

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: **11 2 0 1 4 - 0 1 0**

Project Number: 2014-08-063  
Installation Number: 177-0037

Parent Company: Henkel Corporation

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

Installation Name: Henkel Corporation

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

Location Information: Ray County, S31, T52N, R27W

Application for Authority to Construct was made for:  
Installation of three 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.

NOV 24 2014

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 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.

Page No.	3
Permit No.	
Project No.	2014-08-063

**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  
Ray County, S31, T52N, R27W

1. **Superseding Condition**  
The conditions of this permit supersede Special Condition 2 found in the previously issued construction permit 072013-002 issued by the Air Pollution Control Program.
2. **VOC and HAPs Emission Limitations**
  - A. Henkel Corporation shall emit less than 40.0 tons of VOCs in any consecutive 12-month period from the entire installation.
  - B. Henkel Corporation 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.
  - C. Attachment A, Attachment B or equivalent forms, such as electronic forms, preapproved by the Air Pollution Control Program shall be used to show compliance with Special Conditions 2.A.
3. **Record Keeping and Reporting Requirements**
  - A. Henkel Corporation 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. Henkel Corporation 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: 2014-08-063  
Installation ID Number: 177-0037  
Permit Number:

Henkel Corporation  
201 Highway 10 East  
Richmond, MO 64085

Complete: September 18, 2014

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

Ray County, S31, T52N, R27W

REVIEW SUMMARY

- Henkel Corporation has applied for authority to construct three rotary, two component injection molding machines.
- HAP emissions are expected from the proposed equipment. HAPs of concern from this process are vinyl acetate (CAS #108-05-4), however, these emissions are below the SMAL.
- 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.
- 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 VOC are below de minimis 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.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.

- No Basic Operating permit is required because all pollutants are below de minimis levels.
- Emissions testing is not required for the equipment.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Henkel Corporation is a global company headquartered in Dusseldorf, Germany. Its United States headquarters is in Connecticut. This installation is in Ray County, Missouri and was formerly known as Orbseal LLC. Henkel Corporation produces a number of different products. This installation produces automotive adhesives and sealants.

One of the products produced at this installation 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 already operates eighteen injection molders at this facility. All are currently grouped as EP-05 on the EIQ, but the two added in 2011 were referred to as EP-68 and EP-69 when APCP determined that no construction permit was required for them.

The following New Source Review permits have been issued to Henkel Corporation from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
0996-012	12/20/1995 Section 5 NSR permit (to Orbseal)
0997-023	9/16/1997 Section 5 NSR permit (to Orbseal)
1297-021	9/11/1997 Section 5 NSR permit (to Orbseal)
072013-002	Installation of 8 new injection molding units

In addition to these NSR permits, the installation also received ten “No Permit Required” letters for various equipment additions and changes. The installation obtained a Basic State Operating Permit on February 5, 2002, which was renewed on August 31, 2003; on October 16, 2007; and on October 18, 2012. On May 23, 2006, the operating permit was amended for the name change from Orbseal LLC to Henkel Corporation.

No NOEE/NOV’s have been issued to this installation in the last five years.

### PROJECT DESCRIPTION

This permit will add three additional injection molders, EP-76, EP-77, and EP-78. Each unit is a rotary, two component injection molding machines. The molding machines will produce Nylon 66 and mastic sealant parts for the automotive industry. The process will involve receiving nylon pellets from an existing nylon 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 each injection molding machine. Both materials that will be conveyed to the injection molding machines are fed into separate injection units outfitted with barrel and screw assemblies that, through heat and pressure, plasticize the material into a flow-able melted material. The flow-able material will then be simultaneously injected into two distinct zones of cavities in the mold. After the material solidifies, the mold opens and rotates 180 degrees to present the nylon part of the parts to the mastic cavities for over-molding then ejects the completed two molded parts as the finished product. There are no controls on the equipment.

Table 2: New Equipment of this Project.

Emission Point	Description (SCC Code)
EP-78	Wittmann Battenfeld 400-ton, two component injection molder, year 2014, MacroPower 400/2250, MHDR 0.24 tph (30102401)
EP-79	Wittmann Battenfeld 500-ton, two component injection molder, year 2014, MacroPower 500/3400, MHDR 0.28 tph (30102401)
EP-80	Wittmann Battenfeld 650-ton, two component injection molder, year 2014, MacroPower 650/3400, MHDR 0.21 tph (30102401)

This installation has already taken federally enforceable voluntary limitations of 40.0 tpy VOC emissions and a 10.0 tpy limit on all individual HAPs and a 25 tpy limit on combined HAPs in order to remain a minor source and avoid dispersion modeling.

## 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, which consists of installing the three injection molders listed in Table 2 above, with no controls. Existing potential emissions for VOC and HAPs are the federally enforceable limits which Henkel Corporation accepted in earlier NSR permits. VOC and HAPs are the only emission from the proposed equipment, so other existing potential emissions were not calculated for this project. Existing actual emissions were taken from the installation's 2013 EIQ. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

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/D
PM <sub>10</sub>	15.0	N/D	1.1083	N/A	N/D
PM <sub>2.5</sub>	10.0	N/D	0.4693	N/A	N/D
SO <sub>x</sub>	40.0	N/D	0.0009	N/A	N/D
NO <sub>x</sub>	40.0	N/D	0.1500	N/A	N/D
VOC	40.0	<40.0	4.8964	31.20	<40.0
CO	100.0	N/D	0.1260	N/A	N/D
GHG (CO <sub>2</sub> e)	100,000	N/D	N/D	N/A	N/D
HAPs	10.0/25.0	<10.0/25.0	0.000	0.700	<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 and HAPs are below de minimis levels.

### APPLICABLE REQUIREMENTS

Henkel 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. 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
- *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*, I recommend this permit be granted with special conditions.

---

Bryce Mihalevich  
New Source Review Unit

---

Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 26, 2014, received August 29, 2014, designating Henkel Corporation as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

## Attachment A - VOC Compliance Worksheet

Henkel Corporation  
 Ray County, S31, T52N, R27W  
 Project Number: 2014-08-063  
 Installation ID Number: 177-0037  
 Permit Number: \_\_\_\_\_

This sheet covers the month of \_\_\_\_\_ in the year \_\_\_\_\_.  
 Copy this sheet as needed.

Column 1	Column 2	Column 3 (a)	Column 4	Column 5	Column 6
Emission Point	Emission Point Description	Amount of Material Used (Include Units)	VOC Emission Factor (Include Units)	Emission Factor Units	VOC Emissions (Tons)
EP01	Steam Boiler		5.50	lb/MCF	
EP03	ZEP Parts Washer		7.71	lb/ton	
EP05	Injection Molding		4.90	lb/ton	
EP06	In-Line UV Curling		0.30	lb/ton	
EP07	R&D Test Ovens		0.50	lb/ton	
EP08	Break-Out Ovens		0.20	lb/ton	
EP09	Sealant and Adhesive Extruder		0.30	lb/ton	
EP10	Sealant and Adhesive Batch Mixer		1.48	lb/ton	
EP11	Continuous Sealant and Adhesive Mixer		0.30	lb/ton	
(b) Total VOC Emissions Calculated for this Month in Tons:					
(c) 12-Month VOC Emissions Total from Previous Month's Worksheet A, in Tons:					
(d) Monthly VOC Emissions Total (b) from Previous Year's Worksheet A, in Tons:					
(e) Current 12-Month Total of VOC Emissions in Tons: [(b) + (c) - (d)]					

**INSTRUCTIONS:** Choose appropriate VOC calculation method for units reported:

- (a) 1) If usage is in tons -  $[\text{Column 3}] \times [\text{Column 4}] / [2000] = [\text{Column 6}]$   
 2) If usage is in thousand cubic feet -  $[\text{Column 3}] \times [\text{Column 4}] / [2000] = [\text{Column 6}]$
- (b) Summation of [Column 6] in Tons;
- (c) 12-Month VOC emissions total (e) from last month's Worksheet A, in Tons;
- (d) Monthly VOC emissions total (b) from previous year's Worksheet A, in Tons;
- (e) Calculate the new 12-month VOC emissions total. A 12-Month VOC emissions total (e) of less than 40 tons indicates compliance.





## 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>2</sub>e</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  
Sr. Safety, Health & Environmental Manager  
Henkel Corporation  
201 Highway 10 East  
Richmond, MO 64085

RE: New Source Review Permit - Project Number: 2014-08-063

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, 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, whose contact information is found at: [www.oa.mo.gov/ahc](http://www.oa.mo.gov/ahc).

If you have any questions regarding this permit, please do not hesitate to contact Bryce Mihalevich, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:bml

Enclosures

c: Kansas City Regional Office  
PAMS File: 2014-08-063  
Permit Number: