



**SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT**

*ENGINEERING AND COMPLIANCE DIVISION
COATING, PRINTING, AEROSPACE & METAL FINISHING TEAM*

PERMIT APPLICATION EVALUATION

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A/N 517348-9, 523055	Date 7/12/11
Processed by GS	Checked by SMKE

**PERMIT TO CONSTRUCT/OPERATE - new autoclave
PERMIT TO OPERATE – C/C spray booth**

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>Action</i>
517349	RECLAIM Amendment/Title V Permit Revision			Approve Plan
517348	Autoclave	D213	Autoclave A -19, 10'-0" DIA., x 35'-0" L., Electric	PC/PO
523055	Spray booth	D212	Spray coating operation, Brakes spray booth	Adm. C/C - PO

Conditions (Autoclave)

F2.2 THE OPERATOR SHALL LIMIT EMISSIONS FROM THIS FACILITY AS FOLLOWS:

CONTAMINANT	EMISSIONS LIMIT
VOC	Less than or equal to 833 LBS IN ANY CALENDAR MONTH

For the purposes of this condition, the limit shall be based on the total combined VOC emissions from all equipment and processes subject to Rule 442.

To ensure compliance with the monthly Volatile Organic Compound(VOC) emission limit(s) of this condition, the operator shall comply with the following recordkeeping requirements:

- (1) The operator shall comply with Rule 109 (Recordkeeping for Volatile Organic Compound Emissions).
- (2) Within 14 calendar days after the end of each month, the operator shall total and record VOC emissions for the month from all equipment and operations covered by the monthly emission limit(s). The record shall include any procedures used to account for control device efficiencies and/or waste disposal. It shall be signed and certified for accuracy by the highest ranking individual responsible for compliance with District rules.
- (3) The operator shall maintain a single list which includes only the name and address of each person from whom the facility acquired VOC-containing material regulated by the District that was used or stored at the facility during the preceding 12 months.



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(4) The operator shall retain all purchase invoices for all VOC-containing material used or stored at the facility, and all waste manifests for all waste VOC-containing material removed from the facility, for five years.

[RULE 442, 12-15-2000]

A63.6 THE OPERATOR SHALL LIMIT EMISSIONS FROM THIS EQUIPMENT AS FOLLOWS:

CONTAMINANT	EMISSIONS LIMIT
VOC	Less than or equal to 450 LBS IN ANY CALENDAR MONTH

For the purposes of this condition, the limit shall be based on the total combined emission from equipment operating under device numbers D212 (spray booth) and D213 (autoclave A19).

B59.12 The operator shall not use the following materials in this device:

Materials containing any toxic air contaminants identified in Rule 1401, Table I, with an effective date of September 10, 2010 or earlier.

C6.9 The operator shall use this equipment in such a manner that the temperature being monitored, as indicated below, does not exceed 850 degrees F.

To comply with this condition, the operator shall install and maintain a temperature gauge to accurately indicate the temperature in the equipment.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

E193.3 THE OPERATOR SHALL CONSTRUCT THIS EQUIPMENT ACCORDING TO THE FOLLOWING REQUIREMENTS:

This permit shall expire if the construction of this equipment is not completed by *(1 year from issue date)* unless an extension of time has been approved in writing by a District representative.

The operator shall notify a District representative when construction has been completed.

H23.5 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	442

K67.10 The operator shall keep records, in a manner approved by the District, for the following parameters or items:



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In addition to the recordkeeping requirements in Rule 109, the operator shall keep adequate records for this equipment to verify the daily VOC emissions in pounds and the VOC content of each material as applied (including water and exempt compounds).

Within 14 calendar days after the end of each month, the operator shall total and record VOC emissions for the month from this equipment. The record shall include any procedures used to account for control device efficiencies and/or waste disposal. It shall be signed and certified for accuracy by the highest ranking individual responsible for compliance with District Rules.

The operator shall maintain a single list which includes only the name and address of each person from whom the facility acquired VOC-containing materials regulated by the District that were used or stored at the facility during the preceding 12 months.

The operator shall retain all purchase invoices for all VOC-containing material used or stored at the facility, and all waste manifests for all waste VOC-containing material removed from the facility.

All current Material Safety Data Sheets (MSDS) for all VOC-containing materials used at this facility and subject to District rules shall be made available to District personnel upon request.

BACKGROUND:

The above applications were submitted to the District on December 21, 2010 to install a new electric autoclave and RECLAIM Amendment/Title V revision plan. On May 27, 2011 the application for change of condition on an existing spray booth was filed to include the autoclave VOC emissions with the spray booth emissions (450 lb/calendar month).

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 master ID there are two sub-IDs # 5646 and ID# 15648.

A facility-wide VOC emission limit has not been established for this location. However, the applicant has requested the emission increases from this new autoclave A-19 be bubbled with existing spray booth device D212 which has an equipment VOC emission limit of 450 pounds/calendar month. The total emissions from this equipment are not expected to exceed 187 lbs in any calendar month as calculated in emission calculation section below.

Hitco Carbon Composites is a NO_x RECLAIM and Title V facility. The Title V permit was renewed on January 20, 2008 and this is the seventh 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.



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There are no complaints on file against this facility in the last two years. There was a Notice to Comply issued in May 2010 to use correct factors and method to calculate NOx emissions for certain equipment. One other Notice to Comply was issued in February 2011 to install gauges on some gas fuel meters, report quarterly NOx process unit gas usage in scf, and conduct weekly visible emission observations of permitted baghouses and maintain records of observations. Both N/Cs have been closed. There are no other N/Cs or NOVs issued in the last two years.

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 aircraft, GT Series and Formula 1 cars), multi-layered thermal and acoustic insulation materials (cloth, blanket, and panels) and they have recently obtained a sub-contract to manufacture high strength composite beams for the Boeing 787 aircraft.

Composite Structures Manufacturing

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 the 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.

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 a temperature of about 850°F and under 305 psi pressure for 5 to 48 hours. During the curing cycle, at higher temperature, VOC emissions are emitted (about 0.89% of prepreg weight) from this operation.

The new autoclave will be used to cure any aerospace composite parts where only VOC is emitted. There are no PM10 emissions.



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EMISSIONS CALCULATIONS:

This facility operates 24 hours/day, 7 days/week, 52 weeks/year. The maximum VOC emission from this project is approximately 14 lb/day from the autoclave. The increase in emissions will be bubbled into the existing 450 pounds/month VOC emissions cap with device D212 so that this project will not result in any emission increase from the facility. The facility submitted MSDS for prepreg and emission factors from the manufacturer. The following calculations are based on the most current information submitted by the facility. The VOC content in the prepreg ranges from 0.24% to 0.89% by weight. All calculations are based on worst case scenario VOC of 0.89% by weight.

Emission factor = 0.89 % (maximum) of prepreg weight.

Maximum load charged to Autoclave = 700 pounds pre-preg

One load per day maximum (8-16 hrs in autoclave)

Maximum VOC emissions = 700 lb pre-preg x 0.89/100 lb VOC/lb pre-preg = 6.23 lbs/day

This equipment will be operated under a group VOC cap of 450 lbs VOC per month with the spray booth under device D212.

NSR Max VOC R1 = R2 = 450 lb/mo ÷ 30 days/mo = 15 lb/day

AEIS emissions are based on one load per day

AEIS Ave VOC R1 = R2 = 6.23 lb/day ÷ 16 hr/day = 0.39 lb/hr

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 autoclave will be bubbled in a combined group cap of 450 pounds per month limit with spray booth device D212. Public notice will not be required under this section.

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.*

There are no rule 1401 compounds emitted from the autoclave. There is no increase in emissions from the change of condition on the spray booth. 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 the autoclave is below the daily maximum limits specified by this rule. There is no increase from the spray booth. 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	15	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 for this facility.

RULE 402 Nuisance

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



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RULE 442

Usage of Solvents

The processing of pre-preg in the autoclave is not subject to any Reg. XI rules, therefore is subject to this rule. This rule limits facility VOC emissions from all processes subject to this rule to 833 lb/month. In 2010 the total reported VOC was 5.31 tons which includes Rule 1124 emissions. The facility has stated that their rule 442 emissions currently are at about 300 lbs per month and if maximum VOC emissions from autoclave A-19 are added, it will be an addition of 187 lbs per month which would keep the facility at 487 lbs per month for rule 442 emissions. Compliance is expected.

REG XIII

Rule 1303(a), Best Available Control Technology (BACT)

This is an electric autoclave. The VOC emission for the prepreg curing in the autoclave is less than 20 pounds/day. Actually, the manufacturing process is set up in a way that the daily VOC emissions from prepreg curing theoretically cannot exceed 6.23 pounds per day in a worst case scenario process. There is no BACT achieved in practice for major sources and non major sources listed for this equipment in the BACT guidelines. However, functionally, this equipment is similar to a curing oven in this case. Add-on control is required for a curing oven for VOC emissions greater than 20 pounds per day. The emission from this process cannot be greater than 15 lb VOC /day (permit condition of 450 lbs VOC per month). No add on control is required. This complies with BACT requirement. There is no increase in emission from the change of condition on the spray booth therefore BACT is not triggered.

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 450 pounds per month, therefore there are no emission increases from the facility as a result of this project. Offsets are not required.



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RULE 1401*New Source Review for Toxics*

There are no rule 1401 compounds emitted from the new autoclave. There is no increase in toxic emissions from the spray booth as a result of this change. Compliance is expected

RULE 2005*New Source Review for RECLAIM*

Hitco Carbon is a NOx RECLAIM facility. There are no NOx emissions expected from this project since the autoclave is electric. Therefore, compliance with this rule is expected.

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.

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:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NOx*	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 initial Title V permit shall be accumulated and compared to the above threshold levels. This proposed project is the 7th permit revision to the Title V permit issued to this facility on January 20, 2008. The



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following table summarizes the cumulative emission increases resulting from all permit revisions since the initial Title V permit was issued:

Revision	HAP	VOC	NOx*	PM₁₀	SOx	CO
1 st 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, D212) and removal of a press, device D176.	0	15	0	0	0	0
6 th Permit Revision P/C to P/O for Autoclave (A/N 475589, D203)	0	0	0	0	0	0
7 th Permit Revision: P/C-P/O for new autoclave (A/N 517348, D213) and P/O change of condition for spray booth (A/N 523055, D212)	0	0	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

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.



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Even though NO_x is a RECLAIM pollutant for this facility, there are no NO_x 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 a new autoclave, D213 and P/O for spray booth D212 with updated condition (A63.6) in section D of the facility permit.