

PERMIT BOOK

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **052008-002** Project Number: 2007-09-062

Parent Company: Nordenia International AG

Parent Company Address: Airport Center am FMO, D - 48268 Greven, Germany

Installation Name: Nordenia U.S.A., Inc.

Installation Address: 14591 State Highway 177, Jackson, MO 63755

Location Information: Cape Girardeau County, Section 5, T32N, R14E

Application for Authority to Construct was made for:
Installation of additional printing capacity, replacement of thermal oxidizer and upgrade of parts washing system. This review was conducted in accordance with Section 6, Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

MAY 27 2008

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Nordenia U.S.A., Inc.
Cape Girardeau County, Section 5, T32N, R14E

1. Superseding Condition

The conditions of this permit supersede all special conditions found in construction permits previously issued by the Air Pollution Control Program (Permit Numbers 1289-003, 0690-015, 1293-014, 0794-013, 0795-010, 102000-026, 042006-005 and 042006-005A).

2. VOC Emission Limitation

A. Nordenia U.S.A., Inc. shall emit less than 250 tons of Volatile Organic Compounds (VOCs) from the *entire installation* in any consecutive 12-month period. For the purpose of this special condition, *entire installation* shall mean all source operations including activities that result in fugitive emissions located at Nordenia, U.S.A., Inc.'s 14591 State Highway 177 property, as such source operations existed in September 2007, with the modifications described in Nordenia, U.S.A., Inc.'s September 2007 construction permit application. The installation includes the emission points and/or emission units listed below:

EQ Reference	Emission Point/Emission Unit Description
ATM 1	10,000 gallon storage tank (N-propyl acetate)
ATM 2	10,000 gallon storage tank (solvent blend)
ATM 4	Roto Presses 2201, 2202, 2203. Windmoller Holscher rotogravure printing presses. Presses 2201 and 2202 are 7-deck presses. An eighth deck is being added to press 2203 as part of this permit. Emissions routed to thermal oxidizer(s).
ATM 5	Ink mixing and storage, 275 gallon tote containers
ATM 6	Hot water heater, 1.6 MMBTU/hr propane
ATM 7	Hot water heater, 9.96 MMBTU/hr propane
ATM 9	PRI distillation units (2). Emissions included with ATM-27.
ATM 13	PRI dirty solvent tanks. One 500 gallon tank and one 1,000 gallon tank. Emissions included with

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

EIQ Reference	Emission Point/Emission Unit Description
	ATM-27.
ATM 15	PRI clean solvent tanks. Two 500 gallon tanks and one 1,000 gallon tank. Emissions included with ATM-27.
ATM 17	Cylinder preparation - degreasing, toluene & methanol
ATM 18	Cylinder preparation - nickel plating
ATM 19	Cylinder preparation - copper plating
ATM 20	Cylinder preparation - chrome plating
ATM 21	Cylinder preparation - de-chrome
ATM 22	Emergency diesel water pumps (2)
ATM 23	Corona treater ozone exhaust
ATM 24	Polyethylene Pellet Silos (16)
ATM 25	Blown film extrusion lines (6)
ATM 26	Bag machines that heat seal polyethylene film (6)
ATM 27	PRI Parts Washing System (incorporating ATM 9, ATM 13 and ATM 15)
ATM 28	Roto Press 2204. Windmoller Holscher 1.7 meter rotogravure printing press. Emissions routed to thermal oxidizers.
ATM 29	Laminator 2253. 1.7 meter width (Nordmeccanica)
ATM 31	Roto Press 2205. Shaanxi Bieren 2 meter rotogravure printing press. Planned installation 2008 per this permit. Emissions routed to thermal oxidizer(s).
ATM 32	10,000 gallon storage tank (ethyl acetate) Installed in 2007
ATM 33	10,000 gallon storage tank (ink and solvent) Installed in 2007
ATM 34	Hot Water Heater, 3.3 MMBTU/hr propane Scheduled for installation in 2008

- B. Attachment A or an equivalent form approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1(A). Nordenia U.S.A., Inc. shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) and purchasing/inventory records sufficient to substantiate VOC usage figures for all materials used in the equipment associated with ATM 1, ATM 2, ATM 4, ATM 5, ATM 17, ATM 27, ATM28, ATM 29 and ATM 31.

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The permittee is authorized to construct and operate subject to the following special conditions:

- C. Nordenia U.S.A., Inc. shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1 (B) indicate that the source exceeds the limitation of Special Condition Number 1(A).
3. VOC Control Devices and Work Practices
- A. Emissions from rotogravure Presses 2201, 2202, 2203, 2204 and 2205 shall be vented to one or both of the regenerative thermal oxidizers whenever the presses are in operation. When Laminator 2253 is utilizing solvent-based adhesives or ink, the emissions from this process shall be vented to one or both of the regenerative thermal oxidizers. The regenerative thermal oxidizers shall be operated in accordance with manufacturer's specifications. The Adwest regenerative thermal oxidizers (CD-05 and CD-06) shall be operated at a temperature of at least 1500° Fahrenheit and shall be equipped with a continuous temperature monitoring system. The temperature monitoring system shall alert the operator whenever the oxidizer temperature drops below 1500° Fahrenheit.
 - B. System curves shall be developed to establish the relationship between alternating current frequency delivered to fan motor(s) and gas flow rate through the thermal oxidizers. Nordenia U.S.A., Inc. shall have a process control mechanism in place on the thermal oxidizers such that when the primary thermal oxidizer exceeds 90% of its capacity (as indicated by the system curve and alternating current reading), the secondary thermal oxidizer must come on-line and up to temperature prior to the start-up of additional VOC-generating process equipment.
 - C. Nordenia U.S.A., Inc. shall continuously monitor and record the following process parameters to ensure proper operation of the VOC control devices:
 - 1) Combustion zone and bed temperatures for the thermal oxidizers; and,
 - 2) Alternating current frequency delivered to fan motor(s) for fans that are used to move VOC-laden process gases through the thermal oxidizers;
 - D. Nordenia U.S.A., Inc. shall monitor and record the pressure drop from ambient air to inside the printing room at least once per operating day to

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The permittee is authorized to construct and operate subject to the following special conditions:

verify effective capture of VOCs from the printing presses and laminator.

- E. Nordenia U.S.A., Inc. shall maintain an operating and maintenance log for the thermal oxidizers and associated equipment (such as fan motors), which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

- 4. Performance Testing of Adwest Regenerative Thermal Oxidizers (CD-05 and CD-06)
 - A. Nordenia U.S.A., Inc. shall conduct performance testing for both of the Adwest regenerative thermal oxidizers (CD-05 and CD-06) to determine VOC destruction efficiency.

 - B. Performance tests shall be performed within 60 days of achieving the maximum production rate for rotogravure printing press 2205, but no later than 180 days after initial startup of rotogravure printing press 2205. VOC destruction efficiency testing for both of the thermal oxidizers shall be repeated at least once every five (5) years.

 - C. The performance test date(s) shall be pre-arranged with the Air Pollution Control Program a minimum of 30 days prior to the proposed test date so that a pre-test meeting may be arranged if necessary, and to assure that the test date is acceptable for an observer from the Air Pollution Control Program to be present. A proposed test plan shall be submitted to the Air Pollution Control Program a minimum of 30 days prior to the proposed test date. The test plan must be approved by the Air Pollution control Program prior to the test date.

 - D. Two (2) copies of a written report of the performance test results shall be submitted to the Director of the Air Pollution Control Program within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required EPA method for at least one (1) sample run.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

5. Adjustment of Combined Capture and Control Efficiency for VOCs

With regard to the VOC emissions limitation and associated recordkeeping, the current (as of April 2008) combined control and capture efficiency for thermal oxidation of rotogravure printing press and laminator emissions is 95.24 %. After the Air Pollution Control Program has reviewed and approved the results of the performance testing (required by Special Conditions 4.A. through 4.D) an adjusted figure shall be used for the combined capture and control efficiency. Capture efficiency will remain at 99.2 %, as demonstrated by the January 2006 testing, unless additional capture efficiency testing is conducted. Nordenia U.S.A. may voluntarily elect to conduct additional capture efficiency testing, or the Air Pollution Control Program may require additional capture efficiency testing if a finding is made that the characteristics of the building enclosure vary significantly from the test conditions of January 2006.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (Section 6) REVIEW
Project Number: 2007-09-062
Installation ID Number: 031-0072
Permit Number:

Nordenia U.S.A., Inc.
14591 State Highway 177
Jackson, MO 63755

Parent Company:
Nordenia International AG
Airport Center am FMO
D - 48268 Greven, Germany

Cape Girardeau County, Section 5, T32N, R14E

REVIEW SUMMARY

- Nordenia U.S.A., Inc. has applied for authority to install additional printing capacity, replace a thermal oxidizer and upgrade the parts washing system.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this installation are toluene and methanol which are used in the cylinder preparation area.
- None of the New Source Performance Standards (NSPS) apply to the printing presses or parts washing system. There are standards for *publication* rotogravure printing at 40 CFR Part 60, Subpart QQ; however, these standards do not apply since Nordenia's printing presses are not *publication* printing presses.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the printing presses or parts washing system. Installation-wide potential emissions of hazardous air pollutants (HAPs) are less than 10 tons per year for any individual HAP and less than 25 tons per year for combined HAPs.
- Regenerative thermal oxidizers are being used control the VOC emissions from the printing presses and the laminator (when the laminator is using solvent-based adhesives).
- This review was conducted in accordance with Section 6 of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of VOCs are above de minimis levels but below major source levels.
- This installation is located in Cape Girardeau County, an attainment area for all criteria air pollutants.

- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was not performed since potential emissions of VOC are below major source levels and no model is currently available which can accurately predict ambient ozone concentrations caused by this installation's VOC emissions.
- Emissions testing is required to determine the VOC destruction efficiency of the thermal oxidizers.
- The Part 70 operating permit for this installation will need to be amended to include the conditions of this construction permit. An amendment application is required for this installation within 1 year of equipment (rotogravure press 2205) startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Nordenia USA, Inc. operates a printing operation and a polyethylene bag manufacturing facility in Jackson, Missouri. Inks and laminates are applied to polyethylene film in rotogravure printing presses and a laminator. The laminator is also used as a one-color printer. Final printed products include food packaging and packaging for toilet paper rolls, etc. Emission units are further described in Special Condition 1 of this permit.

With the addition of a new press (2205) and modification of press 2203 to include an eighth deck, the potential VOC emissions for this installation exceed the 250 ton per year major source threshold. Nordenia is taking an installation-wide (as defined in Special Condition 2.A.) VOC emission limitation to stay below 250 tons per year, thereby avoiding major (prevention of significant deterioration) review. Nordenia U.S.A., Inc. submitted an application for renewal of their Part 70 operating permit on January 30, 2006. The construction permit and amendment history for this installation is detailed as follows:

Table 1: Construction Permit History

Permit Number	Date of issuance	Description
042006-005A	November 22, 2006	Amendment for Laminator 2253 operations.
042006-005	September 28, 2006	Laminator 2253.
102000-026	October 13, 2000	Rotogravure printing press
0795-010	July 5, 1995	Waste solvent reclamation unit.
0794-013	July 19, 1994	Rotogravure printing press and wicket bag machine.
1293-014	November 29, 1993	Solvent washing machine.
0690-015	June 29, 1990	Polyethylene sheeting extrusion process.
1289-003	December 14, 1989	Polyethylene laminate and printing process.

PROJECT DESCRIPTION

This project includes addition of a new rotogravure printing press, modification of existing press 2203 to include an eighth deck, replacement/upgrade of a thermal oxidizer and additions to the parts washing system.

The new rotogravure printing press (Roto Press 2205) is described as follows:

Manufacturer:	Shaanxi Beiren
Model:	FRB120
Cylinder Width:	2 meters
# of Decks:	3
Maximum Speed:	400 meters per minute
Production Rate (typ):	300 meters per minute
Maximum Hourly Design Rate: (per Nordenia)	3.18 lbs ink per 3,000 sq. ft. or 6.85 lbs ink/hr

Roto Press 2203 is a Windmoller Holscher Model # 39537 rotogravure printing press. This permit allows for addition of an eighth deck to this press.

Inks utilized in the printing presses typically contain ethanol, propyl acetate and isopropyl alcohol. VOC content will vary with formulation, but 78 percent VOC is a typical figure.

The new Adwest thermal oxidizer will replace the existing Ross thermal oxidizer. The new Adwest thermal oxidizer is a regenerative unit that will be able to handle up to 55,000 SCFM of solvent-laden air. The new thermal oxidizer will operate at temperatures at or above 1500 F and is expected to achieve approximately 98 percent VOC destruction efficiency.

The changes to the parts washing system have already been implemented. Nordenia U.S.A., Inc. originally predicted that the increase in emissions for the changes to the parts washing system would be below 2.75 lbs/hr of VOC and therefore not require an amendment to the construction permit (see project 2004-10089 correspondence). However, upon further examination (use of a material balance approach for emissions accounting rather than a theoretical approach), it has been determined that the increase in emissions will equal or exceed the 2.75 lb/hr threshold. The changes to the parts washing system include addition of two 1,000 gallon storage tanks, addition of a parts washer and addition of a distillation unit. The parts washing system utilizes n-methyl pyrrolidone, which is a VOC but not a HAP.

EMISSIONS/CONTROLS EVALUATION

Potential emissions of the application represent the potential of the new (and modified) equipment, assuming continuous operation (8760 hours per year). Potential emissions for the new Roto Press 2205 were estimated based on the maximum hourly design rate provided by Nordenia, 78.2 % by weight VOC in the ink, 99.2 % capture efficiency and 98 % control efficiency. The potential emissions increase for adding an eighth deck to

Roto Press 2203 was estimated based on the same VOC content, capture and control efficiencies, with a 1.5 scale-up factor to account for future potential press usage as compared to past actual press usage and an 8/7 scale-up factor to account for the eighth deck. Additional rotogravure press capacity and usage may result in an increase in cylinder preparation; this will however depend on customer demands for changes in bag design, etc. Increased usage/emissions of toluene and methanol in the cylinder preparation were estimated at 0.5 tons per year based on an examination of historical usage. An increase in nitrogen oxides (NO_x) emissions is expected due to the increased thermal oxidizer and hot water heater capacity. The potential emissions increase for NO_x was calculated based on the ADWEST performance guarantee for the new thermal oxidizer and on a propane combustion emission factor taken from Table 1.5-1 of U.S. EPA's AP-42 Emission Factor Document.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions 2006 EIQ	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	N/D	N/D	0	N/A
SO _x	40.0	N/D	N/D	0	N/A
NO _x	40.0	N/D	N/D	5.7	N/A
VOC	40.0	≈ 230	90.38	57.15	< 250
CO	100.0	N/D	N/D	N/D	N/A
HAPs	10.0/25.0	< 10	N/D	0.5	N/A

N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section 6 of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of VOC are above de minimis levels but below major source levels.

APPLICABLE REQUIREMENTS

Nordenia U.S.A., Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
Submission of an Emissions Inventory Questionnaire (EIQ) is required by June 1 for the previous year's emissions.

- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section 6 of 10 CSR 10-6.060, *Construction Permits Required*, I recommend permit issuance, with special conditions.

Steve Jaques, P.E.
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct forms w/Supporting Material, dated September 25, 2007, received September 25, 2007 designating Nordenia International AG as the owner and operator of the installation.
- Electronic mail message dated April 8, 2008 from Eric Stanek (Nordenia) to Steve Jaques (Air Pollution Control Program) regarding *Construction Permit*.

Mr. Patrick M. Kaelin
Vice President of Operations
Nordenia U.S.A., Inc.
14591 State Highway 177
Jackson, MO 63755

RE: New Source Review Permit - Project Number: 2007-09-062

Dear Mr. Kaelin:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Mr. Steve Jaques at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or by phone at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:sjl

Enclosures

c: PAMS File: 2007-09-062