

STATE OF MISSOURI



PERMIT BOOK

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: 012008-003 Project Number: 2007-08-005

Parent Company: Tnemec Company, Inc.

Parent Company Address: 6800 Corporate Dr., Kansas City, MO 64120

Installation Name: Tnemec Company, Inc.

Installation Address: 123 West 23rd Avenue, North Kansas City, MO 64116

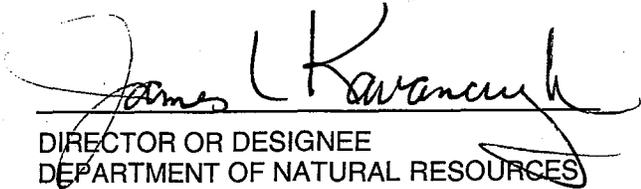
Location Information: Clay County, S14, T59N, R33W

Application for Authority to Construct was made for the installation of a mixer to produce coatings and an aggregate mixing and material handling system to transport and mix sand and cement. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

JAN - 7 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 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 department's 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 with 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."

Tnemec Company, Inc.
Clay County, S14, T59N, R33W

1. Emission Limitations
 - A. Tnemec Company, Inc. shall emit less than 100 tons of Volatile Organic Compounds (VOCs) from the installation in any consecutive 12-month period.
 - B. Tnemec Company, Inc. 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.
 - C. Attachment A, Attachment B, and Attachment C, or equivalent forms approved by the Air Pollution Control Program, shall be used to demonstrate compliance with Special Conditions 1.A., and 1.B. Tnemec Company, 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) for all materials used.
 - D. Tnemec Company, 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.C. indicate that the source exceeds the limitation of Special Conditions Number 1.A. or 1.B.
2. Control Device – Cartridge Filters
 - A. Tnemec Company, Inc. shall control emissions from the aggregate mixing and materials handling system by enclosing all transfer points with ductwork and venting emissions from these transfer points to a cartridge filter as specified in the permit application. The cartridge filters shall be operated and maintained in accordance with the manufacturer's specifications.

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SPECIAL CONDITIONS:

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

- B. The cartridge filter shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the DNR employees may easily observe them.
- C. Tnemec Company, Inc. shall monitor and record the operating pressure drop across the cartridge filters at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- D. Replacement filters shall be kept on hand at all times. The filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
- E. Tnemec Company, Inc. shall maintain an operating and maintenance log for the cartridge filters 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..

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

Project Number: 2007-08-005
Installation ID Number: 047-0075
Permit Number:

Tnemec Company, Inc.
123 West 23rd Avenue
North Kansas City, MO 64116

Complete: July 30, 2007

Parent Company:
Tnemec Company, Inc.
6800 Corporate Dr.
Kansas City, MO 64120

Clay County, S14, T59N, R33W

REVIEW SUMMARY

- Tnemec Company, Inc. has applied for authority to install a mixer (EU-8-01) to produce coatings and an aggregate mixing and material handling system (EP-55) to transport and mix sand and cement.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. The HAP of concern from this process is Xylene.
- 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.
- A cartridge filter is being used to control PM₁₀ emissions from the aggregate mixing and material handling system 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 VOC and PM₁₀ for the proposed equipment are below *de minimis* levels. Potential emissions of HAPs are conditioned to below the *de minimis* levels.
- This installation is located in Clay County, an attainment area for all criteria air pollutants.
- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2, *Chemical Process Planf*].

- Ambient air quality modeling was not performed to determine the ambient impact of emissions. Potential emissions of VOC and PM₁₀ for the proposed equipment are below *de minimis* levels. Potential emissions of HAPs are conditioned to below the *de minimis* level.
- Emissions testing is not required for the equipment.
- A modification to the installation's Intermediate Operating Permit is required within one (1) year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Tnemec Company, Inc. owns and operates a paint manufacturing facility in Clay County (S14, T50N, R33W). Much of the equipment at this installation was installed prior to 1982, and therefore, is not subject to the construction permit rule. This installation has the potential to emit VOC and HAPs above major source levels and does not have VOC and HAPs emission limits in previously issued construction permits. However, the installation applied for and received an intermediate operating permit in 2002 which limited the VOC and HAPs emission rate to minor source levels (100 ton per year for VOC, 10.0 tons per year of individual HAPs, and 25.0 tons per year of combined HAPs).

The following permits have been issued to Tnemec Company, Inc. from the Air Pollution Control Program.

Table 1: Previously Issued Permits

Permit Number	Description
0385-001	Addition of a sand silo.
0390-003	Addition of a sand silo.
0899-008	Permitting existing paint production equipment installed after 1983..
012000-003	Installation of a Cowles pigment dissolver.
092001-001	Addition of a Reynold dual shaft mixer.
062002-014	Installation of a solvent recovery process and modification of an existing mixer from water-base to low VOC, high solid mixer.

PROJECT DESCRIPTION

Tnemec Company, inc. has applied for authority to construct a mixer and an aggregate mixing and material handling system. The mixer is to be used to produce coatings and can mix up to seventy (70) gallons per hour. The aggregate mixing and material handling system are to be used to convey and mix sand and cement and has a maximum hourly design rate of 1.5 tons per hour. In the aggregate mixing and material handling system, bags of sand and cement are unloaded via one of the three bulk bag unloaders into a feed hopper. Enclosed screw conveyors deliver raw materials from the feed hopper to the batch mixer. A separate screw conveyor transfer the sand/cement

mixture from the batch mixer to the batch hopper, which discharges the mixture to bags or containers. All transfer points for the aggregate mixing and material handling system are enclosed by ductwork and dust collection ports are provided to draw emissions to a cartridge filter.

EMISSIONS/CONTROLS EVALUATION

Coating Mixer Emissions Calculation

The pollutants of concern from the coating mixer are VOC and HAPs. VOC and HAPs emissions from the coating mixer were calculated using emission factors developed from an emissions test performed in 1999. The installation has not changed the type of solvents used at this installation since the test was performed, so data from this test can be used for estimating emissions. If the company decides to change the type of chemicals used, the company shall apply for a new permit to take into account the new information.

The installation is limited in this permit to 100.0 tons per year of VOC, 10.0 tons per year of individual HAPs and 25.0 tons per year of combined HAPs.

Aggregate Mixing and Material Handling System Emissions Calculation

The pollutant of concern for the aggregate mixing and material handling system is PM₁₀. U. S. Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, does not give emission factors for conveying and dry mixing of sand and cement. Chapter 11.12, *Concrete Batching*, of AP-42, does, however, give emission factors for the wet concrete batching process. To estimate emissions from screw conveying and hopper unloading, the emission factor for pneumatic conveying is used. A review of different emission factors from AP-42 has shown that pneumatic conveying has a higher emission factor than most other conveying processes and should give a conservative estimate of PM₁₀ emissions from conveying of cement and sand.

Chapter 11.12, *Concrete Batching*, of AP-42 gives the emission factor for the batch mixing of cement, but this emission factor (0.134 lbs/ton), given for a wet mixing process, is expected to be too low for estimating emissions from a dry mix process. Therefore, the emission factor for dry mixing of cement and sand was back calculated by using the emission factor for the wet process and giving a 95% control efficiency for water addition. This method should give a conservative estimate of PM₁₀ emissions from the dry mix process.

The emissions from the aggregate mixing and material handling system is controlled by a cartridge filter. The applicant claimed that the system operates under negative pressure and all PM₁₀ emissions should be captured to be vented to a cartridge filter. However, the Air Pollution Control Program does not give 100% capture efficiency unless visual indicators (i.e. negative pressure gauges) can be added to prove 100% capture efficiency. Since calculations show that the potential emissions of PM₁₀ are below the *de minimis* level using the default capture efficiency of 90% normally used by

the Air Pollution Control Program, this number was used to calculate fugitive emissions from the aggregate mixing and material handling system. A control device efficiency of 99.00 % was given for the use of the cartridge filter.

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2006 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	N/D	3.04	4.15	N/A
SO _x	40.0	N/A	N/A	N/A	N/A
NO _x	40.0	N/A	N/A	N/A	N/A
VOC	40.0	<100.0*	15.67	32.22	<100.0**
CO	100.0	N/A	N/A	N/A	N/A
HAPs	10.0/25.0	<10.0/25.0*	N/D	15.19	<10.0/25.0**

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

*Limits given in the installation's intermediate operating permit (Project #2002-05-206).

**These limits are installation wide emission limits. 100.0 tpy of VOC, 10.0 tpy of individual HAPs, and 25.0 tpy of combined HAPs.

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 and PM₁₀ for the proposed equipment are below *de minimis* levels. Potential emissions of HAPs are conditioned to below the *de minimis* levels.

APPLICABLE REQUIREMENTS

Tnemec Company, 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.

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 10-2.070

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Control of Emissions from the Manufacturing of Paints, Varnishes, Lacquers, Enamels and Other Allied Surface Coating Products*, 10 CSR 10-2.300

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.

 Chia-Wei Young
 Environmental Engineer

 Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated 7/27/2007, received 7/30/2007, designating Tnemec Company, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Schreiber, Yonley & Associates stack testing report, *Stack Test report For VOC Emission Testing with EPA Methods 1,2, and 25A*, dated June 18, 1999, performed in May, 1999, for this installation.

Mr. Samuel Yankee
Director of Environ/Regulatory Affairs
Tnemec Company, Inc.
123 West 23rd Avenue
North Kansas City, MO 64116

RE: New Source Review Permit - Project Number: 2007-08-005

Dear Mr. Yankee:

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 Chia-Wei Young at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or (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:cwyl

Enclosures

c: Kansas City Regional Office
PAMS File 2007-08-005

Permit Number: