

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	1 of 9
	APP. NUMBER	512825, 512828
	PROCESSED BY	GS
	REVIEWED BY	
	DATE	01/11/11

**PERMIT TO CONSTRUCT/OPERATE EVALUATION
SPRAY BOOTH**

Applicant's Name	HITCO CARBON COMPOSITES INC.
Company I.D.	800066
Mailing Address	1600 W. 135 TH STREET, GARDENA, CA 90249
Equipment Address	SAME AS ABOVE

EQUIPMENT DESCRIPTION

APPLICATION NO. 512825 (New Construction) (D212) P/C-P/O

SPRAY BOOTH, FLOOR TYPE, SPRAY BOOTH SUPPLIES, MODEL NO. M3W-0608, 6'-4" W. X 7'-8" D. X 8'-2" H., WITH TWELVE 20" X 20" EXHAUST FILTERS AND ONE 1 H.P. EXHAUST FAN.

APPLICATION NO. 512828

TITLE V DEMINIMIS SIGNIFICANT PERMIT REVISION/RECLAIM AMENDMENT

HISTORY

The above applications from Hitco Carbon Composites Inc. were submitted to the District to install a new spray booth. This spray booth has not been installed yet.

Hitco Carbon Composites Inc. is a large-sized aerospace component manufacturer and has a number of active permits from the District for autoclaves, furnaces, afterburner control devices, spray booths, I.C.Engines, storage tanks, ovens, presses, boilers, process tanks, dust collector, abrasive blasting systems and baghouses under I.D. # 800066. Most of the permits are under their sub I.D. # 5646.

A facility-wide VOC emission limit has not been established for this location. However, a group VOC emission limit of 81 lbs/day has been established from a group of devices (autoclaves and spray booths). The applicant has proposed to operate this spray booth outside of the group limit by using the emissions from ERC No. AQ007768 and taking an equipment VOC cap. The ERC (under facility sub-id no. 5646) is in amount of 18 lbs/day. Using the offset factor of 1.2, the net increase allowed from this spray booth will be 15 lbs/day or 450 lbs per month of VOC.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	2 of 9
	APP. NUMBER	512825, 512828
	PROCESSED BY	GS
	REVIEWED BY	
	DATE	01/11/11

The district database showed one notice to comply no. D28654 (calculation of NOx emissions from a boiler, autoclave and ICE) which was closed on 5/26/10. There are no other notices of violation or notices to comply issued to this facility in the last two years. Also, the database shows no complaints against this facility for nuisance odors or visible emissions.

Hitco Carbon Composites Inc. is a Title V/RECLAIM facility. A Title V renewal permit was issued to this facility on 01/20/2008. This is the fifth permit revision of the Title V permit since the renewal. The proposed permit revision is considered a “de minimis significant permit revision” to the Title V renewal permit, as described in the Regulation XXX evaluation.

This facility is not located within 1000 feet from any school and there are no emission increases exceeding Rule 212 thresholds from this project. Public notice is not required for this project.

Facility requested to inactivate device D176 for a press (A/N 394384) as it was demolished in September 2010 (see e-mail sent confirming this). This permit has been inactivated.

PROCESS DESCRIPTION

Carbon/carbon brakes for the aerospace industry will be coated in the spray booth. At high temperatures, there is a potential for the carbon in the brake to oxidize and form CO₂, thus destroying the brake. To prevent this oxidation of carbon, the brake will be coated in this spray booth with oxidation protective paint that withstands high temperature before it breaks down and oxidizes. The facility uses either CS1500D or CSP-6E Anti Oxidant Coating depending on customer specifications. The paint manufacturer has certified that CS1500D withstands a temperature of up to 970° Centigrade and CSP-6E withstands a temperature of up to 700° Centigrade. These paints are classified in the category of high temperature coatings under Rule 1124 (b)(30) – coatings that must withstand temperatures more than 350° F. After coated in the spray booth, these parts will be air dried.

OPERATING HOURS

Average: 8 hrs/day, 5 days/week, 50 weeks/year.
Maximum: 16 hrs/day, 5 days/week, 50 weeks/year.

EMISSION CALCULATIONS

An equipment VOC emission limit of 450 pounds per month will be placed on the permit.

The company will be using two different coatings depending on consumer specification. The PM₁₀ calculation will be based on CS1500D since it has a higher solids content.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	3 of 9
	APP. NUMBER	512825, 512828
	PROCESSED BY	GS
	REVIEWED BY	
	DATE	01/11/11

Both these coatings fall in the high temperature coatings category under Rule 1124(b)(30), with a VOC limit of 850 g/l or 7.08 lbs/gal.

HIGH-TEMPERATURE COATING is a coating that must withstand temperatures of more than 350 degrees F.

CS1500D

Wt/Gal = 12.5 lb/gal
VOC = 4.625 lb/gal (37%)
Solids = 7.875 lb/gal (63%)

CSP6E

Wt/Gal = 11.00 lb/gal
VOC = 3.25 lb/gal (30%)
Solids = 2.38 lb/gal (24%)

VOC cap is 450 lbs/month = 15 lbs/day 30-day ave

NSR R1 = R2 = 450 lbs/mo x (mo/4.33 week) x (wk/5 day) = 21 lbs/day x day/16 hr = 1.3 lbs/hr

For PM: Considering worst case scenario based on CS1500D as it has high solids

VOC of CS1500D = 4.625 lbs/gal

Max. gallons used = 450/4.625 = 97.29 gal/month

Solids in CS1500D = 7.875 lbs/gal

Monthly solids sprayed = 97.29 x 7.875 = 766.21 lbs/month = 25.54 lbs/day

Spray gun TE = 65%

PM₁₀ = 0.5PM

Filter efficiency = 90%

NSR PM₁₀ lbs/day uncontrolled emissions = 766.2 x 0.35 x 0.5 = 134 lbs/month

NSR PM₁₀ lbs/day controlled emissions = 134 x 0.1 = 13.4 lbs/month

PM₁₀ 30-day ave = 13.4 lb/mo ÷ 30 day/mo = 0.45 lbs/day

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	4 of 9
	APP. NUMBER	512825, 512828
	PROCESSED BY	GS
	REVIEWED BY	
	DATE	01/11/11

Lbs/hr NSR R1 = 134 lbs/month x month/4.33 weeks x weeks/5 days = 6.19 lbs/day = 0.38 lbs/hr
Lbs/hr NSR R2 = 6.19 x (1-0.9) = 0.62 lbs/day = 0.04 lbs/hr

Assume average emissions for AEIS are 50% of NSR emissions

VOC R1 = R2 = 0.65 lbs/hr

PM₁₀ R1 = 0.19 lbs/hr, R2 = 0.02 lbs/hr

TOXIC EVALUATION:

Both CS 1500D and CSP6E coatings have Rule 1401 compounds:

Coating	Rule 1401 compound	Cancer	Chronic	Acute
CS 1500D	Xylene		yes	yes
	Toluene		yes	yes
	Ethyl Benzene	Yes	yes	
	Benzene	Yes	yes	yes
CSP6E	Phosphoric acid		yes	

For VOC worst case scenario to determine maximum phosphoric acid emissions:

Coating CSP6E contains 14% by weight phosphoric acid

450 lbs/month @ 3.25 lbs/gal VOC = 138 gal /month

138 gal/month x 11 lbs/gal x 0.14 phosphoric acid wt % x 12 months/yr = 2559 lbs/yr

Phosphoric acid is the largest contributor (over 97%) to HIC making it close to 1, therefore the facility has requested an annual phosphoric acid emission limit to ensure compliance with Rule 1401. The facility has agreed to take a usage limit of 1607 lbs/yr of phosphoric acid. In addition, the maximum allowable emissions of benzene and ethyl benzene were adjusted to keep the MICR below one in a million (about 52% of maximum 97 gal/mo CS1500 D coating which contains these two TACs, about 50 gal/mo)

The facility requested the following annual emission limits in lbs for each Rule 1401 compound to ensure compliance with Rule 1401, MICR below one in a million for both residential and commercial, and HIA and HIC below one.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	5 of 9
	APP. NUMBER	512825, 512828
	PROCESSED BY	GS
	REVIEWED BY	
	DATE	01/11/11

Compound	CAS No.	Max % by weight	Max yearly emissions lbs/yr
Benzene	71-43-2	0.19	15.047
Ethyl Benzene	100-41-4	4	304.012
Toluene	108-88-3	11	837.782
Xylene	1330-20-7	22	1675.564
Phosphoric acid	7664-38-2	14	1607

Tier 2 risk was run on the above emissions and all acute and chronic indices were less than 1 and the MICR as follows:

Commercial MICR = 0.999 in a million

Residential MICR = 0.476 in a million

This complies with the Rule requirement.

Permit conditions shall be imposed limiting the quantity of benzene and ethyl benzene to ensure the risk stays below 1 in a million, and on phosphoric acid to ensure the HIC stays below 1.

RULES/REGULATION EVALUATION

▣ **RULE 212, PUBLIC NOTIFICATION**

√ **SECTION 212(c)(1):**

This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. This source is not located within 1,000 feet from the outer boundary of a school. Therefore, public notice will not be required by this section.

√ **SECTION 212(c)(2):**

This section requires a public notice for all new or modified facilities which have on-site emission increases exceeding any of the daily maximums as specified in subdivision (g). As shown in the following table, the emission increases from this project are below the daily maximum limits specified by Rule 212(g). Therefore, these applications will not be subject to this section.

LB/DAY	CO	NOX	PM ₁₀	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	0	<0.5	15	0	0

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	6 of 9
	APP. NUMBER	512825, 512828
	PROCESSED BY	GS
	REVIEWED BY	
	DATE	01/11/11

v **SECTION 212(c)(3):**

The Tier 2 assessment indicated a cancer risk of 0.476 in a million for residential receptor and 0.999 in a million for a commercial receptor due to TACs in the coatings. Therefore, public notice will not be required by this section.

v **SECTION 212(g):**

This section requires a public notice for all new or modified sources which undergo construction or modifications resulting in an emissions increase exceeding any of the daily maximum specified in the table below. As shown in the following table, the emission increases from this project are below the daily maximum limits specified by Rule 212(g). Therefore, public notice will not be required by this section.

LB/DAY	CO	NOX	PM ₁₀	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	0	<0.5	15	0	0

▣ **RULES 401 & 402, VISIBLE EMISSIONS & NUISANCE**

With proper use of this equipment compliance with the provisions of these rules is expected. District database has no records of any visible emissions or nuisance complaints against this company from other similar equipment.

▣ **RULES 1124 AEROSPACE ASSEMBLY AND COMPONENT MANUFACTURING OPERATIONS**

Information submitted with the application show the materials are in compliance with the VOC content limits. Compliance with this rule is expected.

The coatings are applied to the carbon brake pads to resist the oxidation that occurs at higher temperatures. This is deemed as “high temperature coating” and complies with the definition under 1124(b)(30). The rule limit for this high temperature coating is 850 g/l. Please refer to process description.

Coating	Actual VOC	Rule 1124 Limit	Compliance
CS1500D	555 g/l	850 g/l	yes
CSP-6E	390 g/l	850 g/l	yes

Use of HVLP gun complies with the transfer efficiency requirement.

REGULATION XIII

Although Hitco Carbon Composites, Inc. is a NO_x RECLAIM facility, compliance with Reg. XIII is still required for VOC and PM₁₀ emissions.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	7 of 9
	APP. NUMBER	512825, 512828
	PROCESSED BY	GS
	REVIEWED BY	
	DATE	01/11/11

▣ **RULE 1303(a), BEST AVAILABLE CONTROL TECHNOLOGY (BACT)**

Since the VOC emissions from the coating operation from this spray booth will be limited to 450 lbs/month, less than 850 lbs/month, no add-on control is required and compliance with current version of Rule 1124 is deemed BACT for VOC. The spray booth with 2 inch thick filters meets the BACT requirement for PM₁₀.

▣ **RULE 1303(b)(1), MODELING**

Modeling is not required since PM₁₀ emissions of 0.04 lbs/hr are below the Table A-1 allowable emissions of 0.41 lbs/hr for non-combustion sources. No modeling is required for VOC.

▣ **RULE 1303 (b)(2), EMISSION OFFSETS**

There is a VOC emission increase from this facility as a result of this project. The applicant has proposed to offset the VOC emissions by using their existing ERC no. AQ007768 which is under Hitco's sub ID 5646. The applicant will provide ERCs for ROG (18 lb/day ROG) for this project for a net VOC emission increase of 15 lbs/day (450 lbs/month).

$$15 \text{ lbs/day} \times 1.2 = 18 \text{ lbs/day ERC.}$$

The PM₁₀ emissions are <0.5 lbs/day 30-day average, therefore offsets are not required.

⊙ **RULE 1401, NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS**

As described above a Tier 2 Risk Assessment indicated the cancer risk to be less than 1 in a million and acute and chronic hazard index risks to be below 1 from this equipment. Thus, the Tier 2 risk assessment demonstrated compliance with the Rule 1401 requirements (please see attached spreadsheets).

⊙ **RULE 2005, NEW SOURCE REVIEW FOR RECLAIM**

There are no NO_x emissions from this project, therefore this rule does not apply.

REGULATION XXX

This facility is in the RECLAIM program. The proposed project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants or hazardous air pollutants (HAPs), and a "minor permit revision" for RECLAIM pollutants to the RECLAIM/Title V permit for this facility.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	8 of 9
	APP. NUMBER	512825, 512828
	PROCESSED BY	GS
	REVIEWED BY	
	DATE	01/11/11

Non-RECLAIM Pollutants or HAPs

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or HAPs from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

<u>Air Contaminant</u>	<u>Daily Maximum (lbs/day)</u>
HAP	30
VOC	30
NO _x *	40
PM ₁₀	30
SO _x *	60
CO	220

* Not applicable if this is a RECLAIM pollutant

To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the initial Title V permit shall be accumulated and compared to the above threshold levels. This proposed project is the 5th permit revision to the Title V renewal permit issued to this facility on January 20, 2008. The following table summarizes the cumulative emission increases resulting from all permit revisions since the initial Title V permit was issued:

Revision	HAP	VOC	NO_x*	PM₁₀	SO_x	CO
1st Permit Revision. P/C for new autoclave (A/N 475589, Dev D203)	0	6	21*	4	0	22
2 nd Permit Revision: P/O for Press (A/N 475570, D206), Oven #7 (475586, D208), Autoclave #A14 (A/N 475587, D209), Autoclave #A17 (A/N 475588, D210) & Honeycomb Articulation Machine No. 1 (A/N 477024, D205)	0	2	0*	0	0	0
3 rd Permit Revision. P/C for RTO (A/N 492308, C211)	0	0	0	0	0	0
4 th Permit Revision P/C to P/O for RTO (A/N 492308, C211)	0	0	0*	0	0	0
5 th Permit Revision: Addition of a spray booth (A/N 512825) and removal of a press, device D176.	0	15	0	0	0	0
Cumulative Total	0	23	21*	4	0	22
Maximum Daily	30	30	40*	30	60	220

* RECLAIM pollutant, not subject to emission accumulation requirements for TV

<p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS</p>	<p>PAGE 9 of 9</p> <p>APP. NUMBER 512825, 512828</p> <p>PROCESSED BY GS</p> <p>REVIEWED BY</p> <p>DATE 01/11/11</p>
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Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs.

RECLAIM Pollutants

Rule 3000(b)(12)(A)(v) defines a “minor permit revision” as any Title V permit revision that does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process.

There are no NOx emissions from this project and a separate analysis is not required.

RECOMMENDATION

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or hazardous air pollutants (HAPs), a proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V/RECLAIM permit will be issued to this facility with a P/C-P/O for spray booth D212 in section D of the facility permit.