



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: **092010-009** Project Number: 2010-08-044

Parent Company: BASF Corporation

Parent Company Address: 100 Campus Drive, Florham Park, NJ 07932

Installation Name: BASF Corporation – Hannibal Plant

Installation Number: 127-0001

Installation Address: 3150 Highway JJ, Palmyra, MO 63461

Location Information: Marion County, S14, T53N, R5W

Application for Authority to Construct was made for:

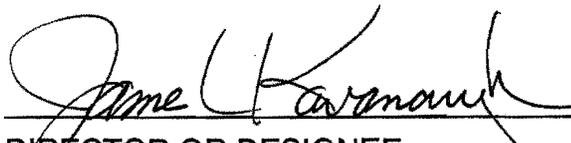
The conversion of a herbicide storage tank to store and supply ortho-xylene. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

SEP 21 2010

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 within 30 days of actual startup. 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.

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

Project Number: 2010-08-044
Installation ID Number: 127-0001
Permit Number:

BASF Corporation
3150 Highway JJ
Palmyra, MO 63461

Complete: September 7, 2010

Parent Company:
BASF Corporation
100 Campus Drive
Florham Park, NJ 07932

Marion County, S14, T53N, R5W

REVIEW SUMMARY

- BASF Corporation has applied for authority to convert a herbicide storage tank to an ortho-xylene (o-xylene) storage tank.
- Hazardous Air Pollutant (HAP) emissions are expected from the storage tank. The HAP of concern from this process is o-xylene.
- None of the New Source Performance Standards (NSPS) apply to the installation. 40 CFR 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984* does not apply to the storage tank because it is a tank with capacity greater than 151 cubic meters (m³) that stores a liquid with a maximum true vapor pressure less than 3.5 kilopascals.
- 40 CFR 63, Subpart MMM, *National Emissions Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production*, of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this storage tank.
- A vent condenser is being used to control emissions from the storage tank.
- 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 (VOC) and HAPs are below *de minimis* levels.
- This installation is located in Marion County, an attainment area for all criteria pollutants.

- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of o-xylene are below its Screening Model Action Level (SMAL).
- Emissions testing are not required for the equipment.
- A modification to the facility's Part 70 Operating Permit is required for this installation within 1 year of permit issuance.
- Approval of this permit is recommended without special conditions.

INSTALLATION DESCRIPTION

BASF Corporation – Hannibal Plant is an agricultural chemical manufacturing installation in Marion County, Missouri that produces insecticides and pesticides. The installation is classified as a major source for construction permits and has been issued a Part 70 Operating permit (Permit OP2010-064). The following permits have been issued to BASF Corporation from the Air Pollution Control Program.

Table 1: List of Previously Issued Permits

Permit Number	Description
1179-EPA	Major Source permit for a Nitric Acid plant
0380-002	Installation of an Animal Feed Intermediate spray drying system
0385-002	Installation of a solid waste incinerator for herbicide wastes generated during processing
0885-005	Construction of SCEPTER and ARSENEL herbicide production lines
0887-003	Construction of ASSERT herbicide production line
0488-001	Construction of a sulfuric acid regeneration facility
0588-007	Installation of a packaging operation for THIMET and COUNTER insecticides
0988-004	Installation of a back-up flare for odor control
0489-004	Addition of bulk herbicide blending and storage facility
1189-001	Installation of the PROWL-“C” incinerator and waste storage tank
0690-005	Modification of existing equipment to increase PROWL herbicide production
0491-002	Addition of a fermenter to expand pharmaceutical plant
0392-006	Construction of bulk lime and dicalite handling equipment and storage
0393-001	Modification of existing Animal Feed Intermediate Plant
0793-001	Construction of a pellet-coating plant
0694-008	Addition of a centrifuge to increase PROWL herbicide production
0894-010	Modification to increase COUNTER insecticide production

0696-013	Modification to imidazoline (IMI-2) line
122000-003	Addition of pyrrole production plant
0997-003	Modification to increase PROWL herbicide production
062000-019	Modification to increase PROWL herbicide production
082005-014	Modification of the IMI-2 herbicide manufacturing facility to allow the production of three new pesticide active ingredient intermediates for imidazolinone herbicides
022006-005	Modification of the Pyrrole/MMPDC manufacturing facility to allow for the production of a new broad-spectrum insecticide called 320I. Production will use existing equipment and a new potassium methoxide (KCOH3) scrubber.
102008-001	Allow production of a new active ingredient, 800H and expand production capacity of three (3) diacids.
102009-007	Debottlenecking the IMI-1 facility to produce more imidazolinone herbicides.
092009-005	Increase the production of 5-methoxymethyl-2,3-pyridine dicarboxylic acids (MMPDC).

PROJECT DESCRIPTION

The facility currently stores a formulated herbicide, PROWL 3.3EC, in storage tank 180-109 but would like to convert the tank to store o-xylene instead. The capacity of the storage tank is 1,713,000 gallons. It is a double walled tank with annular air space between the inner and outer walls, effectively serving as insulation against daily temperature changes. With the change in service, the emission point designation will be changed from CPC-07 to PR-07. It is equipped with a vent condenser with chilled water as the coolant.

The storage tank will be one of two tanks supplying o-xylene for the pendimethalin production unit. Tank 180-109 will be configured to receive o-xylene from the existing o-xylene storage tank, 110-002, through a transfer line and to supply its o-xylene to the pendimethalin production unit in parallel to the existing storage tank 110-002. Storing o-xylene in Tank 180-109 is only expected to increase the storage capacity of o-xylene and will not increase the production rate of pendimethalin.

EMISSIONS/CONTROLS EVALUATION

The only pollutant expected from the project is o-xylene, which is considered both a VOC and a HAP. Emissions from the project were calculated using TANKS emissions estimation software, version 4.09d. The vent condenser is given a control efficiency of 10 percent. This control efficiency was proposed by the facility and should be conservative.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	Major	143.0	N/A	N/A
SO _x	40.0	Major	2371.3	N/A	N/A
NO _x	40.0	Major	369.3	N/A	N/A
VOC	40.0	Major	28.5	2.82	N/A
CO	100.0	Major	122.6	N/A	N/A
HAPs	10.0/25.0	Major	26.2	2.82	N/A
O-xylene	10.0	N/D	N/D	2.82	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 VOC and HAPs are below *de minimis* levels.

APPLICABLE REQUIREMENTS

BASF Corporation 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 June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emissions Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production*, 40 CFR Part 63, Subpart MMM.

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 without 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 September 3, 2010, received September 7, 2010, designating BASF Corporation as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.