



**SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT**
ENGINEERING AND COMPLIANCE DIVISION
COATING, PRINTING, AEROSPACE & METAL FINISHING TEAM
PERMIT APPLICATION EVALUATION

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PERMIT TO OPERATE

APPLICANT:	Hitco Carbon Composites, Inc
FACILITY ID:	800066
EQUIPMENT LOCATION:	1600 W. 135 th St., Gardena, CA 90249
MAILING ADDRESS:	1600 W. 135 th St., Gardena, CA 90249

EQUIPMENT DESCRIPTION:

<i>A/N</i>	<i>Equipment</i>	<i>Device</i>	<i>Description</i>	<i>Status</i>
477025	RECLAIM/Title V Permit Amendment			
475570	Press	D206	Press, C/SIC No.1, Electric, 48 KW	PO
475586	Oven #7, R&D	D208	Oven No. 7, Despatch, 7'-2" W x 6'-6" L x 7'-7" H, Electric, 68 KW	PO
475587	Autoclave # A14, R&D	D209	Autoclave, A-14, R&D, 4'-2" W x 9'-7" L., Electric	PO
475588	Autoclave # A17, R&D	D210	Autoclave, A-17, R&D, 4'-2" W x 9'-7" L., Electric	PO
477024	Roller Coater	D205	Honeycomb Articulation Machine No. 1, CPD, Electric	PO

Conditions

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
3. THE TOTAL QUANTITY OF VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS FROM DEVICES D203, D127, C128, D135, D164-D180, D185-191, D193-D195, D205, D206, D207-D210 SHALL NOT EXCEED 81 POUNDS TOTAL COMBINED EMISSIONS IN ANY ONE DAY.



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4. THE (AUTOCLAVES #14 & 17, AND OVEN) SHALL NOT BE OPERATED AT TEMPERATURES ABOVE 650 DEGREES.
5. THE (PRESS) SHALL NOT BE OPERATED AT TEMPERATURES ABOVE 500 DEGREES.
6. THE (HONEYCOMB ARTICULATION MACHINE) SHALL NOT BE OPERATED AT TEMPERATURES ABOVE 300 DEGREES.
7. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL MAINTAIN ADEQUATE RECORDS IN ORDER TO VERIFY COMPLIANCE WITH ALL CONDITIONS SPECIFIED IN THIS PERMIT. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE PREPARED IN A FORMAT WHICH IS ACCEPTABLE TO THE DISTRICT, RETAINED AT THE FACILITY FOR TWO YEARS, AND SHALL BE MADE AVAILABLE TO ANY DISTRICT REPRESENTATIVE UPON REQUEST.
8. MATERIALS USED IN THIS EQUIPMENT SHALL NOT CONTAIN ANY COMPOUNDS IDENTIFIED AS TOXIC AIR CONTAMINANTS IN RULE 1401, TABLE I, WITH AN EFFECTIVE DATE OF MARCH 4, 2005 OR EARLIER WITH THE EXCEPTION OF FORMALDEHYDE (CAS# 50-00-0), ISOPROPYL ALCOHOL (CAS# 67-63-0) AND PHENOL (CAS# 108-95-2).
9. MATERIAL SAFETY DATA SHEETS FOR ALL MATERIALS USED AT THIS FACILITY AND SUBJECT TO DISTRICT RULES SHALL BE KEPT CURRENT AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.

BACKGROUND:

The above applications were submitted to the District on 11/30/07 except for A/N 477024 and 477025 which were submitted on 1/01/08. Hitco Carbon Composites is a NOx RECLAIM and Title V facility. The Title V permit was renewed on January 20, 2008 and this is the second revision to the renewal. The proposed project is considered as a "de minimis significant permit revision" to the renewed Title V permit, as described in the Regulation XXX evaluation.

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 ID # 800066. Under this ID are ID # 5646 and ID# 15648.



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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 for a group of devices (autoclaves and spray booths). The applicant has proposed to operate (VOC emissions from resin curing process) under this group cap.

PROCESS DESCRIPTION:

Hitco Carbon Composites Inc. manufactures advanced composite materials and structures for defense, aerospace and industrial applications that require light weight, high strength and high heat resistant properties. Some of the products manufactured on site are Delta and Titan rocket motor nozzle cones, Boeing C-17 tail cones, Boeing 767 flap track fairings, Atlas V rocket nose fairings, F-22 jet engine intake lips, carbon fiber/carbon composite (carbon/carbon) brake discs (for military air crafts, GT Series and Formula 1 cars), multi-layered thermal and acoustic insulation materials (cloth, blanket, and panels) and they have recently obtained sub-contract work to manufacture high strength composite beams for the Boeing 787 aircrafts.

There are three distinct and separate projects occurring at HITCO:

- I. General R&D Activities
- II. Development and Production of Body Armor
- III. Composite Structures Manufacturing

Equipment associated with each program:

- I. General R&D Activities

- 1. A/N 475587 & 475588 - Devices D209, D210 (Autoclaves #A14 & A17 for R&D)

The components will be manufactured using prepreg (resin impregnated carbon fiber) sheets. Hitco will buy these special prepreg materials from another company. Initially prepreg materials will be layered flat and cut into different patterns on a programmable cutter. Cut prepreg pieces will be layered up inside special molds, one layer on top another, building up to desirable thickness. The prepreg pieces are generally placed such a way that the fibers cross in opposite and 45 degree angular directions to obtain high strength in the final product.



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The prepreg surfaces and the mold are covered in a thin rubber bag to prevent delamination. The rubber bag holds the prepregs tightly inside the mold and squeezes out any air bubbles from prepreg layers prior to curing. The parts will then be cured inside the autoclave at about 650⁰ F and under 305 psi for 5 to 48 hours. During the curing cycle, at higher temperature, VOC emissions are emitted (about 2 to 3% of prepreg weight) from this operation.

2. A/N 475586 – Device D208 (Oven #7 R&D)

Resin, IPA and filler is blended together and then applied to the cloth. The material is placed in the oven where the IPA is removed. The resin on prepreg is not cured at this stage; then goes to an autoclave.

II. Development and Production of Body Armor

1. A/N 475570 – Device D203 (Press)

Material with silicon carbide powder, graphite powder, resin, hardener, and IPA is mixed together and then poured into a mold. Then this resin mixture is cured in the press.

III. Composite Structures Manufacturing

1. A/N 477024 – Device D205 (Honeycomb Articulation Machine)

The purpose of the machine is to place a layer of film adhesive only on the edges of a honeycomb sheet while leaving the empty space of the honeycomb cell void of adhesive.

A thin layer of film adhesive is placed on top of a sheet of honeycomb. The material is then fed into the machine where a stream of hot air ("hot knife") from underneath blows up through the honeycomb and bubbles up any film adhesive not attached to a honeycomb cell edge. When the bubbles bursts, the film adhesive settles down on the honeycomb cell edges, leaving the empty space open (void of film adhesive).

EMISSIONS CALCULATIONS:

This facility operates 24 hours/day, 7 days/week, 52 weeks/year. The VOC emission from this project is approximately 1 lb/day from the oven. The increase in emissions will be added to the existing 81 pounds/day VOC emissions cap from other autoclaves, ovens, presses so that this project will not result in any emission increase from the facility.



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A/N 475587 & 88 (Autoclaves)

Materials	Usage lb/day	EF lb/lb	Emissions VOC lb/day	Toxic Cpd.	Toxic Wt %	Toxic Emissions	
						lb/day	lb/hr
Resin*	10.0	0.03	0.3	IPA	25.0%	2.500	0.104
				Phenol	18.0%	1.800	0.075
				Formaldehyde	2.0%	0.200	0.008

*Usage is 10 lb/day total

A/N 475570 (Press)

Materials	Usage lb/day	EF lb/lb	Emissions VOC lb/day	Toxic Cpd.	Toxic Wt %	Toxic Emissions	
						lb/day	lb/hr
Resin	2.0	0.03	0.1	IPA	30.0%	0.600	0.025
				Phenol	18.0%	0.360	0.015

A/N 475586 (Oven #7)

Materials	Usage lb/day	VOC lb/gal	Emissions VOC lb/day	Toxic Cpd.	Toxic Wt %	Toxic Emissions	
						lb/day	lb/hr
IPA	1.25		1.25	IPA	30.0%	0.375	0.016

A/N 477024 (Honeycomb Machine)

Materials	Usage lb/day	EF lb/lb	Emissions VOC lb/day	Toxic Cpd.	Toxic Wt %	Toxic Emissions	
						lb/day	lb/hr
Epoxy resin	0.69	0.05	0.035				

Total Emissions	1.64 Lb VOC/day		IPA		3.5	
	0.07 Lb VOC/hr				0.14	
					0.09	
			Phenol		2.2	
			formaldehyde		0.2	
					0.01	

RULE EVALUATION:

RULE 212(c)(1) *This section requires a public notice for all new and modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school.*

Since there are no schools within 1,000 feet of the facility, a public notice will not be required by this section.

RULE 212(c)(2) *This section requires a public notice for all new and modified facility which have on-site emission increases exceeding any of the daily maximums specified in subdivision (g).*



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There is no emission increase from the facility. VOC emissions from the proposed equipment will be bubbled in a combined equipment cap of 81 pounds per day. The following table summarizes the emission limits and increases. Public notice will not be required under this section.

LB/DAY	CO	NOX	PM10	ROG	LEAD	SOX
Max Limit	220	40	30	30	3	60
Increases	0	0	0	2	0	0

RULE 212(c)(3) *This section requires a public notice for all new or modified permit units with increases in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in MICR greater than $1E^{-6}$ per permit unit or greater than $10E^{-6}$ per facility.*

Tier 2 analysis was performed and both the chronic and the acute commercial and residential hazard indices are less than one. Therefore, public notice will not be required by this section.

RULE 212(g) *This section requires a public notice for all new and modified sources that have equipment emission increases exceeding any of the daily maximum as specified by Rule 212 (g).*

The emission increase from this project is below the daily maximum limits specified by this rule. The following table summarizes the emission limits and increases. Public notice will not be required under this section.

	ROG	NO _x	PM ₁₀	SO ₂	CO	Pb
Total Emission Increases	2	0	0	0	0	0
MAX MDC Limit (lb/day)	30	40	30	60	220	3
Required Public Notice	No	No	No	No	No	No

RULE 401 Visible Emissions

Visible emissions are not expected with proper maintenance and operation of this equipment. The system shows no visible emissions complaints.



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RULE 402Nuisance

Operation of this equipment is not expected to create complaints or nuisance with proper maintenance and operation. The system shows no nuisance complaints.

REG XIIIRule 1303(a), Best Available Control Technology (BACT)

The VOC emissions for the autoclaves, press and roller coater are less than 1 lb/day each therefore BACT is not triggered. The emission for the electric oven is 1 lb VOC /day. This increase in emission will be bubbled in a combined equipment cap of 81 pounds per day. Therefore there is no emission increase from the facility. Compliance with BACT is expected.

Rule 1303 (b)(1), Modeling

Modeling is not required for VOC.

Rule 1303 (b)(2) & Rule 1304 (a)(1), Offsets Exemption

VOC emissions from the proposed equipment will be bubbled in a combined equipment cap of 81 pounds per day, therefore offsets are not required.

RULE 1401

Tier 2 analysis was performed and both the chronic and the acute commercial and residential hazard indices are less than one. See attached spreadsheets.

	<i>lb/day</i>	<i>lb/hr</i>
IPA	3.5	0.14
Phenol	2.2	0.09
formaldehyde	0.20	0.01

RULE 2005New Source Review for RECLAIM

Hitco Carbon is a NOx RECLAIM facility. There is no NOx emissions expected in this project. Therefore, compliance for this rule is expected.



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REG 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).

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:

<i>Air Contaminant</i>	<i>Daily Maximum (lb/day)</i>
HAP	30
VOC	30
NO _x *	40
PM ₁₀	30
Sox*	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 renewal Title V permit shall be accumulated and compared to the above threshold levels. This proposed project is the second permit revision to the renewal Title V permit issued to this facility on January 20, 2008. The following table summarizes the cumulative emission increases resulting from all permit revisions since the renewal Title V permit was issued:

<i>Revision</i>	<i>HAP</i>	<i>VOC</i>	<i>NO_x</i>	<i>PM₁₀</i>	<i>SO_x</i>	<i>CO</i>
2 nd Permit Revision: Add Devices D205, D206, D208, 209 and D210.	0	2	0	0	0	0
1 st Permit Revision: Add Device D203.	0	6	21*	4	0	22
Cumulative Total	0	8	21*	4	0	22
Maximum Daily Allowed Increase	30	30	40*	30	60	220

**RECLAIM pollutant, not subject to emission accumulation requirements.*



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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.

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), it is exempt from the public participation requirements under Rule 3006(b). 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.