STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT BOOK

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: 042006-005 Project Number: 2005-12-011

Owner: Nordenia International AG

Owner's Address: Postfach 1640, Gronau, Germany

Installation Name: Nordenia USA, Incorporated

Installation Address: 4591 State Highway 177, Jackson, MO 63755

Location Information: Cape Girardeau County, S5, T32N, R14E

Application for Authority to Construct was made for:

Installation of a new laminator that will apply adhesive to polyethylene film. This review was conducted in accordance with Section (5), 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 (listed as attachments starting on page 2) are applicable to this permit.

APR 12 2006

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. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the 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 as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, 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 Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

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 Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

2005-12-011

Nordenia International AG

Postfach 1640, Gronau, Germany

Nordenia USA, Incorporated

14591 State Highway 177, Jackson, MO 63755

Cape Girardeau County, S5, T32N, R14E

Installation of a new laminator that will apply adhesive to polyethylene film. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

SPECIAL CONDITIONS:

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

1. Volatile Organic Compounds (VOC)

A. Nordenia shall emit into the atmosphere from Laminator 2253 (EP ATM-29) less than 40 tons of VOCs in any consecutive 12-month period.

B. Records of monthly and annual VOC emissions from Laminator 2253 (EP ATM-29) shall be kept on-site for the most recent 60-months. Attachment A, "Monthly VOC Tracking Sheet," is suitable for this purpose. Forms of the company's own design may be used instead of the attached form provided that all of the requested information is logged. These records, along with material safety data sheets showing the VOC content of adhesive materials used in this process, shall be made available immediately to the Department of Natural Resources' (DNR) personnel upon verbal request.

C. Nordenia shall report to the APCP Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of each month if the records show that the source exceeded the limitations of Condition No. 1A (40 tons VOC).

2. Control Devices

When Laminator 2253 is utilizing solvent-based adhesives, the emissions from this process shall be vented to one or both of the regenerative thermal oxidizers (CD-01 and/or CD-05). The regenerative thermal oxidizers shall be operated in accordance with manufacturer's specifications. The regenerative thermal oxidizers shall be operated at a temperature of at least 1400º 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 1400º Fahrenheit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project No: 2005-12-011
Installation ID No: 031-0072
Permit No:

Nordenia USA, Incorporated
14591 State Highway 177
Jackson, MO 63755

Complete: December 6, 2005
Reviewed: March 2005

Parent Company:
Nordenia International AG
Postfach 1640
Gronau, Germany

Cape Girardeau County, S5, T32N, R14E

REVIEW SUMMARY

- Nordenia USA, Incorporated has applied for authority to construct a new laminator. The laminator will apply adhesive to polyethylene film.

- Emission from this process will include methylene diisocyanate (MDI) and volatile organic compounds (VOCs). MDI is classified as a hazardous air pollutant (HAP), however, it should be noted that EPA is currently considering a petition to delist MDI. See 70FR30407, May 26, 2005.

- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.

- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.

- Regenerative thermal oxidizer(s) will be used to control VOC emissions from the equipment in this permit.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of VOCs conditioned to de minimis.

- 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].

- Emission testing is not required for the equipment.

- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Nordenia USA, Inc. (Nordenia) operates a printing operation and a polyethylene bag manufacturing facility in Jackson, Missouri. Nordenia submitted an application for renewal of their Part 70 operating permit on January 30, 2006.

The most recent construction permit for this installation (Permit Number 102000-026) indicates in the narrative that this installation is an existing major source with potential VOC emissions greater than 250 tons per year. However, based on examination of previous construction permits and emission inventory submittals, it appears that the installation is not "major" for VOCs. Nordenia and the Air Pollution Control Program will resolve any discrepancies and inaccuracies in previous construction permits as a separate project during calendar year 2006.

Table 1: Construction Permit History

Permit Number	Date of issuance	Description
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

Nordenia intends to construct and operate a new laminator that will apply adhesive to polyethylene film. The new laminator will have the ability to apply the standard adhesive (MDI-containing polyurethane resin with a polyglycol co-reactant) currently used at the facility at a line speed of up to 600 meters per minute. Nordenia indicates that approximately 1.6 grams of the polyurethane resin and 0.4 grams of the polyglycol co-reactant will be utilized for each linear meter of polyethylene film fed through the laminator. The web width will be 1.7 meters. Nordenia will also utilize a solvent-based adhesive in this new laminator. The maximum line speed when using the solvent-based adhesive is 300 meters per minute and the application rate of solvent-based adhesive will be approximately 0.004 pounds per square feet of polyethylene. This equates to a maximum hourly design rate of 1,318 lb/hr for the solvent-based adhesive. It is anticipated that the actual usage rates for the solvent-based adhesive will be considerably less than 1,318 lbs/hr. Nordenia has not selected a particular solvent-based adhesive at this point but they have indicated that the VOC content will likely be less than 75 percent by weight. Regenerative thermal oxidizers (CD-01 and/or CD-05) will be used to control VOC emissions from the new laminator when the laminator is utilizing solvent-based adhesives. Nordenia has requested operational flexibility with

regard to operation of the regenerative thermal oxidizers such that they can run just one unit if only a few emission units are operating in the printing/laminating building. Nordenia will submit proposed operating parameters to ensure adequate capture and removal efficiencies as part of a permit amendment application (see Special Condition 3). When utilizing the MDI/Polyol mixture, emissions from the laminator will be vented to a stack for release to the atmosphere, rather than to the regenerative thermal oxidizers.

EMISSIONS/CONTROLS EVALUATION

Potential emissions of MDI were estimated in accordance with a document entitled "MDI/Polymeric MDI Emissions Reporting Guidelines for the Polyurethane Industry", prepared by the Alliance for the Polyurethane Industry. See www.polyurethane.org/pdfs/mdi_reporting0602.pdf.

Potential emissions of VOC, when utilizing the solvent-based adhesive, were calculated based on the maximum hourly design rate provided in the application, a worst-case VOC content of 75 %, no retention of VOC on the polyethylene and a 92.73 percent overall capture and removal efficiency for the regenerative thermal oxidizers. The 92.73 percent overall capture and removal efficiency for the regenerative thermal oxidizers is based on testing that was conducted in January 2006 and December 2004. This 92.73 percent overall capture and removal efficiency is based on the least efficient regenerative thermal oxidizer. See administrative record for further detail.

Potential emissions of VOC, when utilizing the MDI/polyol mixture, were conservatively over-estimated to be equal to one-half of the average VOC emission rate observed at the laminator 2252 exhaust point during the January 2006 capture and removal efficiency testing. Note that this measurement of VOC would include fugitive VOC from other sources within the printing/laminating building.

Nordenia requested a 40-ton per year VOC emission limitation for this project. An emissions summary is presented in Table 2.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory *De Minimis* Levels	Existing Potential Emissions	Existing Actual Emissions (2004 EIQ)	Potential Emissions of the Application	New Equipment Conditioned Potential
PM_{10}	15.0	N/D	0.65	N/A	N/A
SOx	40.0	N/D	0.06	N/A	N/A
NOx	40.0	N/D	3.62	N/A	N/A
VOC	40.0	≈190	112.77	317.7	< 40.0
CO	100.0	N/D	0.62	N/A	N/A
HAPs	10.0/25.0	N/D	N/D	0.06	N/A

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

Note: The existing potential emissions for VOC upon issuance of Permit Number 0795-010 (July 1995) were calculated as 149.05 tons per year. Permit Number 102000-026 (October 2000) added another 40 tons per year. Nordenia and the Air Pollution Control Program will resolve any discrepancies and inaccuracies in previous construction permits and update emission estimates based on the January 2006 VOC capture and destruction efficiency study as a separate project during calendar year 2006.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of VOC are conditioned below de minimis.

APPLICABLE REQUIREMENTS

Nordenia 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
  The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 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 (5), Missouri State Rule 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 form, dated December 1, 2006, received December 6, 2006, designating Nordenia International AG as the owner and operator of the installation.

Attachment A: Monthly VOC Emission Tracking Record
Laminator 2253 (EP ATM-29)

Column A Mo./Yr	Column B Amount of Solvent –Based Adhesive Used (tons)	Column C Amount of MDI/Polyol Mix Used (tons)	Column D Monthly VOC Emissions (Tons) (See Note 1)	Column E VOC Emissions 12-Month Total (See Note 2)

Note 1: Monthly VOC Emissions = [Col. B X (Percent VOC/100) X 0.0727] + [(Col. C X 2.7)/2000)]
For the solvent-based adhesive, the emission factor (lbs of VOC per ton of adhesive) is equal to the VOC content of the adhesive, in percent. This emission factor is based on a 92.73 percent combined capture and removal efficiency through the RTO's. The emission factor for the MDI/Polyol mix is 5.4 lb VOC/ton.

Note 2: Total of current month's emissions plus emissions from the previous 11 months. Total of less than 40 tons indicates compliance.

Mr. Patrick Kaelin
Vice President of Operations
Nordenia, U.S.A., Inc.
Jackson, MO 63755

RE: New Source Review Permit - Project Number: 2005-12-011

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 amended 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 me at (573) 751-4817, or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:sjb

Enclosures

c: Southeast Regional Office
Permit Number: **OP 2006-021**