

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:

06 2015 - 009

Project Number: 2014-09-008

Installation Number: 097-0094

Parent Company:

TAMKO Building Products, Inc.

Parent Company Address: P.O. Box 1404, Joplin, MO 64802

Installation Name:

TAMKO Building Products, Inc.

Installation Address:

3001 Newman Road, Joplin, MO 64801

Location Information:

Jasper County, S31, T28N, R32W

Application for Authority to Construct was made for:

The increase in petroleum additive usage from 20% to 50% in the asphalt blowing operation. 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.

JUN 15 2015

EFFECTIVE DATE

Kendall B. Hale for Kyna Moore

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 these air contaminant sources. 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 these air contaminant sources.

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 sources(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."

TAMKO Building Products, Inc.
Jasper County, S31, T28N, R32W

1. **Superseding Condition**
The conditions of this permit supersede all of the special conditions found in the previously issued construction permit no. 052010-008 and 092014-004 issued by the Air Pollution Control Program.
2. **Petroleum Additive Usage Restrictions**
 - A. TAMKO Building Products, Inc. shall only replace up to 50% of the asphalt in the blowing operation with the new petroleum additives.
 - B. Attachment A, or equivalent forms, shall be used to show compliance with Special Condition 2.A.
3. **Control Device Requirement – Direct-Fired Thermal Oxidizers (DFTO-101 and DFTO-102)**
 - A. TAMKO Building Products, Inc. shall control emissions from the equipment in Table 1 using either Direct-Fired Thermal Oxidizer DFTO-101 or Direct-Fired Thermal Oxidizer DFTO-102, while the equipment is in operation, as specified in the permit application.

Table 1: Equipment Controlled by the DFTOs

Emission Unit No.	Description
BS-AB2-B	Blowstill #34
BS-AB2-A	Blowstill #35
BS-AB1-B	Blowstill #36
BS-AB1-A	Blowstill #37
3-08A	Storage Tank #1
3-09A	Storage Tank #2
3-30A	Storage Tank #3
3-40A	Storage Tank #4
3-05	Storage Tank #7

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SPECIAL CONDITIONS:

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

3-06	Storage Tank #8
3-07	Storage Tank #9
Loading	Loading Station

- B. The direct-fired thermal oxidizers (DFTO-101 and DFTO-102) shall be operated and maintained in accordance with the manufacturer's specifications.
 - C. The average operating temperature in the combustion chamber of each DFTO shall be set by the performance test required in 40 CFR 63, Subpart AAAAAAA, *National Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing*, of the MACT. TAMKO Building Products, Inc. shall continuously monitor and record the combustion chamber temperature of the thermal oxidizers (DFTO-101 and DFTO-102) while the oxidizers are in operation to ensure that the minimum average temperature is at or above the temperature set in the performance test. The average temperature shall be based on a three (3) hour averaging period, in accordance with MACT Subpart AAAAAAA.
 - D. TAMKO Building Products, Inc. shall maintain an operating and maintenance log for the thermal oxidizer 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.
4. HAPs Emission Limitations
- A. TAMKO Building Products, Inc. shall emit less than 10.0 tons of Hydrogen Chloride (HCl) in any consecutive 12-month period from the entire installation. Equipment at the installation that emits HCl include blowstills 34, 35, 36, and 37 (BS-AB2-B, BS-AB2-A, BS-AB1-B, and BS-AB1-A). These equipment are controlled by DFTO-101 and DFTO-102.
 - B. Attachment B, or equivalent forms, such as electronic forms, shall be used to demonstrate compliance with Special Condition 4.A. The equivalent forms shall use the same values and calculation methods as in Attachment B.
5. Record Keeping and Reporting Requirements

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SPECIAL CONDITIONS:

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

- A. TAMKO Building Products, Inc. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.

- B. TAMKO Building Products, Inc. shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

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

Project Number: 2014-09-008
Installation ID Number: 097-0094
Permit Number:

TAMKO Building Products, Inc.
3001 Newman Road
Joplin, MO 64801

Complete Date
of Application: September 4, 2014

Parent Company:
TAMKO Building Products, Inc.
P.O. Box 1404
Joplin, MO 64802

Jasper County, S31, T28N, R32W

REVIEW SUMMARY

- TAMKO Building Products, Inc. has applied for authority to increase the petroleum additive usage in the blowstills from 20% to 50%.
- HAP emissions are not expected to increase due to the new petroleum additives.
- 40 CFR 60 Subpart UU, "Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture" of the NSPS applies to the equipment.
- 40 CFR 63 Subpart AAAAAAA, "National Emissions Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing," applies to the installation. (Historically, this facility was assumed to be an area source for HAPs. However, the facility is required to submit an installation-wide PTE calculation as a supplement to show that the facility is a minor source for all pollutants, including HAPs. If the PTE calculations submitted shows HAPs emissions greater than the minor source levels, then this subpart would not apply. Instead, Subpart LLLLLL, "National Emission Standard for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing," would apply.)
- None of the NESHAP found in 40 CFR 61 applies to the installation.
- Thermal oxidizers are being used to control the VOC and HAPs emissions from the asphalt blowing operation.
- 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 pollutants are below de minimis levels.
- This installation is located in Jasper County, an attainment area for all criteria pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- 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.
- An amendment to your Part 70 Operating Permit application is required for this installation within one year of permit issuance.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

TAMKO Building Products, Inc. manufactures roofing products and include such processes such as felt mat, glass mat, asphalt coatings, and saturates. The installation is composed of three main operations: Refinery, fiberglass mat manufacturing, and felt mill no. 1. Another felt mill (no. 2) was removed from the site. The equipment addressed in this permit is part of the refinery operation, which prepares the asphalt flux. The preparation process involves the oxidation of the asphalt flux by bubbling air through liquid asphalt flux in blowing stills. Catalysts such as ferric chloride (FeCl₃) and polyphosphoric acid (H₃PO₄) may be used to achieve desired properties and to increase the rate of reaction in the blowing still. The oxidized asphalt is placed in storage tanks before being loaded and shipped offsite.

The following New Source Review permits have been issued to TAMKO Building Products, Inc. from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
0393-012	Replacing blow still tanks
0594-032	Modifications to the fiberglass mat line
0496-004	25.2 MMBtu/hr natural gas-fired boiler
112000-012	RTO installation
062001-004	Replacing thermal oxidizer
052010-008	Refinery process change
102010-007	Installation of two new 25.2 MMBtu/hr natural gas-fired boilers, which will replace three existing boilers, and the replacement of three tank heater burners
052010-008A	Amending Permit 052010-008 to account for recent stack test
072012-012	Installation of chopper and blower system for the fiberglass mat trim
092013-009	Removal of software restriction to increase maximum design rate of the honeycomb dryer
092014-004	Replacing thermal oxidizer

In Permit No. 112000-012, the facility was labeled a major source under construction permits. However, in Permit No. 102010-007, the facility was relabeled as a minor source, but no installation-wide PTE calculations were performed. In Permit 092013-009, the facility was required to submit an installation-wide PTE calculation to the operating permit unit as supplement to its Part 70 operating permit application (Project 2013-07-067) to confirm its status of being a minor source. Currently, the facility has another project under review by the Air Pollution Control Program (Project 2015-01-050), which would change the PTE calculations. Therefore, the facility will be required, in the permit issued for Project 2015-01-050, to submit another PTE calculation as a supplement to its existing Part 70 operating permit application. Since the request will be made in Project 2015-01-050, it is not included as part of this permit. However, the emissions increase in this project should be included as part of the PTE calculation requested in Project 2015-01-050.

PROJECT DESCRIPTION

In 2010, Tamko Building Products, Inc. received a construction permit (No. 052010-008) to replace 20% of the asphalt in its blowing operations with petroleum additives (i.e. vacuum tower bottoms (VTB)) and polyphosphoric acid. Tamko Building Products, Inc. now proposes to increase the petroleum additive usage from 20% to 50%. The facility currently has a maximum production rate of 306,600 tpy of oxidized asphalt. Therefore, it is permitted to replace 153,300 tpy of the asphalt with the petroleum additives.

Tests performed on the new petroleum additives show a VOC content of 0.46% while tests performed on asphalt by the Asphalt Technology Lab of Owens Corning shows an average VOC content of 0.099%. Therefore, the new additives have approximately 4.6 times the VOC content of the original asphalt material. Emissions from the blowing operation are controlled by DFTOs. All of the blowing stills and the storage tanks are connected to both DFTOs and therefore, Special Condition 3 of this permit does not specify which DFTO shall be used to control emissions from each unit.

EMISSIONS/CONTROLS EVALUATION

For this project, VOC emissions are expected to increase since the new petroleum additives has approximately 4.6 times the VOC content of the current asphalt being used. VOC emissions from the blowstills and the storage tanks were calculated using the emission factors in the paper "Proposed Emission Factors for Criteria Pollutants and Hazardous Air Pollutants from Asphalt Roofing Manufacturing" from the Asphalt Roofing Manufacturers Association (ARMA) and scaling it up by 4.6. The new petroleum additives may be offloaded using rail cars. During the unloading process, the vent on the railcars would be opened and VOC would be emitted to the atmosphere. The fugitive VOC emitted during the unloading process were calculated using a method developed by the EPA for calculating evaporation rate from a pool of liquid.

SO_x emissions are generated by the sulfur content in the materials. For asphalt, the sulfur content may range between 0.9-6.6%, depending on the source and the manufacturing process. Data taken from a presentation prepared by TDA Research Inc. shows that the sulfur content of VTB from numerous sources to be within this range. Therefore, for this project, it was assumed that there would be no increase in SO_x emissions from the change in material.

The same argument can be applied to the HAPs emissions as well. The HAPs contents of asphalt may vary based on source and the manufacturing process. The facility submitted HAPs content for 16 different types of polycyclic organic material (POM) for two types of asphalt flux it currently uses as well as for four of the new petroleum additives. The content of these 16 HAPs are shown to be very similar in range and magnitude between the materials. Therefore, it was assumed that there would be no HAPs emissions increases.

The following table provides an emissions summary for this project. Existing potential emissions were not determined as the facility will be required in Project 2015-01-050 to submit calculations for the existing potential emissions. Existing actual emissions were taken from the installation's 2013 EIQ as the 2014 EIQ has not been submitted by the facility yet. Potential emissions of the application represent the potential of using 50% asphalt and 50% new petroleum additives, assuming continuous operation (8760 hours per year). Normally, the PTE of the project would be calculated by taking the PTE of the equipment minus the baseline actual emissions (BAE). However, the PTE of the equipment were already calculated to be less than the de minimis levels. Therefore, it was not necessary to subtract the BAE. The installation accepted a limit of 10 tpy of HCl in Permit 092014-004 in order to remain a minor source for construction permits. This limit is restated in this permit.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2013 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/D	N/D	N/A	N/A
PM ₁₀	15.0	N/D	19.00	N/A	N/A
PM _{2.5}	10.0	N/D	18.79	N/A	N/A
SO _x	40.0	N/D	41.55	N/A	N/A
NO _x	40.0	N/D	33.52	N/A	N/A
VOC	40.0	N/D	14.24	32.02	N/A
CO	100.0	N/D	74.14	N/A	N/A
GHG (CO ₂ e)	100,000	N/D	N/D	N/A	N/A
GHG (mass)	100.0 / 250.0	N/D	N/D	N/A	N/A
HCl	10.0	<10.0	N/D	N/A	<10.0
Formaldehyde	10.0/2.0 ¹	2.43	N/D	N/A	N/A
Combined HAPs	25.0	² 16.35	1.39	N/A	N/A

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

Note 1: Screening Model Action Level (SMAL)

Note 2: Existing potential emissions of combined HAP accounts for the 10 tpy HCl limit in this construction permit and the 2 tpy limit of formaldehyde in Permit 092013-009. This 2.0 tpy formaldehyde limit will be restated in Project 2015-01-050 currently under review by the Air Pollution Control Program.,

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 pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

TAMKO Building Products, 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
- *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 10-6.165

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070
 - *Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacturer*, 40 CFR Part 60, Subpart UU
- *MACT Regulations*, 10 CSR 10-6.075
 - *National Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing*, 40 CFR Part 63, Subpart AAAAAAA

- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260
- *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.

Chia-Wei Young
New Source Review Unit

Date

PERMIT DOCUMENTS

The following document is incorporated by reference into this permit:

- The Application for Authority to Construct form, dated September 2, 2014, received September 4, 2014, designating TAMKO Building Products, Inc. as the owner and operator of the installation.

Other relied upon documents:

- "Proposed Emission Factors for Criteria Pollutants and Hazardous Air Pollutants from Asphalt Roofing Manufacturing," ARMA, 2003
- "Hydrogen Generation for Refineries," presentation, TDA Research Inc., 2014.

APPENDIX A

Abbreviations and Acronyms

%percent	m/s meters per second
°Fdegrees Fahrenheit	Mgal 1,000 gallons
acfmactual cubic feet per minute	MW megawatt
BACTBest Available Control Technology	MHDR maximum hourly design rate
BMPsBest Management Practices	MMBtu Million British thermal units
BtuBritish thermal unit	MMCF million cubic feet
CAMCompliance Assurance Monitoring	MSDS Material Safety Data Sheet
CASChemical Abstracts Service	NAAQS ... National Ambient Air Quality Standards
CEMSContinuous Emission Monitor System	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CFRCode of Federal Regulations	NO_x nitrogen oxides
COcarbon monoxide	NSPS New Source Performance Standards
CO₂ carbon dioxide	NSR New Source Review
CO₂e carbon dioxide equivalent	PM particulate matter
COMSContinuous Opacity Monitoring System	PM_{2.5} particulate matter less than 2.5 microns in aerodynamic diameter
CSRCode of State Regulations	PM₁₀ particulate matter less than 10 microns in aerodynamic diameter
dscfdry standard cubic feet	ppm parts per million
EIQEmission Inventory Questionnaire	PSD Prevention of Significant Deterioration
EPEmission Point	PTE potential to emit
EPAEnvironmental Protection Agency	RACT Reasonable Available Control Technology
EUEmission Unit	RAL Risk Assessment Level
fpsfeet per second	SCC Source Classification Code
ftfeet	scfm standard cubic feet per minute
GACTGenerally Available Control Technology	SDS Safety Data Sheet
GHGGreenhouse Gas	SIC Standard Industrial Classification
gpmgallons per minute	SIP State Implementation Plan
grgrains	SMAL Screening Model Action Levels
GWPGlobal Warming Potential	SO_x sulfur oxides
HAPHazardous Air Pollutant	SO₂ sulfur dioxide
hrhour	tph tons per hour
hphorsepower	tpy tons per year
lbpound	VMT vehicle miles traveled
lbs/hrpounds per hour	VOC Volatile Organic Compound
MACT Maximum Achievable Control Technology	
µg/m³ micrograms per cubic meter	

Mr. Dan Hollingshead
General Manager
TAMKO Building Products, Inc.
3001 Newman Road
Joplin, MO 64801

RE: New Source Review Permit - Project Number: 2014-09-008

Dear Mr. Hollingshead:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. 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 were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 Administrative Hearing Commission, P.O. Box 1557, Jefferson City, MO 65102, www.oa.mo.gov/ahc.

If you have any questions regarding this permit contact Chia-Wei Young, Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:cyl

Enclosures

c: Southwest Regional Office
PAMS File: 2014-09-008
Permit Number: