

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: **012009-002** Project Number: 2008-10-073

Parent Company: 3M

Parent Company Address: BLDG 42-2E-27, P.O. Box 33331,
St. Paul, MN 55133-3331

Installation Name: 3M Columbia

Installation Address: 5400 Route B, P.O. Box 1228, Columbia, MO 65205

Location Information: Boone County, S49, T21, R12

Application for Authority to Construct was made for:
Construction of a Klemm Web Screen Printing Line and Screen Washout Booth.
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 are applicable to this permit.

JAN - 2 2009

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."

3M Columbia
Boone County, S49, T21, R12

1. Emission Limitation
 - A. 3M Columbia shall emit less than ten (10) tons individually or twenty-five (25) tons combined of Hazardous Air Pollutants (HAPs) from the installation in any consecutive 12-month period. This limit applies to the emissions from equipment/processes installed or permitted as of the date of this permit.
 - B. Attachment A and Attachment B or equivalent forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1.A. 3M Columbia 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) for all materials used at the installation.
 - C. 3M Columbia shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition 1.B indicate that the source exceeds the limitation of Special Condition 1.A.
2. Operating Permit Determination
 - A. 3M Columbia shall submit installation-wide potential to emit (PTE) calculations for all pollutants with the next operating permit submittal as supporting documentation. A Basic Operating Permit application is required within 30 days of equipment startup, an Intermediate Operating Permit is required within 90 days of equipment startup, and a Part 70 Operating Permit application is required within 1 year of equipment startup, as applicable.

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SPECIAL CONDITIONS:

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

- B. In the event that the installation's individual and combined HAP PTE as determined by calculation submitted for Special Condition 2.A. are below the limitations given in 1.A, Special Condition 1 of this permit shall be superceded.
3. Solvent/Ink Cloths
3M Columbia shall keep the ink solvents and cleaning solutions in sealed containers whenever the materials are not in use. 3M Columbia shall provide and maintain suitable, easily read, permanent markings on all inks, solvent and cleaning solution containers used with this equipment.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2008-10-073
Installation ID Number: 019-0055
Permit Number:

3M Columbia
5400 Route B
P.O. Box 1228
Columbia, MO 65205

Complete: October 29, 2008

Parent Company:
3M
BLDG 42-2E-27
P.O. Box 33331
St. Paul, MN 55133-3331

Boone County, S49, T21, R12

REVIEW SUMMARY

- 3M Columbia has applied for authority to construct a Klemm Web Screen Printing Line (EP-2008 3M DGE1) and Screen Washout Booth (EP-2008 3M DGE2).
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are toluene (CAS # 108-88-3) and ethylene glycol monobutyl ether acetate (CAS # 112-07-2).
- 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 currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of volatile organic compounds (VOCs) are below de minimis levels and potential emissions of HAPS are below major source levels. No other pollutants are emitted from the new equipment.
- This installation is located in Boone 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 the application are below de minimis levels.
- Emissions testing is not required for the new equipment.
- An amendment to your Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

3M - Columbia manufactures several products including electrical components and optical equipment at their existing installation in Boone County. This installation is an existing minor source of nitrogen oxides (NO_x) and VOC and de minimis source for all other pollutants. However, due to the removal of numerous pieces of equipment at the facility, the Air Pollution Control Program has requested that 3M – Columbia submit calculations in order to re-establish installation-wide PTE.

3M - Columbia received their Basic Operating Permit renewal which expires October 28, 2012.

The following construction permits have been issued to 3M - Columbia from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit/Project Number	Description
1190-006	Addition of two (2) 400 HP boilers
1190-006A	Amendment to Permit No. 1190-006 to allow alternate fuels
0997-033	Addition of one (1) 40.5 MMBtu/hr boiler
0298-013	Installation of twenty (20) pad printers
0298-021	Addition of one (1) SGPI covercoat process
0798-026	Addition of two (2) SGPI covercoat processes and one (1) plasma coating process
0998-020	Addition of eight (8) selective covercoaters and five (5) plasma coaters
0499-006	Addition of two (2) SGPI covercoat processes
0998-020A	Amendment to Permit No. 0998-020 to account for process and equipment changes
072000-024	Installation of three (3) selective covercoaters and modification of three (3) existing covercoaters
Project 2001-03-019	Amendment to Permit No. 072000-024, 0998-020A, & 0499-006
072001-012	Installation of an optical fiber manufacturing operation
032003-010	Installation of solvent developer process
092003-009	Installation of two (2) new covercoaters with two (2) ambient drying units and one (1) electric drying unit.

The following equipment has been stated by 3M Columbia to be no longer in service and will be removed from the site.

Table 2: Equipment No Longer in Service

Description	Permit No.	Comment
20 Pad Printers	0298-013	No longer in service
One SGPI Covercoat Process	0298-021	No longer in service
Plasma Coater	0798-026	No longer in service
Nine Selective Covercoaters and five Plasma Coaters	0998-020	Selective coaters are no longer in service, Plasma coaters are no longer at the site.
Two SGPI Covercoaters	0499-006	No longer in service
Three new and three modified covercoaters	072000-024	No longer in service
Special Optic Fibers (SOF)	072001-012	No longer in service
Solvent Developer Process	032003-010	No longer in service
Covercoater	092003-009	No longer in service

PROJECT DESCRIPTION

3M Columbia has applied for authority to construct a Klemm Web Screen printing line (EP-2008 3M DGE1) and a Screen Washout Booth (EP-2008 3M DGE2). The final product from the Klemm printer will be a commercial graphics display product, currently in development. The Klemm printing line is used to print patterns on up to 24 inch wide thin film substrate. The printing line consists of the Klemm screen printer and two 60kW electric ovens. The screen washout booth will be used for the cleaning of printer screens that have been used on the Klemm for creating the final product. The washout operation is a manual process and will be conducted on screens approximately 24 inches by 24 inches. No air pollution control equipment is being used in association with the printing line or washout booth.

The installation has requested confidentiality with regards to process rates and formulations due to the proprietary nature of the information. This information may be obtained with written permission from 3M.

EMISSIONS/CONTROLS EVALUATION

Potential emissions from the Klemm web screen printing line and screen washout booth were estimated using a mass balance approach assuming continuous operation (8,760 hours per year). It was assumed that all of the VOC present in the inks and solvents are emitted.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit Number 092003-009. Existing actual emissions were taken from the installation's 2007 Emission Inventory Questionnaire (EIQ).

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions ¹	Existing Actual Emissions (2007 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	2.5	0.39	N/A	N/A
SOx	40.0	16.3	0.03	N/A	N/A
NOx	40.0	47.4	5.15	N/A	N/A
VOC	40.0	51.7	5.06	17.99	N/A
CO	100.0	26	4.33	N/A	N/A
HAPs	10 individual HAPs/25.0 combined HAPS	<10 individual HAPs <25 combined HAPs	1.07	0.85	<10 individual HAPs <25 combined HAPs
Toluene	10.0	<10	N/D	0.62	N/A
Ethylene Glycol Monobutyl Ether Acetate	5.0 ²		N/D	0.23	N/A

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

¹Much of the existing equipment at 3M Columbia has been or will be removed from the site. In order to determine the installation's PTE and proper operating type, the Air Pollution Control Program has requested that 3M Columbia submit updated PTE calculations for the facility.

²The regulatory level listed for this individual HAP is the Screen Modeling Action Level (SMAL).

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 VOCs are below de minimis levels and potential emissions of HAPs are below major levels. No other pollutants will be emitted.

APPLICABLE REQUIREMENTS

3M Columbia 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 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 (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Susan Heckenkamp
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 27, 2008, received October 29, 2008, designating 3M as the owner and operator of the installation.
- Material Safety Data Sheets.
- Northeast Regional Office Site Survey, dated November 17, 2008.

Ms. Gaby Zappia
Senior Environmental Engineer
3M Columbia
5400 Route B
P.O. Box 1228
Columbia, MO 65205

RE: New Source Review Permit - Project Number: 2008-10-073

Dear Ms. Zappia:

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 Susan Heckenkamp, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or 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:smhk

Enclosures

c: Northeast Regional Office
PAMS File: 2008-10-073

Permit Number: