

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: 128015-009

Project Number: 2015-05-068
Installation Number: 095-0178

Parent Company: Unilever Manufacturing (US), Inc.

Parent Company Address: 2900 West Truman Blvd, Jefferson City, MO 65109

Installation Name: Unilever Manufacturing (US), Inc.

Installation Address: 13000 E 35th St S, Independence, MO 64051

Location Information: Jackson County, S14, T49N, R32W

Application for Authority to Construct was made for:
New Knorr Product line. 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.

~~Chad Stephenson~~
Prepared by
Chad Stephenson
New Source Review Unit

Kyaz Moore
Director or Designee
Department of Natural Resources
DEC 15 2015

Effective Date

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.

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."

Unilever Manufacturing (US), Inc.
Jackson County, S14, T49N, R32W

1. Control Device Requirement-Baghouse
 - A. Unilever Manufacturing (US), Inc. shall control emissions from the emission points in Table 1 using baghouses as specified in the permit application.

Table 1: Emission Units Controlled by Baghouses

Designation	Description
EP-236A	Truck Unloading of Salt into silo
EP-236B	Truck Unloading of Corn Starch into silo
EP-237C	SuperSak Unloading of Sugar into silo
EP-237	50 lb bag unloading of Maltodextrin and Corn Syrup solids to dump hopper
EP-238A	Corn Syrup solids moving to silo
EP-238B	Maltodextrin moving to silo
EP-239	SuperSak or 50 lb bag unloading of other ingredients for Knorr Product line to Day Bins
EP-240	Other ingredients moving to batchtainer
EP-241	Internal Handling of product moving to scale hopper/mixer
EP-242	SuperSak Fill Station
EP-243	Packaging Knorr Product Line

- B. 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 Department of Natural Resources' employees may easily observe them.
 - C. Replacement filters for the baghouses 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). Only one complete set of bags for each unique style baghouse is required to be kept on hand.

SPECIAL CONDITIONS:

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

- D. Unilever Manufacturing (US), Inc. shall monitor and record the operating pressure drop across the baghouses at least once every seven days. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. Unilever Manufacturing (US), Inc. shall maintain a copy of the baghouse manufacturer's performance warranty on site.
 - F. Unilever Manufacturing (US), Inc. shall maintain a maintenance log for the baghouses 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.
 - G. The requirement for monitoring and recording the operating pressure across the baghouses at least once every seven days may have the frequency reduced to once every 30 days upon written approval by the Air Pollution Control Program if the recorded results of the operating pressure demonstrate compliance within the design conditions specified by the manufacturer's performance warranty for 6 consecutive months.
2. Evaporative Condenser Requirements
- A. The evaporative condenser(s) shall be operated and maintained in accordance with the manufacturer's specifications. Manufacturer's specifications shall be kept on site and made readily available to Department of Natural Resources' employees.
 - B. The cooling water circulation rate shall not exceed 61,200 gallons per hour per tower. Each evaporative condenser shall be equipped with a gauge or meter, which indicates the flowrate. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.
 - C. The drift loss from the evaporative condensers shall not exceed 0.010 percent of the cooling water circulation rate. Verification of drift loss shall be by manufacturer's guaranteed drift loss and shall be kept on site and made readily available to Department of Natural Resources; employees upon request.
 - D. The total dissolved solids (TDS) concentration in the circulated cooling water shall not exceed a TDS concentration of 1,500 parts per million

SPECIAL CONDITIONS:

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

(ppm). A TDS sample shall be collected and the results recorded monthly to verify the TDS concentration.

- E. The requirement for TDS sample collection may be eliminated or the frequency may be reduced upon written approval by the Air Pollution Control Program if TDS sampling results demonstrate compliance for 24 consecutive months.
3. Corn Starch Production Limit
- A. Unilever Manufacturing (US), Inc. shall not exceed an annual production limit of 3,620 tons of corn starch per twelve (12) consecutive month period.
 - B. Unilever Manufacturing (US), Inc. shall record the monthly and the sum of the most recent consecutive 12 months usage of corn starch from this installation. These records shall be kept on-site for five (5) years and shall be made immediately available for inspection to Department of Natural Resources' personnel upon request.
4. Record Keeping and Reporting Requirements
- A. Unilever Manufacturing (US), 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.
 - B. Unilever Manufacturing (US), 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 shows an exceedance of a limitation imposed by this permit.

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

Project Number: 2015-05-068

Installation ID Number: 095-0178

Permit Number:

Installation Address:

Unilever Manufacturing (US), Inc.
13000 E 35th St S
Independence, MO 64051

Parent Company:

Unilever Manufacturing (US), Inc.
2900 West Truman Blvd
Jefferson City, MO 65109

Jackson County, S14, T49N, R32W

REVIEW SUMMARY

- Unilever Manufacturing (US), Inc. has applied for authority to install a new Knorr Product line to replace Unilever's Wishbone Salad Dressing production line which has ceased operation.
- The application was deemed complete on June 10, 2015.
- HAP emissions are not expected from the proposed process.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- Baghouses are being used to control the PM, PM₁₀, PM_{2.5} 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 all pollutants are below de minimis levels.
- This installation is located in Jackson County, a maintenance area for ozone and an attainment area for all other 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 Intermediate Operating Permit is required for this installation within 90 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Unilever Manufacturing (US), Inc. operates a facility at 13000 East 35th Street, Independence, Missouri. The facility is located within Jackson County. The facility has been used to produce instant tea, salad dressings and blended seasonings. By the end of 2015, Unilever plans to remove the salad dressing line and replace it with a Knorr product line. The Knorr product line includes rice and pasta side dishes; and dehydrated soup mixes, sauces and seasoning. The site is an Intermediate State Operating Permit holder.

The following construction permits have been issued to Unilever Manufacturing (US), Inc. from the Air Pollution Control Program.

Table 2: Construction Permit History

Permit Number	Description
0192-008	Adding bulk vegetable fat storage tank, two salt storage silos with baghouses and a steam capper. All equipment has since been removed from the site.
0193-003	Adding a 6,400 gallon sulfuric acid storage tank and a 6,400 gallon potassium hydroxide storage tank
0294-002	Adding a wishbone brine tank, a vinegar tank, an olive oil tank, a maltodextrin tank, a soybean oil tank, wishbone dust collectors, three lab hoods, a small miscellaneous parts paint booth and ventilation hoods for welding. All of this equipment has been removed from the site, except for 2 of the 3 lab hoods and the ventilation hood for welding
0694-022	Adding a new ventilation system for the salad dressing process area
0495-005	Replacing two existing boilers with a new high efficiency fire tube boiler
0497-026	Replace three boilers

PROJECT DESCRIPTION

Unilever proposes to install a new product line which will include five raw material silos, two wet cooling towers, and mixing and conveying equipment. The five raw material silos will contain bulk ingredients designated as salt, corn starch, sugar, maltodextrin and corn syrup. In addition to the five main ingredients, 191 spices and other additives will be delivered in supersaks and smaller containers. The spices and other additives will either be placed in day bins or kept in their respective shipping containers. The system uses batchtainers, which are described as collection vessels transported internally via forklift or mechanical conveyors to receive non-bulk ingredients. The batchtainer moves from station to station to get all the ingredients for a given recipe except the bulk ingredients in the silos. Once filled with the desired non-bulk ingredients, the batchtainers will discharge into one of two mixers where the bulk silo ingredients are also introduced.

The mixers discharge into supersaks. The filled supersak will be moved to packaging or to storage. The packaging equipment is designed to fill, package, and box the Knorr products. The sealed Knorr products are sent to the warehouse for distribution to the grocery store.

Unilever will be controlling particulate matter emissions from the ingredient delivery and storage transfer using a baghouse. The batchtainer system and the transfer of ingredients from the mixer to packaging will also have particulate matter emissions controlled by a baghouse. Due to the relatively small emissions coming from each baghouse and the chance of a baghouse failure causing significant emissions, weekly readings were deemed sufficient to show compliance.

The expected production rate for the five bulk raw material and the combined production rate of the 191 spices and other additives are listed in the table below. The expected production rates are based on annual production forecasts submitted by Unilever with the application. Unilever has chosen to use a future production rate factor of 2 to account for increases in production in the future. Since the facility will be required to limit and track the usage of corn starch it was decided a more thorough calculation of potential emissions is not needed. Corn starch is the basis for the Knorr Product line. An increase in production above the expected production rate of the other materials listed in the table below would require an increase in the use of corn starch.

Material	Expected Production Rate Tons/Year x 2
Corn Starch	3,636
Salt	2,810
Maltodextrin	2,148
Corn Syrup Solids	1,548
Sugar	1,176
MSG	856
Spices and other additives	17,808

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition (AP-42).

Conveying, storage, and bagging (classified as shipping) emission factors for corn starch, Maltodextrin, corn syrup solids and spices and other additives for PM, PM₁₀, and PM_{2.5} were obtained from AP-42 Section 9.9.1 *Grain Elevators & Processes*, May 2003. Conveying, storage, and bagging (classified as shipping) emission factors for salt, sugar, and MSG for PM, PM₁₀, and PM_{2.5} were obtained using the material handling emission factors from AP-42 Section 12.2.4 *Aggregate Handling and Storage Piles*, November 2006 because salt, sugar, and MSG are similar to aggregate. A capture efficiency of 100%, with 99% control was used because all processes are completely enclosed and vented to a baghouse.

The emission factors for the evaporative condensers were obtained from AP-42 Section 13.4, *Wet Cooling Towers*, January 1995.

The following table provides an emissions summary for this project. Existing potential emissions were taken from construction permit 0497-026. Existing actual emissions were taken from the installation's 2014 EIQ. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). Conditioned potential emissions of the application represent the potential of the new equipment, after accounting for applicable special conditions.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2014 EIQ)	Potential Emissions of the Application	Conditioned Potential Emissions of the Application
PM	25.0	N/D	N/D	19.59	0.86
PM ₁₀	15.0	9.1	12.09	19.56	0.86
PM _{2.5}	10.0	N/D	12.09	18.90	0.19
SO _x	40.0	161.3	0.07	N/D	N/D
NO _x	40.0	53.3	9.9	N/D	N/D
VOC	40.0	11.3	0.84	N/D	N/D
CO	100.0	31.7	7.99	N/D	N/D
HAPs	10.0/25.0	N/D	0.00	N/D	N/D

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 pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Unilever Manufacturing (US), 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

- *Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400*
- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-6.405*

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.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 20, 2015, received May 22, 2015, designating Unilever Manufacturing (US), Inc. as the owner and operator of the installation.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SDS	Safety Data Sheet
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Mr. Ullic Young
Factory Director
Unilever Manufacturing (US), Inc.
13000 E 35th St S
Independence, MO 64051

RE: New Source Review Permit - Project Number: 2015-05-068

Dear Mr. Young:

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 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 the Administrative Hearing Commission, Truman State Office Building, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422: www.oa.mo.gov/ahc. If you have questions to contact Chad Stephenson, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:csl

Enclosures

c: Kansas City Regional Office
PAMS File: 2015-05-068
Permit Number: