

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date: **XX XX, 2011**

<p>Facility Data</p> <p>Applicant (Facility's Name): Unilin Flooring N.V.</p> <p>Facility Address: Unilin Flooring N.V. 149 Homanit USA Road Mt Gilead, NC 27306</p> <p>SIC: 2493 / Reconstituted Wood Products NAICS: 321219 / Reconstituted Wood Product Manufacturing</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>			<p>Region: Fayetteville Regional Office County: Montgomery NC Facility ID: 6200061 Inspector's Name: Gregory Reeves Date of Last Inspection: 04/06/2011 Compliance Code: 3 / Compliance - inspection</p>						
<p>Contact Data</p> <table border="1"> <thead> <tr> <th>Facility Contact</th> <th>Authorized Contact</th> <th>Technical Contact</th> </tr> </thead> <tbody> <tr> <td>Bob Pierce Safety and Env Coordinator (910) 439-6959 149 Homanit USA Road Mt. Gilead, NC 27306</td> <td>Guenter Heyen President and CEO (910) 439-6959 149 Homanit USA Road Mount Gilead, NC 27306</td> <td>Bob Pierce Safety and Env Coordinator (910) 439-6959 149 Homanit USA Road Mt. Gilead, NC 27306</td> </tr> </tbody> </table>			Facility Contact	Authorized Contact	Technical Contact	Bob Pierce Safety and Env Coordinator (910) 439-6959 149 Homanit USA Road Mt. Gilead, NC 27306	Guenter Heyen President and CEO (910) 439-6959 149 Homanit USA Road Mount Gilead, NC 27306	Bob Pierce Safety and Env Coordinator (910) 439-6959 149 Homanit USA Road Mt. Gilead, NC 27306	<p>Permit Applicability (this application only)</p> <p>SIP: 2D .0521 NSPS: NESHAP: PSD: PSD Avoidance: NC Toxics: 112(r): Other: Remove NSPS Db and COMS requirements</p>
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<p>Application Data</p> <p>Application Number: 6200061.10D Date Received: 12/20/2010 Application Type: Modification Application Schedule: TV-Significant</p> <p>Existing Permit Data Existing Permit Number: 08803/T14 Existing Permit Issue Date: 12/22/2010 Existing Permit Expiration Date: 04/30/2012</p>									
<p>Consultant: TrinityConsultants – Dale Overcash P.E. 919.462.9693</p> <p>Review Engineer: Charles F. Yirka</p> <p>Review Engineer's Signature: _____ Date: _____</p>		<p>Comments / Recommendations:</p> <p>Issue 08803/T15 Permit Issue Date: XX XX, 2011 Permit Expiration Date: 04/30/2012</p>							

I. Introduction and Purpose of Application

Unilin Flooring N.V. (Unilin) owns and operates a thin high-density fiberboard (HDF) plant in Mt Gilead, NC.

Unilin is requesting to:

1. remove all conditions associated with the applicability of the New Source Performance Standard (NSPS) 40 CFR Subpart Db including the continuous opacity monitoring system (COMS) requirements found therein.
2. obtain DAQ concurrence that the heating plant at the Unilin facility is defined as a process heater and not a steam generating unit as defined in Subpart Db and therefore not subject to Subpart Db.

It will be shown in Section III that this modification meets the requirements to be processed as a significant modification under 15A NCAC 2Q .0501(d)(2).

II. Chronology

Date	Description
12/20/2010	An application was received and assigned app. No. 6200061.10D.
12/21/2010	The application was declared complete for basic requirements and letter sent.
12/22/2010	Permit issued for a minor modification
01/05/2011	Request for additional information (completeness letter) was sent from DAQ. The DAQ expressed concern regarding the Applicability Determination Index (ADI) determination No. 0800089. DAQ maintained the determination did NOT support Unlin's contention that the heating plant is a process heater.
01/20/2011	Fayetteville Regional Office (FRO) comments received regarding application from Mr. Gregory Reeves
02/01/2011	Date of response letter received February 4, 2011. The letter defended Unilin's contention that the heating plant is a process heater and is distinct from the scenario outlined in ADI No. 0800089
02/02/2011	Fayetteville Regional Office (FRO) additional comments received regarding application from Mr. Gregory Reeves
02/28/2011	Emission Source Module changes approved
03/08/2011	Applicant requested permit shield be added to permit via email
03/11/2011	First draft permit and review submitted to applicant and RCO supervisor (John Evans)
03/17/2011	Draft permit and review comments received from RCO supervisor (John Evans)
03/17/2011	Draft permit and review resubmitted to the applicant
04/26/2011	Draft permit and review comments received from the applicant
04/27/2011	Comment on footnote number 1 of this review from Mr. John Evans
04/28/2011	Comment from Mr. Dale Overcash regarding bagfilter CD-FF23 monitoring condition inconsistencies.
XX/XX/2011	Permit and review submitted to EPA for 45 day review and public notice for a parallel 30 day review.
XX/XX/2011	Final permit and review issued

III. Applicability Determination

The heating plant at the Unilin facility is a unique process whose primary function is the production of dried resinated fibers. A portion of the heat generated by the combustion of wood is used to indirectly heat oil that is used in the press. However, the primary function of the heat plant is to provide the necessary energy to catalyze the thermo-setting plastic resin while drying the refined wood fiber. In the current permit the NCDQA erroneously concluded that the process heater was subject to NSPS Subpart Db.

The proposed permit corrects this error and removes NSPS Subpart Db provisions. There are two reasons the heat plant is not subject to Subpart Db; 1) the heating plant is a process heater, and 2) the primary purpose of the heat plant is to produce a final product.

First, subpart Db specifically provides that process heaters are not considered steam generating units.

Steam generating unit means a device that combusts any fuel or byproduct/ waste to produce steam or to heat water or any other heat transfer medium. This term includes any municipal- type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit that combusts fuel and is part of a cogeneration system or a combined cycle system. This term does not include process heaters as they are defined in this subpart.

Process Heater is defined as a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

In the case of Unilin, the heat plant combustion exhaust provides direct heat to a blowline dryer where the chemical reaction takes place.¹ The chemical reactions in the blowline dryer require specific quantities of wood fiber and thermoplastic resins. The heat serves to catalyze the resin while at the same time providing heat and drying the complex mixture. The heat causes the pH of the resin to decrease and initiates the polymerization of the resin. The resin molecules cross link and begin to form more complex molecules which then bind the cellulose fibers together. Once the chemical reaction takes place, the entire process is time limited. If the reacted product is not pressed within 20-30 minutes the thermo-setting plastic resin is no longer of any value and the wood fiber must be rejected. It is important to note that the complex chemical reactions occurring in the process, in the case of Unilin, is quite distinct from other more traditional processes like the manufacturing of plywood and/or oriented strand board.

A second reason the Unilin heating plant is not subject to NSPS subpart Db is that the definition of heat input excludes heat derived from other sources, including but not limited to direct fired processes like kilns.

Heat Input means heat derived from combustion of fuel in a steam generating unit and does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust gases from other sources (such as stationary gas turbines, internal combustion engines, and kilns).

Pursuant to this definition, not all heated exhaust gases are to be considered heat input for the purposes of determining NSPS applicability. The definition provides that heat derived from preheated combustion air, recirculated flue gases or exhaust gases from “other sources” are not to be included in determining heat input for the purposes of NSPS Subpart Db applicability. The definition provides a non-exhaustive list of “other sources” as including stationary gas combustion turbines, internal combustion engines, and kilns.

¹ In recent discussions with EPA Region 4, Carol Kempker and staff provided their interpretation of the types of activities that should be considered as chemical process plants in the context of PSD applicability. NC did not agree with EPA’s broad interpretation as it applied to PSD (noting that NC has an approved PSD program) but did find the interpretation enlightening as to NSPS (noting NC is only delegated for this program). According to EPA Region 4, chemical process plants were plants where chemical reactions took place. EPA Region 4 concluded that chemical reactions were taking place because the process involved very precise measuring of materials and mixing those materials to produce a final product. This is fully consistent with the Unilin process in which resin is precisely mixed with wood measured to 0.01 pound increments. North Carolina does not rely on this broad interpretation to support its finding above, but it is clear that EPA’s position that precise measurement of mixing of two materials to produce a product is a chemical reaction.

Because this is not an exhaustive list, the EPA has established a primary function test to determine whether a combustion process qualifies as an “other source” pursuant to the definition of heat input. This primary function test has been articulated and applied in several EPA applicability determinations.

In a recent NSPS applicability determination, the EPA applied the primary function test to a thermal oxidizer whose exhaust was being used to raise steam in a waste heat boiler.² In this determination, the EPA evaluated whether the heat derived from the oxidizer qualified under the definition of heat input. In making this determination, the EPA applied the primary function test to determine if the unit satisfied the definition of heat input. According to the EPA, if the primary function of the unit is to “produce a product (as in the case of a cement kiln or lime kiln)” then the unit qualifies as an “other source” and therefore does not meet the definition of heat input.

As described above, the Unilin heating plant uses direct heat to initiate the chemical process in the blowline dryer. More than 55 percent of the heat generated at the heat plant is used in the chemical reaction. Consistent with EPA precedent, the primary purpose of the heat plant is to promote the chemical reactions necessary to produce the resinated cellulosic fibers used in the final product. As such, similar to a cement kiln or lime kiln, the heat plant produces a product. Application of the primary function test results in the conclusion that the ancillary heating of the oil loop does not meet the definition of heat input, and therefore with no heat input the Unilin heating plant is not subject to NSPS.

IV. Modification Description

NSPS Db COMS

As stated in Section 2.3 and Page 2-3 of the permit application:

“Based on the information in this section of the application, Unilin requests that NSPS Subpart Db applicability and all current NSPS related permit conditions be removed from the heating plant. With the request, we also request the removal of the COMS requirements since it is operated as a result of the NSPS Db requirements.”

Emissions

As stated in Section 2.3; Page 2-4 of the permit application:

“We are not requesting any change in potential emissions, only the request to remove NSPS applicability for the heating plant. As such, we are not changing any potential emissions or actual emissions and thus have not included any emissions estimates with this application.”

A review of the effect of removing the permit condition associated with NSPS Db indicates the following limitations affecting the heating plant will be removed from the permit:

NSPS Db Emissions Limitations:

Affected Facility	Pollutant	Emission Limit
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² January 8, 2003 letter from Michael Alushin, EPA Office of Compliance, to George T. Czerniak, Chief, Air Enforcement and Compliance Assurance Branch, EPA Region 5, “Applicability of New Source Performance Standards at 40 CFR Subpart Db to a Thermal Oxidizer/Waste Heat Recovery Boiler at an Ethanol Production Facility (EPA Applicability Determination Control Number 0300032). In this determination the EPA clarified EPA Applicability Determination Number NA07 concerning NSPS Subpart Dc applicability and applied the primary function test.

Affected Facility	Pollutant	Emission Limit
ES-HP	Particulate matter 40 CFR 60.43b(c)	0.10 pounds per million Btu heat input
	Opacity 40 CFR 60.43b(f)	20 percent opacity six minute average except for one six-minute period per hour of not more than 27% opacity
	Sulfur Dioxide 40 CFR 60.42b(d)	Fuel oil sulfur content not to exceed 0.5% by weight
		Fuel oil usage to meet 30% capacity factor
	Nitrogen Oxides 40 CFR 60.44b(1)(1)	Fuel oil usage to meet 10% capacity factor
		Natural gas usage to meet 10% annual capacity factor
Combined fossil fuel usage factor to meet 10% annual capacity factor		

We concur that the removal of the above limitations are not considered a modification for PSD purposes as this does not constitute a physical change or a change in the method of operation of the heating plant. In addition, the heating plant at Unilin is considered a process heater.

V. Regulatory Review

Heating Plant Description from Permit:

One heating plant (ID No. ES-HP) consisting of:

- one wood-fired boiler (ID No. ES-HP-1);
- one sanderdust duct burner system (ID No. ES-HP-2);
- two No. 2 fuel oil-fired auxiliary burners (ID Nos. ES-HP-3 and ES-HP-4);
- one No. 2 fuel oil-fired auxiliary burner (ID No. ES-HP-5),
- two natural gas fired auxiliary burners (ID Nos. ES-HP-6 and ES-HP-7);
- one natural gas fired auxiliary burner (ID No. ES-HP-8);

with associated multicyclone (ID No. CD-01), selective non-catalytic reduction unit (ID No. CD-SNCR), aqueous-assisted fiber removal chamber with or without the appurtenant mesh pad-type mist eliminator (ID No. CD-SCRB), and natural gas/No. 2 fuel oil-fired regenerative thermal oxidizer (ID No. CD-RTO), all in series.

15A NCAC 2D .0504: PARTICULATES FROM WOOD BURNING INDIRECT HEAT EXCHANGERS

With the removal of the NSPS limitation for particulate matter (0.10 lb/MMBtu) only this SIP rule and 2D .0521 will remain in the permit limiting the emissions of particulate matter. There are no provisions within the NC indirect heat exchange SIP rules that handles a process heater in the same fashion as handled in NSPS Db. It appears that the facility will continue to comply with this exiting requirement in the permit. The existing MRR (monitoring, recordkeeping, and reporting) remains unchanged in the permit.

15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

With the removal of the NSPS limitation for sulfur dioxide (0.5% fuel oil sulfur content) only this SIP rule will remain in the permit limiting the emissions of sulfur dioxide. SO₂ Emissions per the rule are

limited to 2.3 lb/MMBtu or about 1.2% sulfur content. The heating plant will continue to fire only wood, natural gas, and No. 2 fuel oil. All of these fuels will easily meet this limit. Compliance with this rule is expected. The existing permit will remain unchanged in the permit with no MRR required.

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

With the removal of the NSPS limitation for opacity only this SIP rule and 2D .0504 will remain in the permit limiting the emissions of particulate matter. The 20% opacity standard of the NC SIP rule is similar to the 20% opacity standard of NSPS Db. However there will no longer be a means of demonstrating compliance without the NSPS Db COMS. Additional monitoring and recordkeeping is required. The facility is required to maintain the equipment as recommended by the manufacturer if there are any. Daily observations of stack emissions are now required. If visible emissions appear to be abnormal the facility shall conduct a Method 9 test. Semiannual reporting will be required. Compliance with this rule is expected as there is history of compliance.

Additional Process Equipment Description from Permit:

The following equipment is installed in series with the Heating Plant and therefore shares emissions controls.

**One blowline flash-tube dryer (ID No. ES-DRY);
One hot oil heated continuous board press (ID No. ES-BP); and
One pressurized refiner (ID No. ES-RFN);**

all controlled by one aqueous-assisted fiber removal chamber with or without the appurtenant mesh pad-type mist eliminator (ID No. CD-SCRB) and one natural gas/No. 2 oil-fired regenerative thermal oxidizer (ID No. CD-RTO) in series.

15A NCAC 2D .0501: COMPLIANCE WITH EMISSION CONTROL STANDARDS

The permit indicates modeling was required of start-up conditions for the refiner operation bypassing the flashtube dryer and the RTO. In order to demonstrate compliance the permit has restrictions, monitoring, and recordkeeping. The modeling demonstration and restriction appear to remain valid; no changes to this condition are required.

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

This condition requires performing an emissions test of the bypass stack. The condition had required testing to be conducted during the first control device maintenance event conducted in accordance with the 40 CFR Part 63 Subpart Db requirements. The language removed reference to NSPS Subpart Db but retains the testing requirements. The existing MRR appears to remain valid and therefore remains unchanged.

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

These sources are routed to control devices shared with the heating plant. These sources operate under the **normal operating scenario** with COMS and emissions controlled by the fiber removal chamber the RTO and under the bypass operating scenario (bypassing these controls). The monitoring condition was structured to rely on the COMS and monitoring required by NSPS Db when in the **normal operating scenario**. With the removal of the COMS the condition now refers to the monitoring requirements associated with the heating plant and applicable rule 2D .0521. As per the above these monitoring requirements require MMR including daily observation of the stack. The existing conditions associated with the **bypass operating scenario** will be removed since they were associated with an alternative NSPS monitoring procedure when the COMS would be bypassed. Compliance with this condition is indicated.

In conclusion the DAQ concurs with the removal of NSPS Db and associated COMS from the permit

VI. NSPS, NESHAP, PSD and CAM Applicability

NSPS

NSPS Subpart Db was removed from the current permit.

NESHAP

The facility is subject to MACT SUBPART DDDD—National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products. This application did not affect applicability.

CAM

This modification does not affect CAM applicability. The applicant indicated CAM will be addressed at renewal.

PSD

Unilin is a PSD minor source. This modification does not appear to be a physical change or a change in the method of operation. There do not appear to be any increases in actual or potential emissions associated with this modification (removal of NSPS Db). PSD does not apply to this modification.

VII. Changes to Existing Title V Air Permit No. 08803T14

Existing Condition No.	New Condition No.	Changes
Cover Letter	Same	<ul style="list-style-type: none"> Updated permit revision numbers, issue, effective dates, etc. Removed language concerning minor modification as the conditions are now final as of February 1, 2011.
Page 1	Same	<ul style="list-style-type: none"> Updated permit revision numbers, issue, effective dates, etc.
Page 3-4 Section 1 Table Equipment List	Same	<ul style="list-style-type: none"> Removed NSPS Subpart Db designation from the descriptor for ES-HP Remove asterisk and footnote associated with ES-EVAP evaporator
Page 5 2.1 A	Page 6 2.1A	<ul style="list-style-type: none"> Removed pollutants particulate matter, opacity, and fuel usage and NSPS Db from table
Page 7-8 2.1 A.3 and A.4	Page 8-9 2.1 A.3	<ul style="list-style-type: none"> Added daily monitoring recordkeeping and reporting for 2D .0521 Removed entire condition for NSPS Db
Page 10 2.1 B.3.c and B.3.d Monitoring conditions	Page 12 2.1 B.3.c and B.3.d Monitoring conditions	<ul style="list-style-type: none"> Monitoring for 2D. 0521; the Normal Operating Scenario had referred to NSPS Db COMS monitoring requirements, now refers to 2D .0521 monitoring that replaced the NSPS COMS Removed alternative condition associated with the <i>“Bypass Operating Scenario”</i> for NSPS since the NSPS no longer applies and COMS are no longer required
NA	Page 30 Section 2.3 Permit Shield	<ul style="list-style-type: none"> Insert permit shield indicating the NSPS Db does not apply to the heating plant ID No. ES-HP
Throughout Permit- All 2D .0521 Monitoring conditions	Same	<ul style="list-style-type: none"> Revised all 2D .0521 monitoring conditions c ii to reference 2D .2610 instead of 2D .2601, as it is the specific regulation that addresses the use of Method 9 for opacity.

Existing Condition No.	New Condition No.	Changes
Page 29-37 General Conditions version 3.3	Page 31-41 General Conditions version 3.4	<ul style="list-style-type: none"> • Replace General Conditions with current version including a revised condition JJ. and new condition OO.

VIII. Compliance History

- 03/31/10 NOV Issued for inadequate recordkeeping
- 03/17/10 Greg Reeves inspected the facility and found it to be in violation due to inadequate recordkeeping. An NOV was issued on 03/31/10
- 01/23/09 Robert Kennedy inspected the facility and found it to be in compliance
- 06/10/08 NOV Issued for permit deviation of RTO temperatures and Excess Phenol and Acrolein emissions
- Various Robert Kennedy inspected the facility on 06/15/06, 12/28/06, and 01/23/08 and found it to be in compliance during each inspection

During the last inspection conducted by Mr. Gregory Reeves on 04/06/2011, Unilin appeared to be operating in compliance with applicable air regulations and permit conditions.

IX. Public Notice

The permit and review are subject to a 30 day public notice period and a 45 day EPA review period. The permit and review are posted on the NCDAQ website for review. The public notice and EPA review period began on XX XX, 2011 and was complete on XX XX, 2011.

X. Comments and Conclusions

The FRO provided comments on the NSPS applicability and the issues raised were addressed in Section III above.

Mr. Gregory Reeves of the FRO provided additional comments on 04/27/2011. This engineer concurs with all suggested corrections to the permit review and permit. As per Mr. Reeves comment concerning testing requirement as per 2.1 B. 2.b, the applicant was contacted to determine if the testing requirement was met by the Method 22 test that was performed on 03/17/2010 or if an particulate stack test is still required. This issue has not been resolved at this time.

Mr. John Evans, Permits Section Supervisor, provided a comment on draft on 04/27/2011. Mr. Evans modified the foot note number 1 of this review. See footnote number 1.

The consultant, Mr. Dale Overcash, P.E. with Trinity Consultants, provided a comment on 04/28/2011 regarding a monitoring change. In response we have changed the monitoring to be consistent with the NCDAQ standard for bagfilter monitoring of weekly monitoring/observation in Section 2.1. H.2.c of the permit from weekly to monthly as requested.

XI. Recommendations

INSERT AFTER PUBLIC NOTICE AND EPA REVIEW

The required public notice period and EPA review period are now complete, the issuance of permit no. 08803T15 is recommended.