

NARRATIVE

TO: Jeng-Hon Su
FROM: Ginger Payment
DATE: April 11, 2024

Facility Name: **Jin Tech America, LLC.**
AIRS No.: 285-00107
Location: LaGrange, GA (Troup County)
Application #: 29238
Date of Application: March 14, 2024

Background Information

Jin Tech America, LLC. (hereinafter (“Jin Tech” or “facility”) is an existing unpermitted facility that manufactures plastic automobile parts (such as center consoles and map pockets) which is located at 50 S.L. White Blvd in LaGrange, Troup County. Troup County is in attainment with all criteria air pollutant NAAQS. The facility currently conducts plastic injection molding and covering application.

The facility proposes to install a new plastic part painting line consisting of three coating spray booths (1 primer, 2 topcoat) in series. Solvent-based coatings will be used, and paint gun purging operations will occur in each booth. Each booth will be equipped with a water screen system and downstream filter to reduce particulate matter emissions before exhausting from its own stack. After the final topcoat booth, the coated parts are dried in an electric drying oven.

Plastic Injection Molding - Existing

Plastic resin pellets are heated and injection-molded into parts shapes. A small amount of mold release agent will be used. Plastic injection molding is exempt from air permitting in accordance with Rule 391-3-1-.03(6)(h)13 and will have small amounts of VOC and PM emissions. These emissions are estimated and included in the plantwide totals.

Covering - Existing

A portion of the plastic parts manufactured are covered with a textured skin material. The parts are sprayed with adhesive in one of four small spray booths, and then covered with the material sheet. VOC and PM emissions occur from the spray application of adhesive. PM is controlled by a booth filter.

Painting Line - Proposed

The painting line will comprise a primer booth (PB1), and two topcoat booths (TB1, TB2). An electric paint drying oven (O1) will provide final paint drying. The booths will use robotic spray application, and each will be connected to a setting oven prior to the following painting/process step. Solvent-based coatings will be used, and paint gun purging operations will occur in each booth. Booth exhaust will be cleaned with water screens and filters (4 in series for each booth exhaust system, 2 primary and 2 voluntary) prior to exhausting out of rain capped stacks.

Support Equipment – Minor Sources

The facility has five (5) plastic pellet silos and a diesel fire pump.

Purpose of Application

Application No. 29238 was dated on March 14, 2024 and was received on March 18, 2024. The application proposes the construction and operation of a plastic automobile parts painting line and operation of the existing plastic parts manufacturing and covering facility. Due to the increase in emissions, a synthetic minor permit will be required which will include a 100 tpy limit for VOC emissions and a 25/10 tpy limit for HAP emissions.

A public advisory (PA0324-3) was issued on March 18, 2024 and expired on April 19, 2024.

Updated Equipment List

Emission Units			Associated Control Devices	
Source Code	Description	Installation Date	Source Code	Description
INJ	Plastic Injection molding machines	2016	-	-
AB1	Adhesive spray booths (4) for covering operation	2016	N/A	Booth filters
PB1*	Primer spray booth	2024	W1/F1*	Water screen/Filter
TB1*	Topcoat spray booth 1	2024	W2/F2*	Water screen/Filter
TB2*	Topcoat spray booth 2	2024	W3/F3*	Water screen/Filter
O1*	Paint curing oven (electric oven)	2024	-	-

*proposed within current application

The facility will also have five (5) plastic pellet silos and a 67 HP diesel fire pump.

Emissions Summary

Potential emissions from the plastic injection molding and the associated mold release are minimal (less than 1 tpy each of VOC and PM). Potential emissions from the covering operations that result from the spray application of adhesives in the booths are estimated to be approximately 25 tpy.

VOC, HAP, and PM emissions will result from the proposed painting line. The potential uncontrolled emissions from the painting line are ~128 tpy VOC, and 29 tpy HAP, with MIBK being the greatest-emitted HAP at 29 tpy. Emissions are estimated based on estimated hourly production rates, the amount of paint used per hour, and VOC/HAP content provided by the paint supplier.

The following emissions tables were provided by the facility to show the potential and actual emissions by process. Note that the VOC emitted from mold release agent in the injection molding, and adhesive in the covering operation are included in the Material Usage row, along with paints and thinners.

Emission Source	Potential Emissions (tons per year)						
	VOC	Total HAP	Single HAP	PM/PM ₁₀ /PM _{2.5}	NO _x	CO	SO ₂
Material Usage	152.48	29.29	29.25	35.90			
Fire Pump	0.04	4.54E-04	1.38E-04	0.04	0.52	0.11	2.03E-04
Plastic Injection Molding	0.17	-	-	0.05			
Total	152.7	29.3	29.2	36.0	0.5	0.1	2.0E-04

Emission Source	Actual Emissions (tons per year)						
	VOC	Total HAP	Single HAP	PM/PM ₁₀ /PM _{2.5}	NO _x	CO	SO ₂
Material Usage	41.36	7.95	7.93	0.66			
Fire Pump	0.04	4.54E-04	1.38E-04	0.04	0.52	0.11	2.03E-04
Plastic Injection Molding	0.17			0.01			
Total	41.6	7.9	7.9	0.7	0.5	0.1	2.03E-04

To calculate potential emissions from material usage, the facility assumed 8760 hours per year operation, and no PM control from the booth water screens and filters. The potential PM emissions shown in the following table are pre-controlled emissions and the actual PM emissions include the operating hours of 2376 hours per year and the control efficiencies of the water screens and filters. Because the actual operation is approximately 2376 hours per year, the facility expects to comply with the VOC emission limit of 100 tpy and the HAP emission limit of 25 tpy of combined HAP emissions and 10 tpy for any individual HAP emission.

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions			Actual Emissions		
	Before Mod.	After Mod.	Emissions Change	Before Mod.	After Mod.	Emissions Change
PM/PM ₁₀ /PM _{2.5}	0.5	35.9	35.4	0.5	2.44	1.94
NO _x	--	0.52	0.52	--	0.52	0.52
SO ₂	--	2.0E-04	2.0E-04	--	2.0E-04	2.0E-04
CO	--	0.11	0.11	--	0.11	0.11
VOC	6.75	152.5	145.75	6.75	41.4	34.65
Max. Individual HAP	2.2	29.2	27	2.2	7.9	5.7
Total HAP	5.5	29.3	23.8	5.5	7.9	5.7
Total GHG (if applicable)	--	--	--	--	--	--

Regulatory Applicability

The facility will be subject to the Georgia Rule (b) – *Visible Emissions* and Georgia Rule (n) – *Fugitive Dust*.

The facility will also be subject to Georgia Rule (e) – *Particulate Emissions from Manufacturing Processes*. The water screens and filters will ensure compliance with Georgia Rule (e). Because the pressure drop across the filters are being monitored, the additional monitoring of the water screens is not necessary.

The 67 HP diesel fire pump will be subject to 40 CFR 60 Subpart IIII - *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*. Note that the fire pump is not included in the permitting requirements as it is exempt from permitting per GA Rule 391-3-1-.03(6)(b)13.

40 CFR 60 Subpart VVV – *Standards for Performance for Polymeric Coating of Supporting Substrates* is not applicable because the application via spray coating is not defined as polymeric coating.

40 CFR 60 Subpart TTT – *Standards for Performance for Surface Coating of Plastic Parts for Business Machines* is not applicable because the products to be coated are automobile parts and are not defined as parts for business machines.

40 CFR 63 Subpart PPPP – *NESHAP for Surface Coating of Plastic Parts and Products* is not applicable because the HAP emissions are limited to less than 25/10 tpy which is the applicability threshold for this rule.

40 CFR 63 Subpart HHHHHH - *NESHAP: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources* is not applicable because the facility does not use any paints that contain the targeted HAP in concentrations for applicability.

Permit Conditions

- Condition 2.1 limits VOC emissions from the facility to less than 100 tpy for Title V avoidance.
- Condition 2.2 limits HAP emissions from the facility to less than 10/25 tpy for Title V avoidance and for MACT avoidance.
- Condition 2.3 subjects the facility to Georgia Rule (b).
- Condition 2.4 subjects the applicable equipment to Rule (e).
- Condition 3.1 establishes Georgia Rule (n).
- Condition 4.1 requires routine maintenance for the control devices.
- Condition 4.2 requires the facility to operate the water screens and filters to control emissions from the painting line and to operate the filters to control emissions from the adhesive booths. These control devices are needed to demonstrate compliance with the Georgia Rule (e) PM emission limits.
- Condition 4.3 requires the facility to maintain additional filters for replacement.
- Condition 5.1 requires the facility to monitor and record the daily pressure drop across the filters. Please note that each paint booth is equipped with two primary filters and two voluntary filters. Only the primary filters need to be monitored. Each of the two primary filters of each paint booth will be equipped with a differential pressure measuring device.

- Condition 7.1 requires the facility to submit written notification of startup of the new painting line to the Division within 15 days after such date.
- Conditions 7.2 through 7.4 require the facility to maintain records of VOC materials used in the painting operations and to calculate the VOC emissions for each month and each twelve-month consecutive period for the painting operations. The facility is required to notify the Division if the VOC emissions exceed 8.3 tons during any month or 100 tons during any twelve-month period.
- Conditions 7.5 through 7.7 require the facility to maintain records of materials containing HAPs and to determine the individual and combined HAP emissions for each month and each twelve-month consecutive period. The facility is required to notify the Division if any single HAP emission exceeds 0.83 tons during any month or 10 tons during any twelve-month period. The facility is also required to notify the Division if combined HAP emissions exceed 2.08 tons during any month or 25 tons during any twelve-month period.
- Condition 7.8 requires a log of the pressure drop for the filters, the operation of the water screens and any maintenance performed for the control devices.
- Condition 8.2 requires annual permit fees.

Toxic Impact Assessment

The facility performed a toxic impact assessment (TIA) in order to demonstrate compliance with Georgia Air Toxic Guideline. TAP emissions from all sources at the facility, including fire pump and material usage (paint, thinner, adhesive, mold release agent) were assessed. Emissions were first calculated based on maximum material usage and 8,760 hours per year of operation. Because the emissions will be vented out of raincapped stacks (not vertical unobstructed), the applicant used the EPD-proposed 23X scaling factor to compare to the MER. Using this factor, only 3 compounds exceeded the MER. Although Condition 2.2 limits the facility-wide single HAP below 10 tpy, some of the HAPs, such as MIBK and MEK, were analyzed at a rate much greater than 10 tpy. A summary of the MER for the pollutants is shown in the table below.

Pollutant	CAS	Emission Rate (lb/yr)	PTE X 23 (lb/yr)	MER (lb/yr)	Modeling Required?
Xylenes	1330-20-7	92.7	2,133	24,333	No
Ethyl Benzene	100-41-4	0.2	5	243,330	No
MIBK	108-10-1	58,493.5	1,345,251	452,825	Yes
N-Butyl Acetate	123-86-4	111,875.0	2,573,126	82,252	Yes
Ethanol	64-17-5	312.6	7,190	219,015	No
Ethyl Acetate	141-78-6	269.8	6,206	162,217	No
Heptane	142-82-5	1,272.0	29,255	231,767	No
MEK	78-93-3	40,728.6	936,757	1,216,650	No
IPA	67-63-0	568.1	13,068	113,547	No
Methylcyclohexane	108-87-2	8,094.2	186,168	231,767	No
Acetone	67-64-1	16,997.9	390,952	278,100	Yes
Benzene	71-43-2	0.2	5	32	No
Formaldehyde	50-00-0	0.001	0.013	267	No

MIBK, n-butyl acetate and acetone required a modeling analysis. SCREEN3 was used to model the emissions. Note that an extremely low vertical velocity, 0.001 meter per second, was used in the SCREEN3 modeling due to the rain caps. The following table shows the SCREEN 3 results. The

maximum ground level concentrations of the pollutants are all below the associated acceptable ambient concentrations (AAC); therefore, the TIA passed the evaluation.

Pollutant	CAS	Emission Rate (lb/hr)	Averaging Period	AAC ($\mu\text{g}/\text{m}^3$)	MGLC ($\mu\text{g}/\text{m}^3$)
MIBK	108-10-1	6.68	15-min	30,700	1792.79
			Annual	3,000	108.65
N-butyl acetate	123-86-4	12.77	15-min	95,000	3,428.89
			24-Hour	1,690	1,039.06
Acetone	67-64-1	1.94	15-min	178,200	520.97
			24-Hour	5,714	157.87

Summary & Recommendations

I recommend issuance of Permit No. 3714-285-0107-S-01-0 to Jin Tech America, LLC which is a plastic automotive parts manufacturing facility, located in LaGrange, Troup County. The synthetic minor permit is for the construction and operation of a plastic automobile parts painting line and operation of the existing plastic parts manufacturing and covering facility, and it includes a 100 tpy limit for VOC emissions and a 25/10 tpy limit for HAP emissions. The Public Advisory for this application expired on April 19, 2024. Comments were not received.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//