

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: **032007-004** Project Number: 2006-11-098

Parent Company: Mallinckrodt Chemical, Inc.

Parent Company Address: 3600 N Second Street, PO Box 5439, St. Louis, MO 63147

Installation Name: Mallinckrodt Chemical, Inc.

Installation Address: 3600 N Second Street, St. Louis, MO 63147

Location Information: City of St. Louis

Application for Authority to Construct was made for:
Installation of a 2.7 MMBTU/hr Diesel Engine (Air Compressor). 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.

MAR 15 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.

Page No.	3
Permit No.	
Project No.	2006-11-098

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."

Mallinckrodt Chemical, Inc.
City of St. Louis

1. Superseding Condition

The conditions of this permit supersede all special conditions and limits for EP-1169 found in the previously issued construction permit (Permit Number 04-05-010A) from the City of St. Louis Air Pollution Control Program.

2. Operational Limitation

The diesel fuel oil combusted in Diesel Engine (EP-1169) shall have a sulfur content of 0.5 percent (%) by weight or less. Mallinckrodt, Inc. shall maintain records of the fuel supplier certifications or analytical testing documentation on-site for not less than five (5) years and make them available to City of St. Louis, Air Pollution Control Program upon request.

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

Project Number: 2006-11-098
Installation ID Number: 510-0017
Permit Number:

Mallinckrodt Chemical, Inc.
3600 N Second Street
St. Louis, MO 63147

Complete: 11/27/2006
Reviewed: 03/02/2007

Parent Company:
Mallinckrodt Inc.
3600 N Second Street
PO Box 5439
St. Louis, MO 63147

City of St. Louis

REVIEW SUMMARY

- Mallinckrodt Chemical, Inc. has applied for authority to install a 2.7 MMBTU/hr Diesel Engine (Air Compressor).
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. Total HAP emissions at maximum hourly design rate of the equipment are insignificant at only 0.05 tons per year.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment. Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines of the New Source Performance Standards (NSPS) does not apply to the diesel engine because it was manufactured before April 1, 2006.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines does not apply to the proposed equipment because the equipment is transportable (designed to be and capable of being carried or moved from one location to another).
- 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 all regulated air pollutants are below de minimis levels.
- This installation is located in City of St. Louis a nonattainment area for ozone (O₃) and an attainment area for all other criteria air pollutants.

- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2] as a Chemical Process Plant.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for this equipment.
- Mallinckrodt, Inc. is required to apply to amend their Part 70 Operating permit within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Mallinckrodt, Inc. is major source under construction permits and is a Part 70 source under operating permits. A Part 70 operating permit application was received by the Air Pollution Control Program on May 13, 1997 and is still under review.

Mallinckrodt, Inc. is located within the city limits of the City of St. Louis, Missouri. It manufactures a range of pharmaceutical, imaging and respiratory products using an assortment of raw materials.

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

Table 1. Previously issued construction permits.

Permit Number	Description
94-11-123	Building 200W (Special Case)
95-06-082SC	Building 97 Modifications To Processes Involved In Pharmaceutical Production (Special Case)
95-09-112A	Building 507 Triiodamide And Pharmaceutical Intermediate 104 Manufacture (Permit Matter; No Emissions Increase)
97-05-041	Potassium Chloride Production Facility Building 3E
97-08-097A	Additional Equipment For Processing Pharmaceuticals (Building 5)
98-12-079SC	Increase Of Peptide Production, Mallinckrodt Buildings 96, 98, And 99. (Special Case)
98-12-079SC PM	Addition Of Pilot Scale Pharmaceutical Production Buildings 96/98/99
98-12-079SC PM2	Addition Of Chloroform To Allowable HAPs List In Buildings 96/98
98-12-079SC PM3	Building 96/98 Emission Limit Increases
98-12-079SC PMA	Amendment To Permit 98-12-079SC PM3
98-12-079SC PM4	Addition Of Hexane To Allowable HAPs
99-02-012SC	Building 6/7 Increase Of Toluene Extraction Batches (Special Case)
99-02-013T	Water Based Pilot Study
99-02-015	DMSO Bulk Transfer operation
99-04-028	Building 6/7 (Permit Matter; No Emission Increase)
99-10-073PM	Building 504/505 Revision Of Terms In Original "Alternative Synthesis Of Loversol In Building 504 And 505" (Permit Matter; No Emission Increase)
99-10-073	Loversol Synthesis
99-11-075S	Building 235 Expansion (Special Case)
99-11-078	Building 260 Construction

Permit Number	Description
00-02-007	Recordkeeping Requirements For Equipment Leaks In Building 97 (Permit Matter; No Emissions Increase)
00-03-013A	Equipment Modifications To Permit # 95-06-082SC
00-03-015A	Process Equipment Change In Building 250
00-04-017A	Additional Equipment Modifications To Permit #95-06-082SC
00-05-023	Blending Various Inorganic Products In Building 3E
00-05-024A	Equipment Modification – Building 200W (Special Case)
00-05-029	250kW Emergency Generator For Building 260
00-10-047	Increase Of Tank Throughput Limits
00-12-048	Pharmaceutical Effluent Guideline Compliance Project
01-07-023SC	Building 504 Rosemund Bay
01-09-026F	Building 222 Inorganic Drug Chemical Complex
01-09-026F PM	Permit # 01-09-026f Modification
01-09-027	Pharmaceutical NESHAP Thermal Oxidizer System, Wastewater Collection And Treatment Systems And Revisions To Affected Source Operations
01-09-027PM1	Equipment List Revision Dated 11/1/2004 - B97tc
01-09-027PM2	Equipment Revision List No. 2 Building 504 And Building 97
01-09-027PM3	Equipment Revision List Addition Of Plant 6 Wastewater Storage Tank
01-09-027PM4	Equipment Revision List Addition Of Plant 5 Bulk Waste Tanks
01-09-027PM5	Equipment Revision List Revision Bldg 6/7 Recovery Still
02-02-007	New Pharmaceutical/Inorganic Salt Drying Operation In Building 502
02-02-008PM	Bulk Storage Tanks/ Diesel Engine
02-06-013	Addition Of Auger Packer And Sifter To Building X
03-01-002	Permit Consolidation For All Mills And Granulators In Building 250 Replaces Permit: SR00.015 And 95-07-087
03-01-002PM	Change Of Throughput Limits, Pressure Drop Ranges, And Control Device Configuration
04-05-010	Amendment To Permit 04-05-10 / Throughput Increase Of Tank 500
04-05-010A	Amendment To Permit 04-05-10/Throughput Increase Of Tank 500
04-07-014T	Two Diesel Fueled Temporary Emergency Generators
06-02-003	New Tanks And Scrubber

PROJECT DESCRIPTION

Mallinckrodt, Inc. has several electric compressors onsite. These compressors are used to provide the plant with compressed air necessary for plant operation. EP-1169 is the lone diesel air compressor and is used only in the event there is high demand for compressed air over the capacity of the electric units or when the electric units are down for maintenance. EP-1169 was limited to a throughput of 20,000 gallons per consecutive 12-month period by City of St. Louis permit No. 04-05-010A. Mallinckrodt, Inc. applied through a *City Of St. Louis Application For Construction Or Modification Of An Air Pollution Source Within The City Of St. Louis* form dated November 8, 2006 to increase fuel throughput for EP-1169 to 40,000 gallons per 12-month period. This was to compensate for the higher than anticipated usage of the diesel air compressor.

At its maximum design capacity of 2.7 MMBTU/hr, EP-1169 has the potential to emit criteria air pollutants less than de minimis levels (Table 2). Fuel throughput limitations are therefore not required for EP-1169.

No control devices will be used to control air pollutants from EP-1169.

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 3.4, *Large Stationary Diesel and All Stationary Dual Fuel Engines* (10/96). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). The existing actual emissions were obtained from the installation's 2005 Emission Inventory Questionnaire (EIQ) submittal. 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		18.06	0.68	N/A
SO _x	40.0	Major	262.89	5.97	N/A
NO _x	40.0	Major	106.93	37.84	N/A
VOC	40.0		45.20	1.06	N/A
CO	100.0	Major	110.52	10.05	N/A
HAPs	10.0/25.0	Major	16.26	0.05	N/A

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

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 all criteria pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Mallinckrodt Chemical, 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
- *Control of Odors in the Ambient Air*, 10 CSR 10-5.160

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

AMBIENT AIR QUALITY IMPACT ANALYSIS

- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.

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.

Maurice Chemweno
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- City of St. Louis, Application for Construction or Modification, prior to operation, of an air pollution source within the City of St. Louis form, dated November 8, 2006, received November 22, 2006, designating Mallinckrodt Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Mr. Jeff DeWald
Sr. EHS Engineer
Mallinckrodt Inc.
3600 N Second Street
PO Box 5439
St. Louis, MO 63147

RE: New Source Review Permit - Project Number: 2006-11-098

Dear Mr. DeWald:

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,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:mcl

Enclosures

c: Permitting Section, City of St. Louis Air Pollution Control Program
PAMS File 2006-11-098

Permit Number: