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STATIONARY SOURCE AND COMPLIANCE DIVISION	APP. NUMBER	475589
Large Coating, Printing and Chemical Operations Team	PROCESSED BY	SMP
APPLICATION PROCESSING AND CALCULATIONS	REVIEWED BY	
	DATE	03/08/08

**PERMIT TO CONSTRUCT EVALUATION
AUTOCLAVE**

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

EQUIPMENT DESCRIPTION

APPLICATION NO. 475589 (New Construction) (D203)

AUTOCLAVE, CUSTOM MADE, THERMAL EQUIPMENT CORP., 24' DIA. X 75' L. (OVERALL DIMENSIONS), WITH A 24,000,000 BTU/HR NATURAL GAS FIRED BURNER BY NORTH AMERICAN MANUFACTURING, MODEL NO. 4796-18 MAGNA-FLAME, FLUE-GAS RECIRCULATION SYSTEM, 100 H.P. COMBUSTION BLOWER AND 1000 H.P. AUTOCLAVE FAN.

APPLICATION NO. 475584

TITLE V PERMIT REVISION/RECLAIM AMENDMENT

HISTORY

The above application from Hitco Carbon Composites Inc. was submitted to the District to install a new autoclave with a 24 mm BTU/HR natural gas-fired burner.

Hitco Composites received a new order to manufacture large beams (up to 40' length) for Boeing 787 airplanes. The facility already operates a number of autoclaves at this location to manufacture smaller parts such as delta rocket nozzle cones, jet engine intake lips, brake discs for military aircrafts, thermal & acoustic insulation materials, etc. However, they needed to install the above described larger autoclave to manufacture these new parts (beams).

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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 bag-houses under I.D. # 800066.

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 above described equipment (VOC emissions from resin curing process or the non-combustion emissions) under this group cap. The applicant has not requested any increases in this group VOC emission limit for this project. For the VOC emissions of 4 lbs/day generated during natural gas combustion in the autoclave, the applicant will provide VOC emission offsets.

The autoclave is equipped with a low-NOx burner and an FGR system that is designed to emit NOx and CO concentrations of <30 ppm @ 3% O₂ and <50 ppm @ 3% O₂ respectively. This will comply with the current BACT requirements. The autoclave will have to operate in the range of 6 mm BTU/HR to 24 mm BTU/HR to stay within the guaranteed BACT emission levels of CO and NOx. The NOx emission increase from the autoclave is calculated to be 21 lbs/day and Hitco hold enough NOx RECLAIM allocations to offset the emission increase. The increase in SOx emission is less than 1 lb/day, thus emission offsets are not required. The increase in CO and PM10 emissions will not require emissions offsets, since the facility's potential to emit is less than 29 tons and 4 tons per year respectively.

The district database did not show any 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 facility. A Title V permit renewal was issued to this facility on 01/20/2008. This is the first permit revision to the Title V renewal permit and the proposed permit revision is considered as "de minimis significant permit revision" to the Title V permit, as described in the Regulation XXX evaluation.

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), and multi-layered thermal and acoustic insulation materials

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(cloth, blanket, and panels). Now they have obtained a sub-contract work to manufacture high strength composite beams for the Boeing 787 aircrafts.

The components will be manufactured using prepreg (resin impregnated carbon fiber) sheets. Hitco will buy these special prepreg materials from suppliers such as Cytec and Torey. 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.

The prepreg surfaces and the mold are covered in a thin rubber bag to prevent de-lamination. The rubber bag holds prepreps tightly inside the mold and squeeze out any air bubbles from prepreg layers prior to curing. The parts will then be cured inside the autoclave at about 450⁰ F temperature and under 150 psi pressure for 5 to 48 hours. During the curing cycle at higher temperature some hydro-carbon (VOC) emissions are emitted (about 2 to 3% of prepreg weight) from this operation.

OPERATING HOURS

Average: 24 hr/day, 7 day/week, 52 weeks/year
Maximum: 24 hr/day, 7 day/week, 52 weeks/year

EMISSION CALCULATIONS

Combustion emissions (Autoclave, A/N 475589):

This equipment will be equipped with a 24 mm BTU/HR burner. The following table provides data on the emissions from the natural gas combustion.

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Autoclave

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	<u>maximum</u>	<u>normal</u>		
<u>hr/dy</u>	24	24	<u>max heat input</u>	2.40E+07 (BTU/hr)
<u>dy/wk</u>	7	7	<u>gross heating value</u>	1050 (BTU/scf)
<u>wk/yr</u>	52	52		
<u>load</u>	100%	100%		

	<u>Emission</u>	<u>MAX</u>	<u>AVE</u>	<u>MAX</u>	<u>30-DAY</u>	<u>MAX</u>	<u>MAX</u>
	<u>Factors</u>	(lb/hr)	(lb/hr)	(lb/dy)	(lb/dy)	(lb/yr)	(ton/yr)
SO ₂ (R1)	0.83	0.019	0.019	0.455	NA	166	0.083
SO ₂ (R2)	0.83	0.019	0.019	0.455	0.455	166	0.083
TOC(R1=R2)	7	0.160	0.160	3.840	NA	1,398	0.699
NO ₂ (R1/R2)	38.9	0.889	0.889	21.339	21.339	7,768	3.884
CO (R1)	39.5	0.903	0.903	21.669	NA	7,887	3.944
CO (R2)	39.5	0.903	0.903	21.669	21.669	7,887	3.944
N ₂ O (R1/R2)	2.2	0.050	0.050	1.207	NA	439	0.220
PM, PM ₁₀ (R1=R2)	7.5	0.171	0.171	4.114	4.114	1,498	0.749
Ammonia	3.2	0.073	0.073	1.755	1.755	639	0.319
Propylene	0.53	0.012	0.012	0.291	0.291	106	0.053
Hexane	0.0046	1.1E-04	1.1E-04	2.5E-03	NA	9.19E-1	4.59E-4
ethyle benzene	0.0069	1.6E-04	1.6E-04	3.8E-03	NA	1.38E+0	6.89E-4
acetaldehyde	0.0031	7.1E-05	7.1E-05	1.7E-03	NA	6.19E-1	3.10E-4
acrolein	0.0027	6.2E-05	6.2E-05	1.5E-03	NA	5.39E-1	2.70E-4
benzene	0.0058	1.3E-04	1.3E-04	3.2E-03	NA	1.16E+0	5.79E-4
formaldehyde	0.0123	2.8E-04	2.8E-04	6.7E-03	NA	2.46E+0	1.23E-3
naphthalene	0.0003	6.9E-06	6.9E-06	1.6E-04	NA	5.99E-2	3.00E-5
PAH's	0.0001	2.3E-06	2.3E-06	5.5E-05	NA	2.00E-2	9.98E-6
toluene	0.0265	6.1E-04	6.1E-04	1.5E-02	NA	5.29E+0	2.65E-3
xylenes	0.0197	4.5E-04	4.5E-04	1.1E-02	NA	3.93E+0	1.97E-3

NO ₂ @ 3% excess O ₂ ----->>>	29.97	(ppmv)	SO ₂ @ 3% excess O ₂ ----->>>	0.46	(ppmv)
CO @ 3% excess O ₂ ----->>>	49.98	(ppmv)	PM @ 12% CO ₂ ----->>>	2.4E-09	(grain/ft ³)

Ver. 1.3

VOC emissions from the resin curing process (Autoclave A/N 475589):

The applicant is expected to cure about 20,000 lbs. (maximum) prepreg material annually. That is on about 80 lbs. per day. The curing process is estimated to generate VOC emissions by about 2 to 3% by weight. That is about 2.4 lbs/day (maximum). The applicant has proposed to add these VOC emissions to the existing 81 pounds/day VOC emission cap from other small autoclaves so that this project will not result in any process VOC emission increase.

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Toxic Compound Emissions and Risk Assessment (Autoclave A/N 475589):

A Tier 2 Risk Assessment was performed to determine the health risk from the toxic air contaminants emitted from the autoclave due to combustion of natural gas. The assessment calculated a cancer risk of 0.388 in a million (3.88E-07) for the residential receptor and 0.401 in a million (4.01E-07) for a commercial receptor. The assessment also calculated both acute and chronic hazard index risks and all the risks were below 1. Thus, the Tier 2 risk assessment demonstrates compliance with Rule 1401 requirements.

RULES/REGULATION EVALUATION

▣ **RULE 212, PUBLIC NOTIFICATION**

v **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.

v **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, public notice will not be required under this section.

LB/DAY	CO	NOX	PM ₁₀	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	22	21	4	6	0	0

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

The Tier 2 assessment indicated a cancer risk of 0.388 in a million for the residential receptor and 0.401 in a million for a commercial receptor due to toxic emissions from the natural gas combustion. 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 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.

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LB/DAY	CO	NOX	PM ₁₀	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	22	21	4	6	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.

▣ **RULE 404 PARTICULATE MATTER CONCENTRATION & WEIGHT**

Based on experience with similar equipment burning natural gas, compliance with this rule is expected.

▣ **RULE 407, GASEOUS AIR CONTAMINANTS**

The manufacturer of the equipment has guaranteed 50 ppmv CO emission concentrations. Thus, compliance with the rule requirements (<2000 ppmv) is expected.

▣ **RULE 431.1, SULFUR CONTENT OF GASEOUS FUELS**

Only natural gas will be utilized in this equipment which will comply with the rule requirements.

REGULATION XIII

Hitco Carbon Composites, Inc. is a NO_x RECLAIM facility. However, compliance with Reg. XIII is still required since the proposed project results in an increase in VOC, CO and PM₁₀ emissions. The increase in these non-RECLAIM pollutants are as follows:

ROG (lb/day)	CO (lb/day)	PM ₁₀ (lb/day)
6	22	4

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

The autoclave is fired on natural gas exclusively and since the VOC emissions from the prepreg curing operation from this autoclave is expected to be less than 3 lbs/day (well below 20 lbs/day limit for a natural gas-fired oven), no additional control will be required. Compliance with the current BACT requirements is expected.

The autoclave will operate with a burner capable of emitting less than 50 ppmv CO emissions. Thus, compliance with the BACT requirements is expected.

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□ **RULE 1303(b)(1), MODELING**

Modeling is not required since PM10, NOx and CO emissions are below the Table A-1 allowable emissions.

NOx (lbs/hr)		PM10 (lbs/hr)		CO (lbs/hr)	
Allowed	Actual	Allowed	Actual	Allowed	Actual
1.26	0.89	7.6	0.17	69.3	0.9

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

The applicant will offset the emission increase in VOC emissions from this project by providing emission reduction credit in the amount of 5 lbs/day for the increase due to natural gas combustion. For the process emissions associated with the curing operations in the autoclave, the applicant will bubble these emissions under an existing VOC emission cap of 81 lbs/day applicable to various equipment within the facility.

Since the facility’s potential to emit is less than 29 tons per year of CO and 4 tons per year of PM10, the facility is exempt from providing emission offsets per rule 1304(d).

□ **RULE 1303(b)(4):**

The facility is expected to be in full compliance with all applicable rules and regulations of the District.

□ **RULES 1303(b)(5)(A) & 1303(b)(5)(D):**

The proposed project is exempt from CEQA according to the responses Hitco Carbon provided on Form 400-CEQA for this project. Their responses in “Review of Impacts Which May Trigger CEQA” on Form 400-CEQA were all marked “No”.

□ **RULE 1303(b)(5)(B):**

Hitco Carbon is a major polluting facility because it has the potential to emit at least 10 ton/yr of VOC emissions. Pursuant to Rule 1303(b)(5)(B), Hitco Carbon demonstrated that they do not own or operate any other major stationary sources in the State of California.

□ **RULE 1303(b)(5)(C):**

A modeling analysis for plume visibility is not required since the net emission increase from the proposed project does not exceed 15 ton/yr of PM10 or 40 ton/yr of NOx.

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

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As described above a Tier 2 Risk Assessment calculation indicated 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

Hitco Carbon is a NOx RECLAIM facility. The proposed project will result in an increase in NOx emissions. For this reason, compliance with Rule 2005 must be achieved prior to issuing a permit for the proposed project.

(c)(1)(A) Best Available Control Technology

The autoclave will operate with a low NOx burner with <30 ppmv NOx emissions. The autoclave is expected to operate in compliance with BACT through the use of the low-NOx burner and FGR. BACT for autoclaves is not yet defined but BACT for natural gas-fired ovens is the use of a low-NOx 30 ppm burner.

(c)(1)(B) Modeling

Modeling is not required since NOx emissions, 0.89 lbs/hr, are below the Table A allowable emissions of 1.26 lbs/hr.

(c)(2)

Hitco Carbon Composites Inc. holds sufficient RTCs to offset the NOx emission increase.

(g)(1)

Hitco Carbon is a major polluting facility because it has the potential to emit at least 10 ton/yr of NOx emissions. Pursuant to Rule 2005(g)(1), Hitco Carbon demonstrated that they do not own or operate any other major stationary sources in the State of California.

(g)(4)

A modeling analysis for plum visibility is not required since the net emission increase from the proposed project does not exceed 40 tons/year of NOx.

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

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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
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 renewal Title V permit shall be accumulated and compared to the above threshold levels. This proposed project is the 1st 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:

Revision	HAP	VOC	NO_x*	PM₁₀	SO_x	CO
1 st Permit Revision. Addition of Autoclave (A/N 475589).	0	6	21*	4	0	22
Cumulative Total	0	6	21*	4	0	22
Maximum Daily	30	30	40*	30	60	220

* RECLAIM pollutant, not subject to emission accumulation requirements

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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Since NOx is a RECLAIM pollutant for this facility, a separate analysis shall be made to determine if the proposed permit revision is considered a “minor permit revision” for RECLAIM pollutants. Section B of the Title V permit shows that this facility’s NOx starting Allocation plus the non-tradable Allocation is 28,449 pounds. The proposed project is expected to result in an increase of 21 lbs/day (7665 lbs/year) of NOx emissions from this permit revision, less than the starting Allocation plus the non-tradable Allocations of 28449 pounds. As a result, this proposed project is considered as a “minor permit revision” for RECLAIM pollutants.

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), and a “minor permit revision” for RECLAIM pollutants, 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.

TIER 2 SCREENING RISK ASSESSMENT

Version 7.0, (June 2005 rule amendment)

A/N: 475589
 Fac: Hitco

Application deemed complete date: 11/14/07

1. Stack Data

		Units
Hour/Day	24	hr/day
Day/Week	7	day/wk
Week/Year	52	wk/yr
Emission Units (non-combustion only)	lb/hr	
Control Efficiency (other non-combustion only)		fraction range 0-1
Does source have TBACT?	NO	
Point or Volume Source ?	P	p or v
Stack Height	30	feet
Area (For Volume Source Only)		ft ²
Distance-Residential	290	meters
Distance-Commercial	20	meters
Meteorological Station	Long Beach	
Source Type:	O - Other	
Screening Mode	NO	
Emission Units	lb/hr	
Source output capacity	n/a	n/a

2. Tier 2 Data

MET Factor	1.00
4 hr	0.89
6 or 7 hrs	0.73

Dispersion Factors

3	3A & 3B For Chronic X/Q
5	For Acute X/Q

Dilution Factors (ug/m3)/(tons/yr)

Receptor	X/Q	X/Q _{max}
Residential	1.065	62.35
Commercial	10.7	548.1

Adjustment and Intake Factors

	Afann	DBR	EVF
Residential	1	302	0.96
Worker	1	149	0.38

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TIER 2 RESULTS

5. MICR

MICR = CP (mg/(kg-day))⁻¹ * Q (ton/yr) * (X/Q) * Afann * Met * DBR * EVF * 1 E-6 * MP

Compound	Residential	Commercial
Acetaldehyde	9.58E-10	1.88E-09
Acrolein		
Ammonia		
Benzene (including benzene from gasoline)	1.75329E-08	3.44E-08
Ethyl benzene		
Formaldehyde	7.93E-09	1.56E-08
Hexane (n-)		
PolyCyclic Aromatic Hydrocarbon (PAHs)	3.60E-07	3.47E-07
Napthalene	1.12E-09	2.19E-09
Propylene		
Toluene (methyl benzene)		
Xylenes (isomers and mixtures)		
Total	3.88E-07	4.01E-07

Pass Pass

No Cancer Burden, MICR<1.E=-6

5a. Cancer Burden	no
X/Q for one-in-a-million:	
Distance (meter)	no data
Area (km2):	
Population:	
Cancer Burden:	

6. Hazard Index

HIA = $[Q(\text{lb/hr}) * (X/Q)_{\text{max}}] / \text{Acute REL}$

HIC = $[Q(\text{ton/yr}) * (X/Q) * \text{MET} * \text{MP}] / \text{Chronic REL}$

Target Organs	Acute	Chronic
Cardiovascular or blood system		3.74E-06
Central or peripheral nervous system		
Gastrointestinal system and liver	4.77E-05	3.74E-06
Immune system	5.67E-05	
Kidney	1.93E-01	2.00E-04
Reproductive system	1.68E-03	5.27E-02
Respiratory system	9.04E-06	1.01E-04
Skin	5.67E-05	
Eye	1.93E-01	3.74E-06
Endocrine system		

A/N: 475589

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6a. Hazard Index Acute

HIA = [Q(lb/hr) * (X/Q)max] / Acute REL

HIA - Residential										
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Acetaldehyde										
Acrolein				2.03E-02					2.03E-02	
Ammonia				1.42E-03					1.42E-03	
Benzene (including benzene from Ethyl benzene)			5.42E-06		5.42E-06	5.42E-06		5.42E-06		
Formaldehyde				1.86E-04		1.86E-04			1.86E-04	
Hexane (n-)										
PolyCyclic Aromatic Hydrocarbon Napthalene										
Propylene										
Toluene (methyl benzene)			1.03E-06	1.03E-06			1.03E-06	1.03E-06	1.03E-06	
Xylenes (isomers and mixtures)				1.28E-06					1.28E-06	
Total			6.45E-06	2.20E-02	5.42E-06	1.91E-04	1.03E-06	6.45E-06	2.20E-02	

HIA - Commercial										
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Acetaldehyde				1.79E-01					1.79E-01	
Acrolein				1.25E-02					1.25E-02	
Ammonia										
Benzene (including benzene from Ethyl benzene)			4.77E-05		4.77E-05	4.77E-05		4.77E-05		
Formaldehyde				1.63E-03		1.63E-03			1.63E-03	
Hexane (n-)										
PolyCyclic Aromatic Hydrocarbon										
Napthalene										
Propylene										
Toluene (methyl benzene)			9.04E-06	9.04E-06			9.04E-06	9.04E-06	9.04E-06	
Xylenes (isomers and mixtures)				1.12E-05					1.12E-05	
Total			5.67E-05	1.93E-01	4.77E-05	1.68E-03	9.04E-06	5.67E-05	1.93E-01	

6b. Hazard Index Chronic

$$HIC = \sum (ton/yr) * (X/Q) * MET * MP / Chronic REL$$

Compound	HIC - Residential												
	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Acetaldehyde						4.81E-03						3.67E-05	
Acrolein												4.81E-03	
Ammonia												1.70E-03	
Benzene (including benzene from				1.01E-05			1.01E-05			1.01E-05			
Ethyl benzene	3.72E-07			3.72E-07	3.72E-07				3.72E-07				
Formaldehyde						4.34E-04						4.34E-04	
Hexane (n-)										7.31E-08			
PolyCyclic Aromatic Hydrocarbon													
Naphthalene												3.57E-06	
Propylene												1.86E-05	
Toluene (methyl benzene)				9.46E-06						9.46E-06		9.46E-06	
Xylenes (isomers and mixtures)										2.99E-06		2.99E-06	
Total	3.72E-07			1.99E-05	3.72E-07	5.24E-03	1.01E-05		3.72E-07	2.26E-05		7.01E-03	

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Compound	HIC - Commercial										NS	REP	RESP	SKIN	
	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID						
Acetaldehyde														3.69E-04	
Acrolein							4.83E-02							4.83E-02	
Ammonia														1.71E-02	
Benzene (including benzene from				1.01E-04					1.01E-04			1.01E-04			
Ethyl benzene	3.74E-06			3.74E-06	3.74E-06					3.74E-06					
Formaldehyde							4.36E-03							4.36E-03	
Hexane (n-)												7.34E-07			
PolyCyclic Aromatic Hydrocarbon															
Napthalene														3.58E-05	
Propylene														1.87E-04	
Toluene (methyl benzene)				9.50E-05								9.50E-05		9.50E-05	
Xylenes (isomers and mixtures)												3.00E-05		3.00E-05	
Total	3.74E-06			2.00E-04	3.74E-06		5.27E-02		1.01E-04			3.74E-06	2.27E-04	7.04E-02	