

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

Conditional Major, Operating

Permit: F-24-025

DTS Industries, LLC

80 Carpenter Drive.

Annville, KY 40402

April 22, 2024

Qinyi Wang, Reviewer

SOURCE ID: 21-109-00013  
AGENCY INTEREST: 38591  
ACTIVITY: APE20240001

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## SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 3499, Fabricated Metal Products, Not Elsewhere Classified

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: Jackson

Nonattainment Area  N/A  PM<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  Ozone  Lead

If yes, list Classification:

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

If yes, for what pollutant(s)?

PM<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  VOC

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

If yes, for what pollutant(s)?

PM<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  VOC

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

If yes, list which pollutant(s): Methyl Isobutyl Ketone, Toluene, Xylene

PTE\* greater than 25 tpy for combined HAP  Yes  No

\*PTE does not include self-imposed emission limitations.

### Description of Facility:

DTS Industries, LLC fabricates metal products mostly for the assembly for the material handling industry and storage carts for computers, and individual parts for parts of machines.

**SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM**

Permit Number: F-24-025

Activities: APE20240001

Received: March 27, 2024

Application Complete Date(s): April 19, 2024

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

**Description of Action:**

APE20240001: Cond Mjr-Renewal

On March 27, 2024, an application was received from DTS Industries LLC for a renewal of their currently conditional major permit (F-19-007 R1) expiring on August 18, 2024 for their manufacturing facility in Jackson County , KY, which is in attainment for criteria air pollutants, pursuant to 401 KAR 51:010.

- Two water jets (insignificant activities) have been sold and are no longer in the facility.

APE20230001: off prmt/502(b)(10); Issued August 29, 2023

On March 30, 2023, an application was received from DTS Industries LLC for a notification of 502(b)(10) changes to their conditional major permit (F-19-007 R1) to relocate within the facility EP 01 (Wet-Paint Spray Booth) from the Annville 1 building to the Annex building.

Emission Summary for F-24-025		
Pollutant	2023 Actual (tpy)	PTE F-24-025 (tpy)
CO	0.17	1.87
NOx	0.20	2.22
PT	0.11	4.77
PM <sub>10</sub>	0.11	4.77
PM <sub>2.5</sub>	0.10	4.43
SO <sub>2</sub>	0.12E-02	0.013
VOC	0.088	250*
Lead	0.10E-05	1.11E-05
Greenhouse Gases (GHGs)		
Carbon Dioxide	235.80	2659.93
Methane	4.52E-03	0.050
Nitrous Oxide	0.43E-02	0.0050
CO <sub>2</sub> e:	237.19	2662.67
Hazardous Air Pollutants (HAPs)		
Total HAPs:	3.48E-02	107*
2,4-Toluene Diisocyanate	1.12E-05	0.11

Ethyl Benzene	7.03E-04	7.30**
Methanol	7.42E-03	4.10
Methyl Isobutyl Ketone	7.16E-04	15.71*
Toluene	0.021	35.33*
Xylenes (Total)	4.60E-03	44.10*

\*Emissions limited by federally-enforceable emission limitations to ensure the source remains below major source thresholds.

\*\*Source-wide limitation 4.28 tpy to model compliance with the 401 KAR 63:020 standard .

**SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS**

<b>Emission Point: #1: Wet Booth/Spray Coating Operation (Booth#1)</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
VOC	Source wide 90 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	Monthly recordkeeping, 12-month rolling total
Individual HAP	Source wide 9.0 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	Monthly recordkeeping, 12-month rolling total
Combined HAP	Source wide 22.5 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	Monthly recordkeeping, 12-month rolling total
PM	2.34 lb/hr	401 KAR 59:010, Section 3(2)	Material Balance & MSDS with 60% Transfer Efficiency	Dry Filter, 90% C.E. Manufacturer's guarantee and differential pressure
	<20% opacity	401 KAR 59:010, Section 3(1)a	N/A	Recordkeeping of weekly visual observations
Ethyl Benzene	Source wide 4.28 tpy	401 KAR 63:020, Section 3	Material Balance & MSDS	Monthly recordkeeping, 12-month rolling total

**Initial Construction Date:** 2011

**Process Description:**

Miscellaneous metal parts to be coated in the wet booth are wiped down with a solvent prior to entry. The wet spray booth is capable of handling one gun at a time. HVLP guns with a maximum throughput of 4.68 gal/hr are used. All paint mixing and preparation is conducted within the booth. Thinners are added at variable ratios to achieve desired viscosity. Maximum throughput for each coating material is shown in the table below. Emissions pass through a particulate matter filter prior to exit to the ambient air.

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations.*** 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.

**Precluded Regulations:**

**401 KAR 52:020, *Title V Permits.*** This regulation is precluded since the source has accepted emissions limited by federally-enforceable emission limitations to ensure the source remains below major source thresholds.

**Emission Point: #1: Wet Booth/Spray Coating Operation (Booth#1)**

**Comments:**

There is no control for VOCs and they are assumed to be emitted to the atmosphere. The Wet/Booth Spray Coating operation (EP 01) utilizes dry filters for particulate matter with an assumed efficiency of 90%, in addition to the particulate matter transfer efficiency of 60%.

**401 KAR 63:002, Section 2(4)(iiii), 40 CFR 63, Subpart HHHHHH, National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources.** This regulation is not applicable since facility does not use coatings with the target HAPs (chromium, lead, manganese, nickel or cadmium).

**401 KAR 59:225, New miscellaneous metal parts and products surface coating operations.** This regulation is not applicable since facility has subjected to the limitations on VOC emissions below a major source threshold.

**401 KAR 63:002, Section 2(4)(rrr), 40 CFR 63, Subpart MMMM, National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products.** This regulation is not applicable since facility is not a major source.

Raw product is received in 4' x 8' sheets, with a few sheets of blanks or pre-cut sizes. Metal sheets are cut to size in a pressure shear or with a water/garnet jet system. Metal sheets enter a single unit for hard tooling and are bent in a break utilizing pressure. Some metal pieces require milling or machining, which occurs dry; occasionally lubricants are used to ease manipulation. Metal pieces are MIG-welded at four stations; each is affixed with a fume eater vented into the building. On-site there are eight MIG welders and one TIG welder. Minimal hand grinding and machining takes place to prepare the pieces before coating.

The majority of the metal products are powder-coated. Metal products are hung on a conveying rack system that passes through a three-step wash system, a drying tunnel, powder-coat booth and cure ovens. The first step of the wash system is heated with natural gas. The drying tunnel and cure oven are also natural gas-fueled and vent to the outside. The powder coat booth is enclosed and operates a self-contained ventilation system that does not contain an exit stack. Powder coat is not recycled within the system. After the cure process, coated pieces are left to hang and cool on the racks.

The Division for Air Quality (Division) has performed modeling using AERMOD on April 16, 2024 of potentially hazardous matter or toxic substances (2,4-Toluene Diisocyanate (TDI)) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. The result of AERMOD indicated that the initially calculated PTE for TDI caused the modeled impact of TDI to exceed the carcinogenic index value of 2.60E-01  $\mu\text{g}/\text{m}^3$ . However, the modeling indicated that the impact would be mitigated if the TDI (CAS #: 584-84-9) emissions were limited to less than 0.041 tons/year (82 lbs/year).

The Division refined the calculation of the emissions of 2,4-Toluene Diisocyanate polymer by using emission tools developed by American Chemistry Council "TDI – Emissions -Estimator - for 2,4-Toluene Diisocyanate (TDI) emissions from spray booth operations" (<https://www.americanchemistry.com/industry-groups/center-for-the-polyurethanes-industry-cpi/environment/epa-toxics-release-inventory-tri-reporting-guidance-rcap>). A total emission of the spraying process of TDI was 1.52 lb/yr (0.00076 tons/year) was used along with the percentage in the MSDS for the materials that include TDI as a component. This revised the PTE for TDI far below 0.041 tons/year. Based upon this information, and the revised calculated PTE, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

Emission Point: #5: Wet Booth/Spray Coating Operation (Booth#2)				
Emission Point: #6: Wet Booth/Spray Coating Operation (Booth#3)				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
VOC	Source wide 90 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	Monthly recordkeeping, 12-month rolling total
Individual HAP	Source wide 9.0 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	Monthly recordkeeping, 12-month rolling total
Combined HAP	Source wide 22.5 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	Monthly recordkeeping, 12-month rolling total
PM	2.34 lb/hr	401 KAR 59:010, Section 3(2)	Material Balance & MSDS with 60% Transfer Efficiency	Dry Filter, 98.6% C.E. Manufacturer's guarantee and differential pressure
	<20% opacity	401 KAR 59:010, Section 3(1)a	N/A	Recordkeeping of weekly visual observations
Ethyl Benzene	Source wide 4.28 tpy	401 KAR 63:020, Section 3	Material Balance & MSDS	Monthly recordkeeping, 12-month rolling total

**Initial Construction Date:** EP05 - 2021, EP06 - 2021

**Process Description:**

Miscellaneous metal parts to be coated in the wet booth are wiped down with a solvent prior to entry. The wet spray booth is capable of handling one gun at a time. HVLP guns with a maximum throughput of 2.44 gal/hr are used. All paint mixing and preparation is conducted within the booth. Thinners are added at variable ratios to achieve desired viscosity. Maximum throughput for each coating material is shown in the table below. Emissions pass through a particulate matter filter prior to exit to the ambient air.

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations.*** 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.

**Precluded Regulations:**

**401 KAR 52:020, *Title V Permits.*** This regulation is precluded since the source has accepted emissions limited by federally-enforceable emission limitations to ensure the source remains below major source thresholds.

**Comments:**

There is no control for VOCs and they are assumed to be emitted to the atmosphere. The Wet/Booth Spray

**Emission Point: #5: Wet Booth/Spray Coating Operation (Booth#2)**

**Emission Point: #6: Wet Booth/Spray Coating Operation (Booth#3)**

Coating operation (EP 05 & 06) utilizes dry filters for particulate matter with an assumed efficiency of 98.6%, in addition to the particulate matter transfer efficiency of 60%.

401 KAR 63:002, Section 2(4)(iiii), 40 CFR 63, Subpart HHHHHH, *National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources*. This regulation is not applicable since facility does not use coatings with the target HAPs (chromium, lead, manganese, nickel or cadmium).

401 KAR 59:225, New miscellaneous metal parts and products surface coating operations. This regulation is not applicable since facility has subjected to the limitations on VOC emissions below a major source threshold.

401 KAR 63:002, Section 2(4)(rrr), 40 CFR 63, Subpart MMMM, *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products*. This regulation is not applicable since facility is not a major source.

Raw product is received in 4' x 8' sheets, with a few sheets of blanks or precut sizes. Metal sheets are cut to size in a pressure sheer or with a water/garnet jet system. Metal sheets enter a single unit for hard tooling and are bent in a break utilizing pressure. Some metal pieces require milling or machining, which occurs dry; occasionally lubricants are used to ease manipulation. Metal pieces are MIG-welded at four stations; each is affixed with a fume eater vented into the building. On-site there are eight MIG welders and one TIG welder. Minimal hand grinding and machining takes place to prepare the pieces before coating.

The majority of the metal products are powder-coated. Metal products are hung on a conveying rack system that passes through a three-step wash system, a drying tunnel, powder-coat booth and cure ovens. The first step of the wash system is heated with natural gas. The drying tunnel and cure oven are also natural gasfueled and vent to the outside. The powder coat booth is enclosed and operates a self-contained ventilation system that does not contain an exit stack. Powder coat is not recycled within the system. After the cure process, coated pieces are left to hang and cool on the racks.

The Division for Air Quality (Division) has performed modeling using AERMOD on April 16, 2024 of potentially hazardous matter or toxic substances (2,4-Toluene Diisocyanate (TDI)) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. The result of AERMOD indicated that the initially calculated PTE for TDI caused the modeled impact of TDI to exceed the carcinogenic index value of  $2.60E-01 \mu\text{g}/\text{m}^3$ . However, the modeling indicated that the impact would be mitigated if the TDI (CAS #: 584-84-9) emissions were limited to less than 0.041 tons/year (82 lbs/year).

The Division refined the calculation of the emissions of 2,4-Toluene Diisocyanate polymer by using emission tools developed by American Chemistry Council "TDI – Emissions -Estimator - for 2,4-Toluene Diisocyanate (TDI) emissions from spray booth operations" (<https://www.americanchemistry.com/industry-groups/center-for-the-polyurethanes-industry-cpi/environment/epa-toxics-release-inventory-tri-reporting-guidance-rcap>). A total emission of the spraying process of TDI was 1.52 lb/yr (0.00076 tons/year) was used along with the percentage in the MSDS for the materials that include TDI as a component. This revised the PTE for TDI far below 0.041 tons/year. Based upon this information, and the revised calculated PTE, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.



<b>Abrasive Blasting (Insignificant Activity)</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
PM	2.34 lb/hr	401 KAR 59:010, Section 3(2)	Material Balance & MSDS	99% control from dust collection system
	<20% opacity	401 KAR 59:010, Section 3(1)a	N/A	Recordkeeping of monthly visual observations

**Initial Construction Date:** 2014

**Process Description:**

Blasting takes place in a Flow Skat Blast 960-DLX Blast Cabinet

**Applicable Regulation:**

**401 KAR 59:010, *New Process Operations.*** 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:**

99% particulate matter control assumed from build in dust collection system.

401 KAR 63:002, Section 2(4)(vvvvv), 40 C.F.R. 63.11514 to 63.11523, Tables 1 to 2 (Subpart XXXXXX), National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories does not apply since the primary operation is not included in applicable source categories.



**SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS**

**Table A - Group Requirements:**

<b>Emission and Operating Limit</b>	<b>Regulation</b>	<b>Emission Unit</b>
90 tpy of VOC emissions	To preclude 401 KAR 52:020	Source-wide
9.0 tpy of individual HAP emissions	To preclude 401 KAR 52:020	Source-wide
22.5 tpy of combined HAP emissions	To preclude 401 KAR 52:020	Source-wide
4.28 tpy of Ethyl Benzene emissions	Pursuant to 401 KAR 63:020	Source-wide

**Table B - Summary of Applicable Regulations:**

<b>Applicable Regulations</b>	<b>Emission Unit</b>
401 KAR 59:010, <i>New Process Operations</i>	EP01, 05, 06
401 KAR 63:020, <i>Potentially hazardous matter or toxic substances</i>	EP01, 05, 06

**Table C - Summary of Precluded Regulations:**

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

**SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS (CONTINUED)**

**Table D - Summary of Non Applicable Regulations:**

<b>Non Applicable Regulations</b>	<b>Emission Unit</b>
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 April 15, 2024 of potentially hazardous matter or toxic substances (Arsenic, Chromium, Cobalt, Ethyl Benzene, Manganese, Methanol, Methyl Isobutyl Ketone, Nickel, Hexane, Toluene, 2,4-Toluene Diisocyanate and Xylene) and AERMOD on April 16, 2024 of potentially hazardous matter or toxic substances (Arsenic, Cobalt, Ethyl Benzene, and 2,4-Toluene 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. 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.

**Single Source Determination**

N/A

**SECTION 5 – PERMITTING HISTORY**

<b>Permit</b>	<b>Permit Type</b>	<b>Activity#</b>	<b>Complete Date</b>	<b>Issuance Date</b>	<b>Summary of Action</b>	<b>PSD/Syn Minor</b>
S-95-228	Initial	N/A	N/A	11/2/1995	Initial Construction Permit	N/A
S-96-164	Revision	N/A	N/A	5/6/1996	Addition of new coating material	N/A
S-05-189	Renewal	APE20050002	12/2/2005	12/21/2005	Renewal Permit	N/A
S-05-189 R1	Revision	APE20050003	11/29/2006	12/28/2006	Addition of 2 presses	N/A
F-14-010	Initial	APE20140001	3/3/2014	7/18/2014	Initial Conditional Major Permit	N/A
F-19-007	Initial	APE20190001	1/31/2019	8/18/2019	Renewal Permit	N/A
F-19-007 R1	Revision	APE20210001 APE20210002	1/31/2019	8/18/2019	Addition of new coating and cut activities	N/A

**SECTION 6 – PERMIT APPLICATION HISTORY**  
None

## **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 <sub>x</sub>	– Nitrogen Oxides
NSR	– New Source Review
PM	– Particulate Matter
PM <sub>10</sub>	– Particulate Matter equal to or smaller than 10 micrometers
PM <sub>2.5</sub>	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO <sub>2</sub>	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds