State of Utah

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Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-AN104630032-24

April 24, 2024

Andrew Riddick
Henkel Corporation
3540 West 1987 South
Salt Lake City, UT 84104
Andrew.Riddick@henkel.com

Dear Mr. Riddick:

Re: Approval Order: Administrative Amendment to Approval Order DAQE-AN104630031-23 to Allow for Organic Liquids Handling Flexibility under R307-401-12
Project Number: N104630032

The attached Approval Order (AO) is issued pursuant to the Notice of Intent (NOI) received on March 11, 2024. Henkel Corporation must comply with the requirements of this AO, all applicable state requirements (R307), and Federal Standards.

The project engineer for this action is **Christine Bodell**, who can be contacted at (385) 290-2690 or cbodell@utah.gov. Future correspondence on this AO should include the engineer's name as well as the DAQE number shown on the upper right-hand corner of this letter. No public comments were received on this action.

Sincerely,

Bryce C. Bird
Director

BCB:CB:jg

cc: Salt Lake County Health Department
DJ Law, EPA Region 8

STATE OF UTAH
Department of Environmental Quality
Division of Air Quality

APPROVAL ORDER
DAQE-AN104630032-24
Administrative Amendment to Approval Order DAQE-AN104630031-23 to Allow for Organic Liquids Handling Flexibility under R307-401-12

Prepared By
Christine Bodell, Engineer
(385) 290-2690
cbodell@utah.gov

Issued to
Henkel Corporation - Detergent Manufacturing Plant

Issued On
April 24, 2024

Issued By

Bryce C. Bird
Director
Division of Air Quality

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GENERAL INFORMATION

CONTACT/LOCATION INFORMATION

Owner Name
Henkel Corporation

Source Name
Henkel Corporation - Detergent Manufacturing Plant

Mailing Address
3540 West 1987 South
Salt Lake City, UT 84104

Physical Address
3540 West 1987 South
Salt Lake City, UT 84104

Source Contact
Name: Andrew Riddick
Phone: (270) 392-9845
Email: Andrew.Riddick@henkel.com

UTM Coordinates
417,544 m Easting
4,509,170 m Northing
Datum NAD83
UTM Zone 12

SIC code 2841 (Soaps & Other Detergent, Except Specialty Cleaners)

SOURCE INFORMATION

General Description
Henkel Corporation (Henkel) operates a soap and detergent manufacturing plant in Salt Lake City. Emissions are primarily associated with particulate matter control equipment and natural gas combustion in a variety of boilers and emergency generators. Henkel employs baghouses, bin vents, dust collectors, and scrubbers.

NSR Classification
Administrative Amendment

Source Classification
Located in Northern Wasatch Front O3 NAA, Salt Lake City UT $PM_{2.5}$ NAA, Salt Lake County SO_2 NAA
Salt Lake County
Airs Source Size: SM

Applicable Federal Standards
NSPS (Part 60), A: General Provisions
NSPS (Part 60), Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
NSPS (Part 60), Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984
NSPS (Part 60), IIII: Standards of Performance for Stationary Compression Ignition Internal

Combustion Engines
NSPS (Part 60), JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
MACT (Part 63), A: General Provisions
MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Project Description
Henkel is currently permitted to process a throughput of up to 3,495,680 gallons, combined, of Armosoft DEQ per rolling 12-month period in Tanks 63 and 63A (Condition II.B.6.a in the Approval Order DAQE-AN104630031-23).

The current VOC potential to emit (PTE) of Tanks 63 and 63A was estimated in 2023 by using the Emission Master Tanks Software based on the 2019 EPA Revision. It was established that Armosoft DEQ had a true vapor pressure of 34.3 kPa, as determined in a laboratory using New Source Performance Standard (NSPS)-approved ASTM method 2879. The VOC emitted from Armosoft is ethanol.

Henkel would like to replace "Armosoft DEQ" with "Volatile Organic Liquid with a true vapor pressure not to exceed 34.3 kPa." The removal of the specific brand name would provide Henkel with flexibility to handle other organic liquids with the same or lower true vapor pressure. Henkel will not be permitted to handle a volatile organic liquid that contains any VOCs except for ethanol through Tanks 63 and 63A. Additionally, the volatile organic liquid will not contain any HAPs. Henkel is not requesting to increase the maximum allowable throughput of Tanks 63 and 63A. Therefore, no emissions are increasing. This project meets the requirements of UAC R307-401-12 Reduction in Air Pollutants and does not require a public comment period.

SUMMARY OF EMISSIONS

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Criteria Pollutant	Change (TPY)	Total (TPY)
Ammonia	0	0.85
CO_2 Equivalent	0	19094.00
Carbon Monoxide	0	13.47
Nitrogen Oxides	0	16.19
Particulate Matter - PM_{10}	0	28.39
Particulate Matter - $PM_{2.5}$	0	28.27
Sulfur Dioxide	0	0.13
Volatile Organic Compounds	0	9.87

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Formaldehyde (CAS #50000)	0	36
Generic HAPs (CAS #GHAPS)	0	35
Glycol Ethers (CAS #EDF109)	0	186
Hexane (CAS #110543)	0	571

Methanol (CAS #67561)	0	634
	Change (TPY)	**Total (TPY)**
Total HAPs	0	0.73

SECTION I: GENERAL PROVISIONS

I.1	All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]
I.2	The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]
I.3	Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
I.4	All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of two (2) years. [R307-401-8]
I.5	At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]
I.6	The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]
I.7	The owner/operator shall comply with UAC R307-150 Series. Emission Inventories. [R307-150]

SECTION II: PERMITTED EQUIPMENT

II.A THE APPROVED EQUIPMENT

II.A.1	**Detergent Manufacturing Plant**
II.A.2	**Baghouses and Bin Vents- Group #2** Outlet Emissions Rate: 0.02 grains/dscf Designations: LSL-6, SODA BV-1, LSL-9, LQD-5, LSL-1 Outlet Emissions Rates: 0.007 grains/dscf Designation: LSL-4

II.A.3	**Baghouses and Bin Vents- Group #3** Outlet Emission Rates: 0.005 grains/dscf Designations: LSL-8
II.A.4	**Baghouses and Bin Vents- Group #4** Outlet Emission Rate: 0.016 grains/dscf Designations: MESBH-1 and MESBV-2
II.A.5	**One (1) Scrubber** LSS-3/1 Model: Clean Gas System Size 54
II.A.6	**One (1) Conditioning Drum** Designation: LSL-3 Rating: 2.5 MMBtu/hr Fuel: Natural Gas
II.A.7	**Five (5) Boilers** Fuel: Natural Gas Ratings: (1) 8.37 MMBtu/hr (2) 6.4 MMBtu/hr (3) 0.77 MMBtu/hr (4) 2.51 MMBtu/hr (5) 14.0 MMBtu/hr
II.A.8	**Five (5) Heat transfer Labelers** Four (4) heat transfer labelers: Four (4) burners each Labeler Ratings: 0.17 MMBtu/hr Each (42,000 Btu/hr per burner) One (1) heat transfer labeler: Six (6) burners Labeler Rating: 0.25 MMBtu/hr Each (42,000 Btu/hr per burner)
II.A.9	**VideoJet coders** Including 32 VideoJet coders
II.A.10	**One (1) Emergency Generator Engine** Fuel: Diesel Engine Rating: 74 hp Manufacture Year: 2004 NSPS Applicability: None MACT Applicability: Subpart ZZZZ
II.A.11	**One (1) Emergency Generator Engine** Fuel: Natural Gas Rating: 16 hp Manufacture Year: 1969 NSPS Applicability: None MACT Applicability: Subpart ZZZZ
II.A.12	**Six (6) Pre-mixers**
II.A.13	**One (1) Paint booth** Rating: 2,000 scfm equipped Control: high efficiency over-spray filters

II.A.14	**Ethanol and Other Organic Solution Storage Tanks** Tank 52 Capacity: 29,000 gallons Contents: Citric Acid NSPS Applicability: None Tank 60 Capacity: 29,000 gallons Contents: Denatured Ethanol NSPS Applicability: None Tank 63 and Tank 63A Capacity: 34,000 gallons each Contents: Volatile Organic Liquid with a True Vapor Pressure not to exceed 34.3 kPa NSPS Applicability: Subpart Kb Tank 66 Capacity: 29,000 gallons Contents: Polyethylene glycol (PEG) 400 NSPS Applicability: None
II.A.15	**Storage Tanks** Tank 1 (34,000 gallons) Tank 2 (32,700 gallons) Tank 21 (21,000 gallons) Tank 22 (34,000 gallons) Tank 23 (29,000 gallons) Tank 27 (34,000 gallons) Tank 45 (21,000 gallons) Tank 49 (34,000 gallons) Tank 65 (34,000 gallons) Tank 65A (34,000 gallons) NSPS Applicability: None Above tanks, except for Tank 2, contain a liquid with a VOC maximum true vapor pressure less than 15.0 kPa. Tank 2 does not contain a volatile organic liquid.
II.A.16	**Two (2) Vacuum pumps** MESVP-1 and MESVP-2 Rating: 704 cfm Each Model Busch RC1000 for the MES conveying system
II.A.17	**One (1) Blower** LSL-10 Rating: 600 cfm
II.A.18	**Plastic processing equipment** Plastic and additive transfer, storage, mixing and grinding equipment Control: 13 sock filters
II.A.19	**Blow molding equipment** Vents in the blow molding area
II.A.20	**Five (5) Electrostatic precipitators** Smog Hog ESP mist collectors in the blow molding area
II.A.21	**Six (6) Cooling towers**

II.A.22	**Four (4) Maintenance shops** Including: parts cleaners, welding equipment, exhaust vents, welding fume collector, and grit blasting equipment
II.A.23	**Hoods** Miscellaneous ventilation hoods in QA labs
II.A.24	**Miscellaneous equipment** Liquid transfer, storage, and mixing equipment, including raw material and product storage tanks, pumps, vents, blending equipment, and bottle-filling equipment

SECTION II: SPECIAL PROVISIONS

II.B REQUIREMENTS AND LIMITATIONS

II.B.1	**Site-Wide Opacity Requirement.**
II.B.1.a	The owner/operator shall not allow visible emissions to exceed 20% opacity unless otherwise specified within this AO. [R307-401-8]
II.B.1.a.1	Unless otherwise specified in this AO, opacity observations of visible emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. [R307-305-3]
II.B.2	**Site-Wide Natural Gas Requirements.**
II.B.2.a	The owner/operator shall not consume more than 533.7 million scf of natural gas per rolling 12-month period. [R307-401-8]
II.B.2.a.1	The owner/operator shall: A. Determine consumption by utility billing statements. B. Record consumption on a monthly basis. C. Use the consumption data to calculate a new rolling 12-month total by the 20th day of each month using data from the previous 12 months. D. Keep the consumption records for all periods the plant is in operation. [R307-401-8]
II.B.3	**Liquid Detergent Production Requirements.**
II.B.3.a	The owner/operator shall not produce more than 1,700,000,000 pounds of liquid detergents per rolling 12-month period. [R307-401-8]

II.B.3.a.1	The owner/operator shall: A. Determine production with production records. B. Record production on a daily basis. C. Use the production data to calculate a new rolling 12-month total by the 20th day of each month using data from the previous 12 months. D. Keep the production records for all periods the plant is in operation. [R307-401-8]
II.B.4	**Scrubber Requirements.**
II.B.4.a	The owner/operator shall maintain the liquid flow rate of Scrubber LSS-3/1 to not be less than 56 gallons/minute. [R307-401-8]
II.B.4.a.1	The liquid flow rate shall be monitored with a flow meter located such that an inspector/operator can safely read the output anytime. [R307-401-8]
II.B.4.a.2	The owner/operator shall install, calibrate, maintain, and operate each monitoring device certified by the manufacturer. Calibration shall be on an annual basis according to the manufacturer's instructions. Daily records of reading shall be maintained. [R307-401-8]
II.B.5	**VOC and HAP Requirements.**
II.B.5.a	The owner/operator shall not allow visible emissions from the printing press dryers to exceed 10% opacity. [R307-401-8]
II.B.5.b	The owner/operator shall not emit more than the following from evaporative sources (painting, printing, coating, and/or cleaning) on site: 8.94 tons of VOC including HAPs per rolling 12-month period. 0.43 tons of all other HAPs combined per rolling 12-month period. [R307-351, R307-401-8]
II.B.5.b.1	The owner/operator shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. The owner/operator shall use a mass-balance method to calculate emissions from evaporative sources. The owner/operator may use the following equations with applicable units to comply with the mass-balance method: VOCs = [% VOCs by Weight/100] x [Density] x [Volume Consumed]. HAP = [% HAP by Weight/100] x [Density] x [Volume Consumed]. [R307-401-8]

II.B.5.b.2	The owner/operator shall keep records each month of the following: A. The name (as per the Safety Data Sheet) of the VOC- and HAP-emitting material. B. The maximum percent by weight of VOCs and each HAP in each material used. C. The density of each material used. D. The volume of each VOC- and HAP-emitting material used. E. The amount of VOCs and the amount of each HAP emitted from each material. F. The amount of VOCs and the amount of each HAP reclaimed and/or controlled from each material. G. The total amount of VOCs, the total amount of each HAP, and the total amount of all HAPs combined emitted from all materials (in tons). [R307-401-8]
II.B.5.c	The owner/operator shall store VOC- or HAP-containing materials and VOC- or HAP-laden rags in covered containers, except when in use. [R307-401-8]
II.B.5.d	The owner/operator shall comply with the applicable requirements in R307-325 and R307-335. [R307-325, R307-335]
II.B.6	**Storage Tank (Storage Vessel) Requirements**
II.B.6.a	The owner/operator shall not process more than the following throughput for the indicated tanks: A. Tank 52: 63,50,000 gallons of Citric Acid per rolling 12-month period. B. Tank 60: 606,466 gallons of Ethanol per rolling 12-month period. C. Tanks 63 and 63A: 3,495,680 gallons, combined, of volatile organic liquids with a true vapor pressure of no more than 34.3 kPa per rolling 12-month period. D. Tank 66: 63,510,000 gallons of PEG 400 per rolling 12-month period. [R307-401-8]

II.B.6.a.1	The owner/operator shall: A. Determine the volume processed through each tank using process flow meters and/or sales records. B. Determine true vapor pressure with ASTM Method 2879. C. Record the volume processed through each tank on a daily basis. D. Use the monthly volume processed through each tank record to calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. E. Keep the volume processed through each tank record for all periods the plant is in operation. [R307-401-8]
II.B.6.b	The owner/operator shall not process a volatile organic liquid that contains any HAP and/or VOC except for ethanol through Tanks 63 and 63A. [R307-401-8]
II.B.6.b.1	To demonstrate compliance with the above condition, the owner/operator shall maintain records of the Safety Data Sheet (SDS) for the organic liquid. [R307-401-8]
II.B.6.c	The owner/operator shall keep the storage tank thief hatches and other tank openings closed and sealed except during tank unloading or other maintenance activities. [R307-401-8]
II.B.6.d	The owner/operator shall install a carbon canister of both Tank 63 and Tank 63A with a control efficiency of no less than 95%. [40 CFR 60 Subpart Kb, R307-401-8]
II.B.6.d.1	To demonstrate compliance with the above condition, the owner/operator shall maintain records of the manufacturer's emissions guarantee for the installed carbon canister filters. [R307-401-8]
II.B.6.e	The owner/operator shall inspect and replaced the carbon canisters in accordance with the manufacturer's recommendations to ensure the 95% control efficiency is met. [R307-401-8]
II.B.7	**Baghouses and Bin Vents Requirements.**
II.B.7.a	The owner/operator shall not allow visible emissions from baghouses and bin vents to exceed 10% opacity. [R307-305, R307-401-8]
II.B.7.b	The owner/operator shall install a manometer or magnehelic pressure gauge to measure the pressure drop across each baghouse filter. [R307-401-8]
II.B.7.b.1	The pressure gauges shall be located such that a UDAQ representative/operator can safely read the indicator at any time. [R307-401-8]
II.B.7.b.2	The pressure gauges shall each measure the pressure drop in 1-inch water column increments or less. [R307-401-8]
II.B.7.c	During operation of the baghouses, the owner/operator shall maintain the static pressure drop across each baghouse between 1.0 and 6.0 inches of water column. [R307-401-8]
II.B.7.c.1	The owner/operator shall record the pressure drop at least once per operating day while each baghouse is operating. [R307-401-8]

II.B.7.c.2	The owner/operator shall maintain the following records of the pressure drop readings: A. Unit identification; B. Date of reading; C. Daily pressure drop readings. [R307-401-8]
II.B.7.d	At least once every 12 months, the owner/operator shall calibrate the pressure gauges in accordance with the manufacturer's instructions or replace the gauges. [R307-401-8]
II.B.7.d.1	The owner/operator shall maintain records of all pressure gauge calibrations and replacements. [R307-401-8]
II.B.8	**Combustion Equipment Requirements.**
II.B.8.a	The owner/operator shall not operate each emergency engine on site for more than 100 hours per calendar year for maintenance checks and readiness testing. Each emergency engine on site may be operated for up to 50 hours per calendar year in non-emergency situations. Any operation in non-emergency situations shall be counted as part of the 100 hours per calendar year for maintenance and testing. There is no time limit on the use of the engines during emergencies. [40 CFR 63 Subpart ZZZZ, R307-401-8]
II.B.8.a.1	To determine compliance with the annual operation limitation, records documenting the operation of each emergency engine shall be kept in a log and shall include the following: A. The date the emergency engine was used. B. The duration of operation in hours. C. The reason for the emergency engine usage. [R307-401-8]
II.B.8.a.2	To determine the duration of operation, the owner/operator shall install a non-resettable hour meter for each emergency engine. [R307-401-8]
II.B.8.b	The owner/operator shall only use diesel fuel (e.g., fuel oil #1, #2, or diesel fuel oil additives) as fuel in the 74 hp emergency engine. The owner/operator shall only use natural gas as fuel in the conditioning drum heater, the 16 hp emergency engine, and all the boilers, water heaters, and heat transfer labelers. [R307-401-8]
II.B.8.b.1	The owner/operator shall only combust diesel fuel that meets the definition of ultra-low sulfur diesel (ULSD), which has a sulfur content of 15 ppm or less. [R307-401-8]
II.B.8.b.2	To demonstrate compliance with the ULSD fuel requirement, the owner/operator shall maintain records of diesel fuel purchase invoices or obtain certification of sulfur content from the diesel fuel supplier. The diesel fuel purchase invoices shall indicate that the diesel fuel meets the ULSD requirements. [R307-401-8]
II.B.8.c	Visible emissions from all-natural gas combustion equipment shall not exceed 10% opacity. [R307-201]
II.B.8.d	The owner/operator shall install boilers that each have low NO_x burners certified by the manufacturer. [R307-401-8]

II.B.8.e	The owner/operator shall keep the manufacturer certification for each low NO_x burners on site as long as each boiler is in operation. [R307-401-8]
II.B.8.e.1	To demonstrate compliance with the above condition, the owner/operator shall maintain records of the manufacturer's emissions guarantee for the installed low-NO_x burners. [R307-401-8]

PERMIT HISTORY

This Approval Order shall supersede (if a modification) or will be based on the following documents:

Supersedes	AO DAQE-AN104630031-23 dated August 9, 2023
Is Derived From	NOI dated March 11, 2024

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by Environmental Protection Agency to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent - Title 40 of the Code of Federal Regulations Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ/UDAQ	Division of Air Quality
DAQE	This is a document tracking code for internal Division of Air Quality use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - Title 40 of the Code of Federal Regulations 52.21 (b)(49)(i)
GWP	Global Warming Potential - Title 40 of the Code of Federal Regulations Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/YR	Pounds per year
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO_2	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
VOC	Volatile organic compounds