



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: 012007 - 014 Project Number: 2006-10-040

Parent Company: Church & Dwight Co., Inc.

Parent Company Address: 469 North Harrison Street, Princeton, NJ 08543

Installation Name: Church & Dwight Co., Inc.

Installation Address: 1607 Anaconda Road, Harrisonville, MO 64701

Location Information: Cass County, S5, T44N, R31W

Application for Authority to Construct was made for:
Increase throughput of soda ash receiving system. 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 24 2007

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 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."

Church & Dwight Co., Inc.
Cass County, S5, T44N, R31W

1. **Superseding Condition**
The conditions of this permit supersede all special conditions found in the previously issued construction permit (Permit Number 0799-005) from the Air Pollution Control Program.
2. Church & Dwight Co., Inc. shall control emissions from the Soda Ash Filter Receiver (EU-001,) the Soda Ash Silo #1 (EP-002,) the Soda Ash Silo #2 (EP-003) and the Soda Ash Day Tank (EP-004) using baghouses as specified in the permit application. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse 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. Replacement filters for the baghouses and drum filters shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
3. Church & Dwight Co., Inc. shall monitor and record the operating pressure drop across the baghouses and drum 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.
4. Church & Dwight Co., Inc. shall maintain an operating and maintenance log for the baghouses and drum filters which shall include the following:
 - A. Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - B. Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
5. Church & Dwight Co. Inc. shall remove or otherwise render inoperable the Dry Detergent Process Line (EP-005) authorized by permit 0799-005.

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

Project Number: 2006-10-040
Installation ID Number: 037-0054
Permit Number:

Church & Dwight Co., Inc.
1607 Anaconda Road
Harrisonville, MO 64701

Complete: 10/10/2006
Reviewed: 11/14/2006

Parent Company:
Church & Dwight Co., Inc.
469 North Harrison Street
Princeton, NJ 08543

Cass County, S5, T44N, R31W

REVIEW SUMMARY

- Church & Dwight Co., Inc. has applied for authority to increase throughput of the soda ash receiving system.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- 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.
- Baghouses are being used to control the particulate matter 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 particulate matter less than ten (10) microns in diameter (PM₁₀) are below de minimis levels.
- This installation is located in Cass County, a maintenance area for ozone (O₃) and an attainment area for all other 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 equipment.
- A 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

Church & Dwight Co., Inc. is a minor source that blends laundry detergent in which the primary ingredient is sodium carbonate. Sodium carbonate, commonly soda ash, is delivered via rail car to the installation where it is pneumatically conveyed to a series of silos. From these silos, the soda ash is conveyed to the mixing system where it is combined with other chemicals to produce liquid detergent.

The following permits have been issued to Church & Dwight Co., Inc. from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
0799-005	Dry Detergent Blending

The dry detergent mixing line authorized by permit 0799-005 has been removed and replaced by a liquid detergent line. For this reason, the conditions of permit 0799-005, including the 49-ton PM₁₀ emissions limitation, have been superceded.

PROJECT DESCRIPTION

Church & Dwight Co., Inc., formerly USA Detergents, will convert the existing salt silo (EU-003) to a soda ash silo and increase the rate soda ash is transferred to and from the silos. The new soda ash conveying system will increase transport capacity from 4 tons per hour to 10.75 tons per hour. This increase in capacity will allow the detergent mixing line to operate continuously but will not increase the capacity of any existing equipment. Particulate matter emissions are controlled by baghouses.

Soda ash is transferred from rail cars into one of two soda ash silo bins (EU-002 and EU-003.) From these bins soda ash is transferred first to a filter receiver bin (EU-001) and then to the soda ash day tank (EU-004.) From this tank the soda ash is conveyed to the mixing system.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air*

Pollutant Emission Factors, Fifth Edition, Section 8.12, Sodium Carbonate (1993). 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 De Minimis Levels	*Existing Potential Emissions	Existing Actual Emissions (2005 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	52.56	1.62	7.35	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	N/A	N/A	N/A	N/A
CO	100.0	N/A	N/A	N/A	N/A
HAPs	10.0/25.0	N/A	N/A	N/A	N/A

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

*Existing Potential Emissions are the emissions from EU-005 taken from permit 0799-005.

Emissions were calculated using the uncontrolled emission factor for soda ash storage/loading and unloading and applying a 99% control factor from the baghouses.

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 PM₁₀ are below de minimis levels.

APPLICABLE REQUIREMENTS

Church & Dwight Co., 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
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

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.

 Michael Mittermeyer
 Environmental Engineer

 Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated 10/05/2006, received 10/10/2006, designating Chrch & Dwight Co., Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated 11/06/2006.

Mr. Neil Bogle
Quality Assurance Manager
Church & Dwight Co., Inc.
1607 Anaconda Road
Harrisonville, MO 64701

RE: New Source Review Permit - Project Number: 2006-10-040

Dear Mr. Bogle:

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, please contact me at (573) 751-4817, or write to the Department of Natural Resources' Air Pollution Control Program, PO Box 176, Jefferson City, MO 65102. Thank you for your time and attention to this matter.

Thank you,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH: mmk

Enclosures

c: Kansas City Regional Office
PAMS File 2006-10-040

Permit Number: