

Commonwealth of Kentucky
Division for Air Quality
STATEMENT OF BASIS / SUMMARY

Conditional Major, Renewal/ Operating
Permit: F-25-052

Arch Environmental Equipment, Inc.
5929 Benton Road
Paducah, KY 42003

December 24, 2025
Ibrahim Alburai, Reviewer

SOURCE ID: 21-145-00088
AGENCY INTEREST: 39228
ACTIVITY: APE20250002

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SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 3535, Conveyors and Conveying Equipment

Single Source Det. Yes No If Yes, Affiliated Source AI:

Source-wide Limit Yes No If Yes, See Section 4, Table A

28 Source Category Yes No If Yes, Category:

County: McCracken

Nonattainment Area N/A PM₁₀ PM_{2.5} CO NO_x SO₂ Ozone Lead

If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant Yes No

If yes, for what pollutant(s)?

PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

PTE* greater than 250 tpy for any criteria air pollutant Yes No

If yes, for what pollutant(s)?

PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) Yes No

If yes, list which pollutant(s): Xylene

PTE* greater than 25 tpy for combined HAP Yes No

*PTE does not include self-imposed emission limitations.

Description of Facility:

Arch Environmental Equipment, Inc. manufactures conveyor components and dust control equipment.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-25-052

Activities: APE20250002

Received: October 14, 2025

Application Complete Date(s): December 9, 2025

Permit Action: Initial Renewal Significant Rev Minor Rev Administrative

Construction/Modification Requested? Yes No

Previous 502(b) (10) or Off-Permit Changes incorporated with this permit action Yes No

APE20250001: An application for replacing EP02, Castable Urethane Molding (MP1) and Catalyst (MP2) with the same capacity was received January 28, 2025.

Description of Action:

Renewal permit with no requested construction.

F-25-052 Emission Summary		
Pollutant	2025 Actual (tpy)	PTE F-25-052 (tpy)
CO	0.26	0.538
NOx	0.31	0.640
PT	0.06	11.633
PM ₁₀	0.06	11.618
PM _{2.5}	0.05	9.051
SO ₂	0.002	0.004
VOC	3.76	105.730*
Lead	0	0.000
Greenhouse Gases (GHGs)		
Carbon Dioxide	371.52	766.9
Methane	0.007	0.014
Nitrous Oxide	0.007	0.001
CO ₂ Equivalent (CO ₂ e)	373.781	767.7
Hazardous Air Pollutants (HAPs)		
Toluene	0.119	7.327
Xylenes (Total)	0.122	35.156
Ethyl Benzene	0.037	6.979
Methanol	0.125	2.020
Methyl Isobutyl Ketone	0.047	9.726
Combined HAPs:	0.475	61.310*

*The permittee has requested federally enforceable emission limitations to preclude major source status under 401 KAR 52:020.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit #1 Spray Booth				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
VOC	Source wide 90 tpy	401 KAR 52:030	Material Balance & SDS	Recordkeeping, 12 month rolling total
HAP	Source wide 9/22.5 tpy single/combined	401 KAR 52:030	Material Balance & SDS	Recordkeeping, 12 month rolling total
PM	2.34 lbs/hr	401 KAR 59:010, Section 3(2)	Material Balance & SDS with 60% Transfer Efficiency	Panel Fabric Filters, 90% C.E., Manufacturer's guarantee
	20%	401 KAR 59:010, Section 3(1)	N/ A	Weekly visual observation
Ethyl Benzene	Source wide 0.439 tpy	401 KAR 63:020	Material Balance & SDS	Recordkeeping, 12 month rolling total

Initial Construction Date: 03/1997

Process Description:

EP 01 Spray Booth

MP1: Coating

Spray operation system: DeVilbiss model 2000
 Maximum capacity of the spray gun: 6.57 gallons/hour
 Estimated transfer efficiency: 60%

MP2: Clean-Up

Consumption of solvent: 0.175 gallon/hour

Applicable Regulation:

401 KAR 59:010, This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

State-Origin Requirements:

401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*, applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances.

Comments:

401 KAR 63:002, Section 2(4) (mmmm) 40 C.F.R. 63.7980 to 63.8105, Tables 1 through 10 (Subpart HHHHH), National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing, is not applicable. The coatings in use do not contain compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd).

401 KAR 63:002, Section 2(4) (vvvvv) 40 C.F.R. 63.11514 to 63.11523, Tables 1 through 2 (Subpart XXXXXX), National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories is not applicable. The SIC code for Arch Environmental is not included in the list of source categories subject to this regulation.

Emission Unit #2 & #3 Urethane Shop & Adhesive Applications				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
VOC	Source wide 90 tpy	401 KAR 52:030	Material Balance & SDS	Recordkeeping, 12 month rolling total
HAP	Source wide 9/22.5 tpy single/combined	401 KAR 52:030	Material Balance & SDS	Recordkeeping, 12 month rolling total
Ethyl Benzene	Source wide 0.439 tpy	401 KAR 63:020	Material Balance & SDS	Recordkeeping, 12 month rolling total
Initial Construction Date: see below				
Process Description:				
EP 02 Urethane Shop				
MP1: Castable Urethane Molding				
Maximum consumption of coating: 37.97 lbs./hour				
Date Commenced: March 1997				
Replaced: January 2025				
MP2: Catalyst				
Consumption of solvent: 2.89 lbs./hour				
Date Commenced: March 1997				
Replaced: January 2025				
EP 03 Adhesive Applications				
MP1: Elastomer Application				
Maximum adhesive consumption: 0.54 lbs./hour				
Date Commenced: March 1997				
Applicable Regulation:				
401 KAR 63:020, <i>Potentially Hazardous Matter or Toxic Substances</i> , applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances. [State-origin Requirement]				
Comments:				
N/A				

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements/Results

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
NA										

Footnotes:

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of VOC emissions	401 KAR 52:030	Source-wide
9.0 tpy of individual HAP emissions	To preclude major source status for HAP	Source-wide
22.5 tpy of combined HAP emissions	To preclude major source status for HAP	Source-wide
0.439 tpy of Ethyl Benzene	401 KAR 63:020	Source-wide

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:010, <i>New process operations</i>	EU 01
401 KAR 63:020, <i>Potentially hazardous matter or toxic substances</i>	EU 01, 02 & 03

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
401 KAR 52:020, <i>Title V permits</i>	Source-wide

Table D - Summary of Non Applicable Regulations:

N/A

Air Toxic Analysis

401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*

The Division for Air Quality (Division) has performed SCREEN View on December 16, 2025 of potentially hazardous matter or toxic substances (Toluene, Ethyl Benzene , Xylene, Methyl Isobutyl Ketone, Methanol and Methylene Diphenyl Diisocyanate) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Additional refined model AERMOD was performed on April 27, 2021 on Ethyl Benzene pollutant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020. See limit for Ethyl Benzene in Section 4 of this document and Section D of the operating permit.

Single Source Determination: N/A

SECTION 5 – PERMITTING HISTORY

Permit	Permit Type	Activity #	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
F-06-054	Renewal	APE20060001	10/26/2006	11/16/2006	Renewal	NA
F-11-043	Renewal	APE20110001	6/27/2011	9/19/2011	Renewal	NA
F-16-007	Renewal	APE20160001	2/15/2016	8/11/2016	Renewal	NA
F-21-007	Renewal	APE20210001	3/15/2021	7/18/2021	Renewal	NA

SECTION 6 – PERMIT APPLICATION HISTORY

N/A

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS	– Ambient Air Quality Standards
BACT	– Best Available Control Technology
Btu	– British thermal unit
CAM	– Compliance Assurance Monitoring
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
ESP	– Electrostatic Precipitator
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
HF	– Hydrogen Fluoride (Gaseous)
MSDS	– Material Safety Data Sheets
mmHg	– Millimeter of mercury column height
NAAQS	– National Ambient Air Quality Standards
NESHAP	– National Emissions Standards for Hazardous Air Pollutants
NO _x	– Nitrogen Oxides
NSR	– New Source Review
PM	– Particulate Matter
PM ₁₀	– Particulate Matter equal to or smaller than 10 micrometers
PM _{2.5}	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO ₂	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds