

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: 072015-016

Project Number: 2015-06-028  
Installation Number: 177-0037

Parent Company: Henkel Corporation

Parent Company Address: One Henkel Way, Rocky Hill, CT 06067

Installation Name: Henkel Corporation - Richmond

Installation Address: 201 Highway 10 East, Richmond, MO 64085

Location Information: Ray County (S31, T52N, R27W)

Application for Authority to Construct was made for:

The installation of eleven (11) new injection molding units. 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.

Prepared by  
Ryan Schott  
New Source Review Unit

Director or Designee  
Department of Natural Resources  
JUL 27 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 startup 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 startup 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."*

Henkel Corporation - Richmond  
Ray County (S31, T52N, R27W)

1. **Superseding Condition**  
The conditions of this permit supersede Special Condition 2 found in construction permit 112014-010, previously issued by the Air Pollution Control Program.
2. **VOC and HAPs Emission Limitations**
  - A. Henkel Corporation - Richmond shall emit less than 40.0 tons of VOCs in any consecutive 12-month period from the entire installation (see Table 1).

Table 1. Installation Emission Points

Emission Point	Description	Emission Point	Description
EP-01	Steam Boiler	EP-09	Sealant and Adhesive Extruders
EP-03	Parts Washers	EP-10	Sealant and Adhesive Batch Mixers
EP-04	Supersack Unloading	EP-11	Sealant and Adhesive Twin Screw Mixer
EP-05	Injection Molding	EP-12	Paint Booth
EP-06	In-Line UV Curing	EP-13	Nylon Pellet Storage Silo and Transfer
EP-07	R&D Test Ovens	EP-14	Cooling Towers
EP-08	Bake-Out Ovens	EP-15	Pellet Dryer

- B. Henkel Corporation - Richmond shall emit less than 10.0 tons individually and 25.0 tons combined of HAPs in any consecutive 12-month period from the entire installation (see Table 1).
  - C. Attachment A, Attachment B, and Attachment C or equivalent forms, such as electronic forms approved by the Air Pollution Control Program, shall be used to demonstrate compliance with Special Conditions 2.A and 2.B.
3. **Record Keeping and Reporting Requirements**
  - A. Henkel Corporation - Richmond 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.

**SPECIAL CONDITIONS:**

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

- B. Henkel Corporation - Richmond 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: 2015-06-028  
Installation ID Number: 177-0037  
Permit Number:

Installation Address:  
Henkel Corporation - Richmond  
201 Highway 10 East  
Richmond, MO 64085

Parent Company:  
Henkel Corporation  
One Henkel Way  
Rocky Hill, CT 06067

Ray County, (S31, T52N, R27W)

REVIEW SUMMARY

- Henkel Corporation - Richmond has applied for authority to install eleven (11) new injection molding units.
- The application was deemed complete on June 10, 2015.
- HAP emissions are expected from the proposed equipment. The only HAP of concern from this process is vinyl acetate, and its potential emissions are indirectly conditioned below the SMAL.
- None of the 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.
- No air pollution control equipment is being used in 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 VOC are conditioned below de minimis levels and HAPs below major source levels.
- This installation is located in Ray 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.
- Emissions testing is not required for the equipment.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

## INSTALLATION DESCRIPTION

Henkel Corporation is a global company headquartered in Dusseldorf, Germany, with its United States headquarters being in Connecticut. The Richmond facility is in Ray County, Missouri and was formerly known as Orbseal, LLC. Henkel Corporation produces a number of different products, with this installation producing automotive adhesives and sealants. One of the products produced at the Richmond facility is baffle sealant. Part of the process for manufacturing this sealant uses injection molders to combine Nylon 66 with a proprietary material called mastic. Henkel Corporation - Richmond already operates thirty-two (32) injection molders at this installation, all being grouped under emission point EP-05.

Henkel Corporation - Richmond was previously required to have a Basic Operating permit; however, after reinstating de minimis limits on VOCs and HAPs, all pollutants were found to have potential emissions below de minimis levels. Because the facility is considered a de minimis source and is not subject to an NSPS, NESHAP, or MACT, an operating permit is no longer required. Henkel Corporation - Richmond is not required to renew their current Basic Operating Permit (under project 2012-04-031) after it expires on October 28, 2017. The following New Source Review permits have been issued to Henkel Corporation - Richmond from the Air Pollution Control Program:

Table 2: Permit History

Permit Number	Description
0996-012	Section 5 NSR permit (to Orbseal)
0997-023	Section 5 NSR permit (to Orbseal)
1297-021	Section 5 NSR permit (to Orbseal)
072013-002	Installation of eight (8) new injection molding units
112014-010	Installation of three (3) new injection molding units

## PROJECT DESCRIPTION

This permit is for the installation of eleven (11) additional injection molders. Each injection molding unit is a rotary, two-component injection molding machine. The molding machines produce Nylon 66 and mastic sealant parts for the automotive industry. The process will involve receiving nylon pellets from a silo, drying the nylon, and pneumatically conveying it to the injection molding machines. Additionally, mastic material will be processed in the injection molding machines. Mastic will be compounded, converted to pellet form, stored in the facility, and pneumatically conveyed to the machine loaders that supply the injection molding machines. Both materials conveyed to the injection molders are fed into separate injection units outfitted with barrel and screw assemblies which, through heat and pressure, plasticize the material into a flowable melted material. The now flowable material will be simultaneously injected into two distinct zones of cavities in the mold. After the material solidifies, the mold opens, rotates 180 degrees to the present nylon port of the parts to the mastic cavities for over-molding, then ejects the completed two molded parts as the finished product. No control devices are used in association with the equipment.

The eleven (11) new injection molders will be grouped under emission point EP-05, along with the thirty-two (32) existing injection molders, which will each be assigned individual emission unit numbers. This permit serves as a consolidation of all new and existing equipment under better classified emission point and emission unit numbers.

### 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*, Fifth Edition, Section 6.9, March 1993. The emission factor was taken from Table 6.9-2 for Nylon 66, melt spun production, which was determined to be the most representative emission factor for the mold injection process in previous permits. The raw material is manufactured by BASF and named Ultramid A3ZG7 HP BK20465 Polyamide. Since there are no controls on the equipment, the uncontrolled emission factor was used. AP-42 states that emissions from Nylon 66 batch and continuous polymerization processes can range between 0.5 to 4.9 lb/Mlbs. To be conservative the maximum of the range, 4.9 lb/Mlbs was used.

Emissions from the mastic molding were considered on a mass balance basis. In order to quantify the emissions Henkel Corporation performed a test on the mass lost during the extruding process. The test resulted in a 2% loss of mastic material. During the test some of the mastic adhered to the flighting of the screw that pushes the material into the nozzle and seals up against the mold inlet point. The assumption was made that of the material that was lost, 50% adheres to the screw and 50% is emitted. The raw material being used is manufactured by Henkel Corporation and named Teroson EV 27007 (Terostat) and Teroson EV 21009 (Terophon ORB 21009). It was assumed that all emissions of the mastic material were VOC and HAP emissions.

The following table provides an emissions summary for this project. Existing potential emissions were taken from the previous construction permit 112014-010. 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 (8,760 hours per year).

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	New Installation Conditioned Potential
PM	25.0	N/D	N/D	N/A	N/D
PM <sub>10</sub>	15.0	N/D	1.15	N/A	N/D
PM <sub>2.5</sub>	10.0	N/D	0.45	N/A	N/D
SO <sub>x</sub>	40.0	N/D	N/A	N/A	N/D
NO <sub>x</sub>	40.0	N/D	0.15	N/A	N/D
VOC	40.0	<40.0	5.83	52.99	<40.0
CO	100.0	N/D	0.12	N/A	N/D
HAPs	10.0 / 25.0	<10.0 / 25.0	N/A	1.07	<10.0 / 25.0

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 are conditioned below de minimis levels and HAPs below major source levels.

## APPLICABLE REQUIREMENTS

Henkel Corporation - Richmond 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
- *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

## 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*, it is recommended that 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 June 8, 2015, received June 9, 2015, designating Henkel Corporation as the owner and operator of the installation.

## Attachment A – VOC Compliance Worksheet

Henkel Corporation - Richmond  
 Ray County (S31, T52N, R27W)  
 Project Number: 2015-06-028  
 Installation ID Number: 177-0037  
 Permit Number: \_\_\_\_\_

This sheet covers the month of \_\_\_\_\_ in the year \_\_\_\_\_.

A	B	C	D	E
Emission Point	Emission Point Description	<sup>1</sup> Amount of Material Used (tons)	VOC Emission Factor (lb/ton)	<sup>2</sup> VOC Emissions (tons)
EP-01	Steam Boiler	–	–	0.0094
EP-03	Parts Washers	–	–	0.028
EP-05	Injection Molding		9.90	
EP-06	In-Line UV Curing		0.30	
EP-07	R&D Test Ovens		0.50	
EP-08	Bake-Out Ovens		0.50	
EP-09	Sealant and Adhesive Extruders		0.30	
EP-10	Sealant and Adhesive Batch Mixers		1.48	
EP-11	Sealant and Adhesive Twin Screw Mixer		0.30	
*EP-12	Paint Booth	–	–	–
F	<sup>3</sup> Total Monthly VOC Emissions (tons)			
G	<sup>4</sup> Previous 11-Month Total VOC Emissions (tons)			
H	<sup>5</sup> Current 12-Month Total VOC Emissions (tons)			

\* EP-12 (Paint Booth) is used only for maintenance activities and will only produce insignificant VOC emissions

<sup>1</sup> Record the amount of material processed through the respective emission point

<sup>2</sup> VOC Emissions are calculated using the following equation:  $[E] = [C] \times [D] \div (2,000)$

<sup>3</sup> Total Monthly VOC Emissions are calculated by adding up all the values in [E]

<sup>4</sup> Previous 11-Month Total VOC Emissions are calculated by adding [F] on Attachment A for the previous 11 months

<sup>5</sup> Current 12-Month Total VOC Emissions are calculated using the following equation:  $[H] = [F] + [G]$

**Current 12-Month VOC Emissions must always be less than 40.0 tons in order to be compliant.**

## Attachment B – Combined HAP Compliance Worksheet

Henkel Corporation - Richmond  
 Ray County (S31, T52N, R27W)  
 Project Number: 2015-06-028  
 Installation ID Number: 177-0037  
 Permit Number: \_\_\_\_\_

This sheet covers the month of \_\_\_\_\_ in the year \_\_\_\_\_.

A	B	C	D	E
Material Used, (Name, HAP CAS #)	<sup>1</sup> Amount of Material Used (Include Units)	Density (lbs/gal)	HAP Content (weight %)	<sup>2</sup> HAP Emissions (tons)
F	<sup>3</sup> Total Monthly HAP Emissions (tons)			
G	<sup>4</sup> Previous 11-Month Total HAP Emissions (tons)			
H	<sup>5</sup> Current 12-Month Total HAP Emissions (tons)			

<sup>1</sup> Record the amount of HAP-containing material used in the given month  
<sup>2</sup> HAP Emissions are calculated using the following equations, depending on the units given in [B]:  
 If usage is given in tons: [E] = [B] x [D]  
 If usage is given in pounds: [E] = [B] x [D] ÷ (2,000)  
 If usage is given in gallons: [E] = [B] x [C] x [D] ÷ (2,000)  
<sup>3</sup> Total Monthly HAP Emissions are calculated by adding up all the values in [E]  
<sup>4</sup> Previous 11-Month Total HAP Emissions are calculated by adding [F] on Attachment B for the previous 11 months  
<sup>5</sup> Current 12-Month Total HAP Emissions are calculated using the following equation: [H] = [F] + [G]

**Current 12-Month HAP Emissions must always be less than 25.0 tons in order to be compliant.**



## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....	percent	<b>m/s</b> .....	meters per second
<b>°F</b> .....	degrees Fahrenheit	<b>Mgal</b> .....	1,000 gallons
<b>acfm</b> .....	actual cubic feet per minute	<b>MW</b> .....	megawatt
<b>BACT</b> .....	Best Available Control Technology	<b>MHDR</b> .....	maximum hourly design rate
<b>BMPs</b> .....	Best Management Practices	<b>MMBtu</b> ....	Million British thermal units
<b>Btu</b> .....	British thermal unit	<b>MMCF</b> .....	million cubic feet
<b>CAM</b> .....	Compliance Assurance Monitoring	<b>MSDS</b> .....	Material Safety Data Sheet
<b>CAS</b> .....	Chemical Abstracts Service	<b>NAAQS</b> ...	National Ambient Air Quality Standards
<b>CEMS</b> .....	Continuous Emission Monitor System	<b>NESHAPs</b>	National Emissions Standards for Hazardous Air Pollutants
<b>CFR</b> .....	Code of Federal Regulations	<b>NO<sub>x</sub></b> .....	nitrogen oxides
<b>CO</b> .....	carbon monoxide	<b>NSPS</b> .....	New Source Performance Standards
<b>CO<sub>2</sub></b> .....	carbon dioxide	<b>NSR</b> .....	New Source Review
<b>CO<sub>2e</sub></b> .....	carbon dioxide equivalent	<b>PM</b> .....	particulate matter
<b>COMS</b> .....	Continuous Opacity Monitoring System	<b>PM<sub>2.5</sub></b> .....	particulate matter less than 2.5 microns in aerodynamic diameter
<b>CSR</b> .....	Code of State Regulations	<b>PM<sub>10</sub></b> .....	particulate matter less than 10 microns in aerodynamic diameter
<b>dscf</b> .....	dry standard cubic feet	<b>ppm</b> .....	parts per million
<b>EQ</b> .....	Emission Inventory Questionnaire	<b>PSD</b> .....	Prevention of Significant Deterioration
<b>EP</b> .....	Emission Point	<b>PTE</b> .....	potential to emit
<b>EPA</b> .....	Environmental Protection Agency	<b>RACT</b> .....	Reasonable Available Control Technology
<b>EU</b> .....	Emission Unit	<b>RAL</b> .....	Risk Assessment Level
<b>fps</b> .....	feet per second	<b>SCC</b> .....	Source Classification Code
<b>ft</b> .....	feet	<b>scfm</b> .....	standard cubic feet per minute
<b>GACT</b> .....	Generally Available Control Technology	<b>SDS</b> .....	Safety Data Sheet
<b>GHG</b> .....	Greenhouse Gas	<b>SIC</b> .....	Standard Industrial Classification
<b>gpm</b> .....	gallons per minute	<b>SIP</b> .....	State Implementation Plan
<b>gr</b> .....	grains	<b>SMAL</b> .....	Screening Model Action Levels
<b>GWP</b> .....	Global Warming Potential	<b>SO<sub>x</sub></b> .....	sulfur oxides
<b>HAP</b> .....	Hazardous Air Pollutant	<b>SO<sub>2</sub></b> .....	sulfur dioxide
<b>hr</b> .....	hour	<b>tph</b> .....	tons per hour
<b>hp</b> .....	horsepower	<b>tpy</b> .....	tons per year
<b>lb</b> .....	pound	<b>VMT</b> .....	vehicle miles traveled
<b>lbs/hr</b> .....	pounds per hour	<b>VOC</b> .....	Volatile Organic Compound
<b>MACT</b> .....	Maximum Achievable Control Technology		
<b>µg/m<sup>3</sup></b> .....	micrograms per cubic meter		

Mr. Tim Davies  
SHE Manager  
Henkel Corporation - Richmond  
201 Highway 10 East  
Richmond, MO 64085

RE: New Source Review Permit - Project Number: 2015-06-028

Dear Mr. Davies:

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 and your new source review permit application 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, whose contact information is: Administrative Hearing Commission, Truman State Office Building P.O. Box 1557, Jefferson City, Missouri 65102, [www.ao.mo.gov/ahc](http://www.ao.mo.gov/ahc).

If you have any questions regarding this permit, contact Ryan Schott, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:rs1

Enclosures

c: Kansas City Regional Office  
PAMS File: 2015-06-028  
Permit Number: