons per year and in an **August 30, 2011** email demonstrating that both facility-wide emissions of xylene and formaldehyde remained below their respective TPERs.

July 12, 2011 – Received WSRO "Comments and Recommendations" document in response to receipt of significant modification application.

September 12, 2011 – Draft permit sent to regional office and Permittee for review prior to public notice and EPA review. Both the Permittee and Regional Office corrected the draft permit indicating that the new color glass coating line has two roll coaters rather than one. The Permittee clarified that the coaters are not separated by a curing oven so they were considered one unit for calculation purposes. This has been corrected throughout the permit and this review.

date, 2011 – Draft permit sent to 30-day public notice and 45-day EPA review.

IV. Permit Modifications/Changes and ESM Discussion

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

Page	Section	Description of Change
Attachment	Insignificant activities	-added equipment descriptions for five internally vented space heaters, one natural gas boiler, and direct to glass product spray booth per WSRO inspection report and permit applicability determination No. 1123 -added asterisk language per current shell
-	Cover	-amended all dates and permit revision numbers
All	Header	-amended permit revision number
3	Equipment Table 2.1 A 2.1 A (table)	-added equipment description for new color glass coating line -added equipment description for new color glass coating line -added new visible emission requirement for new coating line -added facility-wide PSD avoidance and NC Air Toxics requirements
4	2.1 A.1.a 2.1 A.1.b 2.1 A.1.d 2.1 A.2.a 2.1 A.2.b 2.1 A.2.c	-added ID numbers -corrected testing rule cross reference -added "no reporting" language for uncontrolled sources of particulate matter -added ID numbers -added new VE requirement for new coating line (renumbered subsequent paragraphs) -corrected testing rule cross reference and emission limit paragraph cross reference
4-5	2.1 A.2.d	-added ID numbers and updated shell language

Page	Section	Description of Change
6	2.1 A.4.c 2.1 A.4.d	-added regulatory citation -added regulatory citation and updated shell language
6-7	2.1 A.5	-added VOC PSD avoidance language
7	2.1 A.6	-added TPER condition
8-18	General Conditions	-updated shell conditions (v3.5)
19	List of Acronyms	-added acronyms for CAIR, NAA, and RACT per current shell

TVEE was amended to add sources as described in the table of changes above.

V. Regulatory Review

The facility is currently subject to the following regulations:
15A NCAC 2D .0515, Particulates from Miscellaneous Industrial Processes
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

A regulatory review for these existing requirements will not be included in this document. However as part of this permit renewal, the following regulations have been added:
15A NCAC 2Q .0317, Avoidance Conditions (for 15A NCAC 2D .0530, Prevention of Significant Deterioration); and
15A NCAC 2Q .0711, Emission Rates Requiring a Permit.

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/112j – The facility is classified as a Title III minor. The Permittee currently operates one natural gas-fired process water heater **(ID No. IPWH1),** five natural gas-fired space heaters **(ID Nos. ISH1 through ISH5)**, and one natural gas-fired boiler **(ID No. IB2)** listed on the insignificant activities list. These sources must be analyzed for the area source GACT for Industrial, Commercial, and Institutional Boilers (40 CFR 63, Subpart JJJJJJ). Only the natural gas-fired boiler meets the source applicability in the Subpart. However, per 63.11195(e), "a gas-fired boiler as defined in this Subpart is not subject to this Subpart and to any requirements in this Subpart." The permit renewal does not affect this status.

PSD – The facility is a "grandfathered" PSD major facility (i.e., facilities that existed prior to 1977 with a potential of greater than 250 tons per year VOC). The permit application for first time Title V permit indicated that potential VOC emissions were 335.9 tons per year from the curtain coating mirror backing line **(ID No. CC1)**. The addition of the color glass coating line **(ID Nos. CG1, CG2.1, and CG2.2)** constitutes a modification with a potential increase in VOC emissions greater than the significance level for PSD applicability (estimated potential increase of VOCs of 148.38 tons per year). Rather than proceeding through PSD permitting, the Permittee has chosen to limit facility-wide emissions of VOC to less than 250 tons per year through the use of an avoidance condition. To ensure compliance with this limit, the Permittee is required to calculate monthly VOC emissions based material consumption records. Recordkeeping and semi-annual reporting requirements have been included as Section 2.1 A.5 as follows:

5. 15A NCAC 2Q .0317: AVOIDANCE CONDITIONS for 15A NCAC 2D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

*a. In order to avoid applicability of this regulation, these sources **(ID Nos. CC1, CG1, CG2.1 and CG2.2)** shall discharge into the atmosphere less than 250 tons of volatile organic compounds(VOCs) per consecutive 12-month period.*

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

b. Calculations of VOC emissions per month shall be made at the end of each month. VOC emissions shall be determined by multiplying the total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the amounts of VOC containing materials or the VOC emissions are not monitored and recorded.

c. Calculations and the total amount of VOC emissions shall be recorded monthly in a logbook (written or electronic format). The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the VOC emissions exceed the limit in Section 2.1 A.5.a above.

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

d. The Permittee shall submit a semi-annual summary report of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the monthly VOC emissions for the previous 17 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months.

112(r) – The facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in the Rule. This permit renewal does not affect this status.

CAM – 40 CFR 64 requires that a continuous assurance monitoring plan be developed for all equipment located at a major facility, that have pre-controlled emissions above the major source threshold, and use a control device to meet an applicable standard. There are no control devices installed at the facility; therefore, CAM is not applicable to this facility. This permit renewal does not affect this status.

VII. Facility Wide Air Toxics

The facility is a "grandfathered" facility for the NC Air Toxics program (i.e., operating prior to **October 1, 1993**). The modification to add the color glass coating line **(ID No. CG1, CG2.1 and CG2.2)** triggers the facility into the NC Air Toxics Program. Per 15A NCAC 2Q .0711(a) a permit to emit toxic air pollutants is required for any facility whose actual (or permitted if higher) rate of emissions from all sources are greater than any one of the toxic air pollutant permitting emissions rates (TPERs). This modification has the potential of increasing emissions of both formaldehyde and xylene (excluding combustion sources).

The TPERs for formaldehyde and xylene are the following:

Pollutant (CAS)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
Formaldehyde (50-00-0)				0.04
Xylene (1330-20-7)		57		16.4

From the 2010 emissions inventory, the Permittee has indicated that current actual emissions of formaldehyde are 0.20774 lbs/yr (2.37×10^{-5} lbs/hr). No emissions of xylene are being reported. To calculate the potential emissions from the new coating line, the Permittee estimates that their highest production rate will be 34 square feet per minute and that this production rate will be variable due to glass size and thickness.

(34 ft^2/min) x (60 min/hr) x (8760 hrs/yr) = 17,870,400 ft^2/yr of glass coated

Two new coatings are being introduced; each with its own average coating amount per gallon. The curtain coating (which represents the new source of xylene emissions) is expected to coat approximately 386.73 square feet per gallon while the roll coating (which represents an increase of formaldehyde emissions over current facility levels) is expected to coat approximately 500 square feet per gallon.

The number of gallons used per year is:

(17,870,400 ft^2/yr) / (386.73 ft^2/gal) = 46,208.98 gal/yr curtain coat
(17,870,400 ft^2/yr) / (500 ft^2/gal) = 35,740.80 gal/yr roll coat

The MSDS sheets for each of the new coatings indicate the following percent component composition per gallon coating:

Curtain coating = 10% xylene per gallon
Roll coating = 1% formaldehyde per gallon

This equates to the following pounds per gallon (based on the density of the respective coating):

Lbs xylene/gal = (10%/100) x (12.52 lbs/gal) = 0.01252 lbs xylene per gallon curtain coating
Lbs formaldehyde/gal = (1%/100) x (10.05 lbs/gal) = 0.001005 lbs formaldehyde/gal roll coating

Potential xylene emissions are calculated as follows:

(46,208.98 gal/yr) x (0.01252 lbs xylene/gal) = 578.54 lbs xylene/yr
= **1.585 lbs xylene/day**
= **0.066 lbs xylene/hr**

Each of these amounts is below the TPER listed in the table above. Therefore, no specific toxics modeling demonstration per 15A NCAC 2D .1100 is required for xylene.

Potential formaldehyde emissions are calculated as follows:

(35,740.80 gal/yr) x (0.001005 lbs/gal) = 35.92 lbs formaldehyde/yr
= 0.098 lbs formaldehyde/day
= **0.0041 lbs formaldehyde/hr**

This amount is below the TPER listed in the table above. The summed total of current actual amount of formaldehyde emissions from the facility plus the calculated potential of the new coating line is 0.004124 lbs/yr; still below the TPER.

The highest overall percentage of toxic emissions to its corresponding TPER is for formaldehyde. The total calculated formaldehyde emissions represent 10.25% of its respective TPER; therefore, compliance would be expected at glass production rates greater than the expected 34 square feet per minute as presented in the permit application. The renewed permit includes a reference to the TPER table above in Section 2.1 A.6.

VIII. Facility Emissions Review

There is no change in emissions for this renewal.

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

Pollutant(s)	2009 Actual Emissions (tpy)	2010 Actual Emissions (tpy)
CO	0.11	0.12
NO_x	0.13	0.14
PM_{10}	0.01	0.01
SO_2	-	-
VOC	43.69	46.39
Total HAP/TAP	0.76	0.77

IX. Stipulation Review

The facility was last inspected by Eric Hudson of the WSRO on **December 15, 2010**. Based on his visual observations and records review, the facility appeared to be in compliance with the permit and applicable DAQ regulations. However, the Permittee has constructed a new glass coating line but it has not been operated for production. This permit renewal/significant modification addresses this coating line.

Mr. Hudson also noted the following items that should be addressed the next time the permit is opened:

1. The small boiler at Plant 2 (insignificant activity IB2) was left off the insignificant activity list with the issuance of permit **02207T08**. It should be added the next time the permit is opened. *This source was end-dated in ESM on **January 1, 2006** as part of the issuance of T08. This end-dating was in error and has been corrected as part of this permit renewal.*
2. The five natural gas-fired space heaters (insignificant activities SH1 through SH5) were left off the insignificant activity list with the issuance of permit **02207T08**. They should be added the next time the permit is opened. *These sources were end-dated in ESM on **January 1, 2006** as part of the issuance of T08. This end-dating was in error and has been corrected as part of this permit renewal.*

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 made (via DAQ website). 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 pursuant 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. The states of Virginia and Tennessee are each affected areas 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.

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

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