

Synthetic Minor Operating Permit Engineering Evaluation

Synthetic Minor Operating Permit Application Evaluation Report Pechiney Plastics Packaging, Inc. Application #14513 – Site (Plant) #273

Background:

Pechiney Plastics Packaging, Inc. (Pechiney), Plant #273 located at 6590 Central Avenue, Newark, California, is a flexible packaging manufacturing plant. The company's initial Title V permit was issued on November 6, 2001.

Pechiney is a Title V plant pursuant to Regulation 2-6-212.1 because the facility has the potential to emit more than 100 tpy of volatile organic compounds (VOCs). The plant's actual annual emission levels, post-capture and control, in reality have been and are well below the Title V permitting thresholds. In addition, Pechiney has since installed a permanent total enclosure around the majority of the VOC sources. The exhaust from the enclosure is routed to one of three abatement devices (two catalytic oxidizers and one thermal oxidizer). Emissions of VOCs are abated to levels well below the Title V threshold of 100 tpy in Regulation 2-6-212.1. To become a Synthetic Minor Operating Plant, Pechiney is willing to accept a permit condition that will limit emissions of VOC to less than 95 tpy in accordance with the requirements of Regulation 2-6-230. Emissions from each individual HAP is less than 9 tpy and the total combined HAPs are less than 23 tpy to stay under the Major Facility threshold in Regulation 2-6-212.2.

The sources identified at this plant include:

Permitted Sources

S-#	Description	Make or Type	Capacity
17	Primer Station #1 at Extruder Laminator #15	Guardian/Faustel	
18	Drying Oven #1 at Extruder Laminator #15 (natural gas)	Guardian	600,000 BTU/hr
24	Primer Station #2 at Extruder Laminator #15	Inter-Roto	
25	Drying Oven #2 at Extruder Laminator #15 (natural gas)	Inter-Roto	3 MMBtu/hr
26	Flexographic Press P-5 w/ Between-Color Dryers and Tunnel Dryer (natural gas)	PCMC	2.4 MMBtu/hr
27	Flexographic Printing Press P-6	W&H Nova-Flex	
28	Flexographic Printing Press P-6 Dryer (natural gas)	W&H Nova-Flex	3.758 MMBtu/hr
29	Flexographic Printing Press P-7	W&H Olympia	
30	Flexographic Printing Press P-7 Dryer (natural gas)	W&H Olympia	3.6 MMBtu/hr
31	Flexographic Printing Press P-8	Future Purchase	
32	Flexographic Printing Press P-8 Dryer (natural gas)		3.758 MMBtu/hr

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S-#	Description	Make or Type	Capacity
34	Photopolymer Plate Wash: Linear Processing		

There are also emissions of criteria pollutants from the following exempt sources. Emissions from the exempt sources are less than 5 tpy and do not require permitting per Regulation 2-1-319.

S-#	Description	Exemption	Emissions
33	Cold Cleaner: Parts Washer	2-1-118.4	0.27 tpy VOC
35	Plastic Film Extrusion Line	2-1-122.4	0.36 tpy VOC
36	Batch Solvent Still Recycler: 40 gal/hr	2-1-118.8	0.58 tpy VOC
37	Batch Solvent Still Recycler: 40 gal/hr	2-1-118.8	0.35 tpy VOC
38	Six Ozone Generators: Corona Treatment Equipment	2-1-128.17	0.72 tpy ozone (less than 1 lb/day ozone)
39	QC Laboratory Testing	2-1-126.2	0.04 tpy VOC
40	Ink and Coating Mixing	2-1-121.5	2.07 tpy VOC
41	Cooling Tower #1	2-1-128.4	4.14 tpy PM10
42	Cooling Tower #2	2-1-128.4	4.14 tpy PM10

Pechiney also operates one of the following abatement devices when operating the printing lines: one of two catalytic oxidizers (A-2 and A-3) or a Thermal Oxidizer (A-4). The abatement devices control VOC emissions from the sources as listed in the table below.

A-#	Description	Source(s) Controlled	Operating Parameters	Limit or Efficiency
2	Catalytic Oxidizer, Grace TEC Systems, Magnum 9, 7.8 MMBtu/hr	S-17, S-18, S-24, S-25, S-26, S-27, S-28, S-29, S-30, S-31, S-32, & S-34	Minimum operating temperature of 500 F or adjusted in accordance to source test result	See Note 1
3	Catalytic Oxidizer, Grace TEC Systems, Magnum 9, 4.2 MMBtu/hr	S-17, S-18, S-24, S-25, S-26, S-27, S-28, S-29, S-30, S-31, S-32, & S-34	Minimum operating temperature of 500 F or adjusted in accordance to source test result	See Note 1

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A-#	Description	Source(s) Controlled	Operating Parameters	Limit or Efficiency
4	Thermal Oxidizer, Megtec Enterprise II, 20,000 scfm, 3.0 MMBtu/hr	S-17, S-18, S-24, S-25, S-26, S-27, S-28, S-29, S-30, S-31, S-32, & S-34	Minimum oxidation temperature no less than 1400 F	See Note 1

Note 1: The sources listed in the table cannot be operated in production mode unless the abatement devices are in operation. The power for the sources are interlocked with A-2 and A-3 Catalytic Oxidizers and A-4 Thermal Oxidizer.

Permit Condition 23913, parts 3 and 31:

The owner/operator shall not operate the A-2, A-3, or A-4 unless one of the following is met: (basis: BACT)

- a. an outlet non-methane hydrocarbon (NMHC) concentration of 10 ppmv or less, OR
- b. one of the following, as determined by the inlet NMHC concentration into A-2, A-3, and/or A-4:
 1. NMHC destruction efficiency of at least 98.5% if inlet NMHC concentration is greater than 2000 ppmv; OR
 2. NMHC destruction efficiency of at least 97% if inlet NMHC concentration is greater than 200 ppmv, but no greater than 2000 ppmv; OR
 3. NMHC destruction efficiency of at least 90% if inlet NMHC concentration is 200 ppmv or less.

Emission Limits Strategy and emission calculation

To obtain a District synthetic minor operating permit (SMOP) pursuant to Section 2-6-423.2, a facility must have permit conditions limiting the facility's potential to emit to no greater than 95 tons per year of any regulated air pollutant, 9 tons per year of any single hazardous air pollutant, and 23 tons per year of any combination of hazardous air pollutants.

EPA has stated via a memo from John Seitz entitled "Guidance on Limiting Potential to Emit" dated June 13, 1989, that operational or throughput limits are required in addition to emission limitations. However, an exception has been made for situations involving solvent evaporating sources where the types and amounts of coatings and solvents used are unpredictable. A facility may use an emission limit provided daily throughput records are kept, and the emissions are calculated monthly with a total summary of twelve consecutive months.

All VOC sources at Pechiney have permitted emission limits with the exception of S-17 and S-18. S-24 and S-25 have a limit of 13.3 tpy of VOC emissions. S-26 has a limit of 39 tpy of VOC emissions. S-27, S-28, S-29, S-30, S-31, S-32, and S-34 have a combined limit of 28.33 tpy of VOC emissions. The Synthetic Minor Operating Permit will limit Pechiney to 95 tons/yr of VOC emissions, which includes the emissions from the sources with and without permitted limits, as well as the exempt sources.

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The only HAP emission at Pechiney is methanol. Methanol is contained in one primer coating at Extruder Laminator #15 (S-17, S-18, S-24, and S-25). Methanol is only 0.15% by weight in the primer coating and is not required to be tracked under current federal rules (the threshold for tracking for non-carcinogenic HAPs is 1% by weight).

Emissions calculations & discussion

VOC Emissions

The following tables summarize the potential VOC emissions from the plant for permitted sources with VOC emission limits and exempt sources. Calculation emissions from the exempt sources are shown in Appendix A.

Permitted Sources with VOC Emission Limits	
Sources	VOC Emission Limits
S-24 & S-25	13.30 tpy
S-26	39.00 tpy
S-27, S-28, S-29, S-30, S-31, S-32, & S-34	28.33 tpy
Sub-Total	80.63 tpy
Exempt Sources	
Sources	VOC (potential to emit)
S-33	0.27 tpy
S-35	0.36 tpy
S-36	0.58 tpy
S-37	0.35 tpy
S-30	0.04 tpy
S-40	2.07 tpy
Sub-Total	3.67 tpy
TOTAL	84.30 tpy

In order to obtain a Synthetic Minor Operating Permit, Pechiney will accept a permit condition that will limit facility-wide emissions of VOC to less than 95 tpy. The 84.30 tpy total in the table above does not take into account sources without VOC emission limits. S-16 and S-17 Extruder and Oven for Laminator Primer Station #1 do not have VOC emission limits. As stated above, operational or throughput limits are not required for solvent evaporating sources where the types and amounts of coatings and solvents used are unpredictable. Pechiney may use a facility wide emission limit provided that daily records are kept and the emissions are calculated monthly with a total summary of twelve consecutive months.

Note that with the installation of the total permanent total enclosure around the majority of VOC sources (S-26, S-27, S-28, S-29, S-30, S-31, S-32 and S-34), actual VOC emissions will be much less than the 95 tpy limit. The enclosure maintains negative airflow and the exhaust are vented to one of the catalytic oxidizers or the thermal oxidizer. The velocity of air into the enclosure is continuously monitored and recorded. If the velocity drops to below 250 feet per minute, an alarm is sounded. If the velocity is less than 250 feet per minute for

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300 seconds, the power to the sources in the enclosure are turned off and the process is shutdown. Therefore, with 100% VOC capture efficiency and at least 90% VOC destruction efficiency (at least 90% is required by permit condition, although 99% is usually obtained), VOC emissions should be well below 95 tpy. Although Extruder Laminator #15 (S-17, S-18, S-24, and S-25) is not contained within the total permanent enclosure, exhaust from the equipment is routed to the oxidizers for VOC destruction. Part 17 of the permit condition requires collection and control efficiency of VOCs of at least 77.6%.

HAP Emissions

The potential emission of the only HAP at Pechiney, methanol, is 27.72 lb/yr or 0.014 tpy. The primer used at Extruder Laminator #15 (S-17, S-18, S-24, and S-25) is 0.15% by weight methanol. The potential emission was determined by taking the month with the greatest methanol emission in 2007 and multiplying it by twelve to estimate annual emissions of methanol. A 75% collection and abatement factor was applied to the calculation since Extruder Laminator #15 is not contained within the total permanent enclosure. Emissions of HAPs at Pechiney are well below the individual HAP limit of 9 tpy and the total combined HAP emission of 23 tpy to stay under the Major Facility threshold.

Combustion Emissions

Combustion emissions from the printing press dryers, catalytic oxidizers, and the thermal oxidizer are tabulated below. Emissions of NO_x, CO, POC, SO₂ and PM₁₀ from combustion were calculated in the original permit applications for the sources. For grandfathered sources (S-18) and older sources where combustion emissions were not calculated in the permit applications (S-25), published emission factors are used to determine combustion emissions. Emission factors for the combustion of natural gas are from EPA Document AP-42, Compilation of Air Pollutant Emission Factors, Volume 1, Fifth Edition, Tables 1.4-1 and 1.4-2 for natural gas combustion.

Emission Factors:

NO _x	= 100 lb/MMscf
CO	= 84 lb/MMscf
POC	= 5.5 lb/MMscf
SO ₂	= 0.6 lb/MMscf
PM ₁₀	= 7.6 lb/MMscf

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Source	Firing Rate (MMBtu/hr)	Fuel Use (MMScf/hr)	NOx (lb/yr)	CO (lb/yr)	POC (lb/yr)	SO2 (lb/yr)	PM10 (lb/yr)
S-18	0.600	5.88E-04	515.29	432.85	28.34	3.09	39.16
S-25	3.000	2.94E-03	2576.47	2164.24	141.71	15.46	195.81
S-26 ¹	2.400	2.35E-03	2102.00	441.00	122.00	12.60	250.00
S-28 ²	3.758	3.68E-03	3135.25	2633.61	172.44	18.81	238.28
S-30 ²	3.600	3.53E-03	3003.43	2522.88	165.19	18.02	228.26
S-32 ²	3.758	3.68E-03	3135.25	2633.61	172.44	18.81	238.28
A-2 ³	7.800	7.65E-03	6545.00	1374.00	523.60	39.30	509.11
A-3 ²	4.200	4.12E-03	7358.40	29,433.60	192.72	21.02	266.30
A-4 ²	3.000	2.94E-03	5256.00	21,024.00	137.66	15.02	190.22
Total	32.116	3.15E-02	33,627.09	62,659.79	1656.10	162.13	2155.42
Total in tons per year			16.81 tpy	31.33 tpy	0.83 tpy	0.08 tpy	1.08 tpy

*heat capacity of natural gas = 1020 MMBtu/10E6 scf

¹Cumulative increase of NOx, CO, POC, SO2, and PM10 are calculated in Application 17637 (October 1997).

²Cumulative increase of NOx, CO, POC, SO2 and PM10 from each combustion source are calculated in Application 12013 (April 2006).

³Cumulative increase of NOx, CO, POC, and SO2 are calculated in Application 16665 (October 1996). PM10 emissions are calculated using AP-42 emission factors.

The only emissions of NOx, CO, and SO2 are from combustion sources and are very low. The amount of VOC and PM10 from natural gas combustion is low and are negligible compared with VOC from coating sources. These sources could not exceed the major facility 100 ton per year threshold for NOx, CO, SO2, or particulate. These sources require no limits on the amount of fuel used.

Other Criteria Pollutant Emissions

Water droplets with dissolved solids or PM10 are released from Pechiney's two exempt cooling towers, S-41 and S-42. The emission factor for PM10 is from EPA Document AP-42, Compilation of Air Pollutant Emission Factors, Volume 1, Fifth Edition, Table 13.4-1 for wet cooling towers. The recirculation rate for each tower is 830 gallons per minute.

PM10 Emissions from S-41 Cooling Tower:

$$\text{PM10 emissions} = (0.019 \text{ lb PM10/1000 gallons}) \times 830 \text{ gal/min} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 365 \text{ day/yr} = 8,288.71 \text{ lb/yr} = 4.144 \text{ tpy}$$

PM10 Emissions from S-42 Cooling Tower:

$$\text{PM10 emissions} = (0.019 \text{ lb PM10/1000 gallons}) \times 830 \text{ gal/min} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 365 \text{ day/yr} = 8,288.71 \text{ lb/yr} = 4.144 \text{ tpy}$$

PM10 emissions from the cooling towers are very low and could not exceed the major facility 100 ton per year threshold for particulate. The cooling towers require no limits.

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Statement of Compliance:

This facility is in compliance with the necessary requirements in Regulation 2, Rule 6 to obtain a synthetic minor permit. Pechiney has voluntarily accepted federally enforceable permit conditions including emission limits that will keep its annual emissions within 95 tons per year of any regulated air pollutant, 9 tons of any hazardous air pollutant, and 23 tons of any combination of hazardous air pollutants. To establish compliance, daily records, monthly totals of POCs and HAPs will be maintained and a 12 month rolling average calculated each month.

Permit Conditions

Pechiney Plastics Packaging, Inc., Site #A0273, has a synthetic minor operating permit. This operating permit covers all sources existing at this facility as of permit issuance. The sources are listed above.

The following conditions establish the permit terms that ensure this plant is classified as a Synthetic Minor Facility under District Regulation 2, Rule 6 - Major Facility Review and ensure it is not subject to the permitting requirements of Title V of the Federal Clean Air Act as amended in 1990 and 40 CFR Part 70. All applications submitted by the applicant and all modifications to the plant's equipment after issuance of the synthetic minor permit must be evaluated to ensure that the facility cannot exceed the synthetic minor general limits below, and that sufficient monitoring, record keeping, and reporting requirements are imposed to ensure enforceability of the limits.

Any revision to a condition establishing this plant's status as a Synthetic Minor Facility or any new permit term that would limit emissions of a new or modified source for the purpose of maintaining the facility as a Synthetic Minor must undergo the procedures specified by Rule 2-6, Section 423. The basis for the synthetic minor conditions is an emission limit for regulated air pollutants of less than 95 tons per year, an emission limit for a single hazardous air pollutant of less than 9 tons per year, and an emission limit for a combination of hazardous air pollutants of less than 23 tons per year.

Individual Sources Conditions (to be archived): The following permit conditions shall be archived in lieu of a single condition for all sources.

- Condition 14373 for S-17, S-18, S-22, S-23, S-24, & S-25 (Last permitted – Application 12013)
- Condition 15238 for S-26 (Last permitted – Application 12013)
- Condition 20229 for all sources (Facility Wide condition for Hazardous Air Pollutants, limits and monitoring to stay within 9 tpy of any single HAP or 23 tpy of any combination of HAPs in any consecutive 12-month period)
- Condition 23012 for S-27, S-28, S-29, S-30, S-31, & S-32 (Last permitted – Application 12013)
- Condition 23025 for S-17, S-18, S-24, S-25, S-26, S-27, S-29, & S-31 (Last permitted – Application 12013)
- Condition 23026 for S-26 (Last permitted – Application 12013)

Asterisks denote permit conditions that are part of this permit but do not contribute to establishing the synthetic minor limits. The facility must comply with all conditions,

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regardless of asterisks. The following conditions do not negate the applicability of any District, state or federal requirements.

Synthetic Minor Condition #23913

Sources at this facility:

S-# Description

- S-17 Primer Station #1 at Extruder Laminator #15
- S-18 Drying Oven #1 at Extruder Laminator #15
- S-24 Primer Station #2 at Extruder Laminator #15
- S-25 Drying Oven #2 at Extruder Laminator #15
- S-26 Flexographic Press P-5 w/ Between-Color Dyers and Tunnel Dryer
- S-27 Flexographic Printing Press P-6
- S-28 Flexographic Printing Press P-6 Dryer
- S-29 Flexographic Printing Press P-7
- S-30 Flexographic Printing Press P-7 Dryer
- S-31 Flexographic Printing Press P-8
- S-32 Flexographic Printing Press P-8 Dryer
- S-33 Cold Cleaner: Parts Washer (exempt)
- S-34 Photopolymer Plate Wash: Linear Processing
- S-35 Plastic Film Extrusion Line (exempt)
- S-36 Batch Solvent Still Recycler: 40 gal/hr (exempt)
- S-37 Batch Solvent Still Recycler: 40 gal/hr (exempt)
- S-38 Six Ozone Generators: Corona Treatment Equipment (exempt)
- S-39 QC Laboratory Testing (exempt)
- S-40 Ink and Coating Mixing (exempt)
- S-41 Cooling Tower #1 (exempt)
- S-42 Cooling Tower #2 (exempt)

Abatement Equipment:

- A-2 Catalytic Oxidizer, 7.8 MMBtu/hr
- A-3 Catalytic Oxidizer, 4.2 MMBtu/hr
- A-4 Thermal Oxidizer, 3.0 MMBtu/hr

1. The owner/operator shall ensure that this facility, subject to a Synthetic Minor Operating Permit, shall emit no more than the following quantities of emissions in any 12-month period:
 - a. 95 percent of the major source thresholds for regulated air pollutants (excluding HAPs),
 - b. 9 tons per year of any single HAP,
 - c. 23 tons per year of any combination of HAPs, and
 - d. 90 percent of any lesser threshold for a single HAP as the U.S. EPA or District may establish by rule.

These limits shall include emissions from permitted, unpermitted, portable, and temporary sources at the facility except those sources defined as non-road engines

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as defined in 40 CFR 89. These limits are for the purpose of this Synthetic Minor Operating Permit only, and do not allow the owner/operator to exceed any other District permit conditions. These Synthetic Minor Operating Permit limits shall not be used as actual emissions, a permitted emission level or baseline emission level in conjunction with new source review, banking of emission reduction credits, or any other District rule.

[basis: Synthetic Minor]

For

S-17, S-18, S-24, S-25, S-26, S-27, S-29, S-31, S-32

2. When complying materials (as defined per Regulation 8-20-302) are not being utilized at sources S-17, S-18, S-24, and S-25, the owner/operator shall not operate these sources unless A-2, A-3 and/or A-4 oxidizers (catalytic or thermal) are operating with an overall collection and control efficiency of at least 75% (by weight).
[basis: Regulation 8-20-302]
3. The owner/operator shall not operate the A-2, A-3 and/or A-4 oxidizers (catalytic or thermal) unless one of the following is met. [basis: BACT]
 - a. an outlet non-methane hydrocarbon (NMHC) concentration of 10 ppmv or less, OR
 - b. one of the following, as determined by the inlet NMHC concentration into A-2 and/or A-3 and/or A-4:
 1. NMHC destruction efficiency of at least 98.5% if inlet NMHC concentration is greater than 2000 ppmv; or
 2. NMHC destruction efficiency of at least 97% if inlet NMHC concentration is greater than 200 ppmv, but no greater than 2000 ppmv; or
 3. NMHC destruction efficiency of at least 90% if inlet NMHC concentration is 200 ppmv or less.
4. The owner/operator shall abate the organic emissions from all sources by the A-2, A-3 and/or A-4 oxidizers whenever any of these sources applies materials, which do not comply with the limits in Regulation 8-20-302. [basis: Regulation 8-20-308 and BACT]
5. The following requirement applies when complying materials are not being used at S-17, S-18, S-22, S-23, S-24, or S-25. Complying materials are defined per Regulation 8-20-302. All sources shall be interlocked with A-2, A-3 and/or A-4 Catalytic or Thermal Oxidizers so that the sources cannot operate in the production mode unless both of the following requirements are being met:
 - a. The emissions of each subject source are directed to A-2 and/or A-3 Catalytic Oxidizer and/or A-4 Thermal Oxidizer.
 - b. A-2 and A-3 Catalytic Oxidizer and A-4 Thermal Oxidizer are operating in compliance with parts 6 and 8. [basis: BACT]
6. The owner/operator shall maintain the inlet catalyst cell temperature of A-2 and/or A-3 Catalytic Oxidizer at a minimum operating temperature of 500 degrees Fahrenheit whenever there is a pollutant stream directed to A-2 and/or A-3. The A-4 Thermal Oxidizer shall operate at an oxidation temperature of no less than 1400 degrees Fahrenheit. The minimum temperatures may be adjusted by the District if source

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test data demonstrate that an alternate temperature is necessary for, or capable of, maintaining compliance with parts 2 and 3. [basis: cumulative increase]

7. The owner/operator shall install and maintain a continuous temperature recorder to monitor the A-2 and A-3 catalyst inlet cell temperature and the A-4 oxidization temperature. [basis: cumulative increase]
8. The owner/operator shall design, equip and operate the A-2 and A-3 Catalytic Oxidizer with a preheat feature which insures that the minimum inlet catalyst cell temperature specified in part 6 is achieved prior to the introduction of the pollutant stream to A-2 and/or A-3. [basis: BACT]
9. To verify compliance with parts 2, 3, and 5, the owner/operator of S-17, S-18, S-24, S-25, S-26, S-27, S-29, S-31, and S-32 shall inspect and evaluate on a monthly basis the collection system interlock, ducting, dampers (including t-dampers and bypass dampers), and all ancillary equipment related to the emission collection system for each source to insure the collection system integrity and reliability. [basis: cumulative increase]
10. The owner/operator shall ensure that the maximum VOC emissions from sources S-24 and S-25, resulting from all coatings, primers, make-up solvent, and cleanup solvent usage shall not exceed 12.3 tons per rolling 12 month year. [basis: cumulative increase]
11. The owner/operator shall maintain monthly usage records of ink, primer, coating, makeup solvent, and cleanup solvent used at source S-17, S-18, S-24, and S-25. The records shall be kept in an APCO approved log and maintained on-site for at least five years from date of entry. These records shall contain the following: [basis: cumulative increase]
 - a. date of record
 - b. name of each ink, primer, or coating used
 - c. quantity of each ink, primer, or coating used
 - d. amount of make-up solvent used
 - e. amount of cleanup solvent used
 - f. calculation of daily emissions based on MSDS information and allowable overall control efficiency (when no control is used, the control efficiency shall be zero)
 - g. Within 30 days of the end of each month, the owner/operator shall summarize the emissions for the last consecutive 12 months.
12. The owner/operator shall conduct annual emissions screening testing or annual catalyst testing of the A-2 and A-3 catalytic oxidizer system, prior to October 31 of each calendar year. The screening testing shall be conducted at the shared outlet of the oxidizers (rather than at both the inlet and outlet of each of the oxidizers), unless the owner/operator elects to isolate each oxidizer and conduct simultaneous inlet and outlet testing for each oxidizer. The screening testing shall be conducted using District Method ST-7 or an alternative method approved in writing by the District, reporting non-methane hydrocarbon ("NMHC") in parts per million by volume concentration ("ppmv"). As part of the screening testing, any NMHC concentration attributable to contamination present in sampling equipment shall be determined by sampling of ambient air and used in determining the results of the screening testing. [basis: BACT, District Regulation 2-6-503]

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13. The owner/operator shall periodically conduct inlet/outlet testing of each oxidizer to determine compliance with part 3b of this condition. Tests shall be scheduled to ensure that, for each oxidizer, fewer than five years have elapsed since the previous test. All such tests shall be conducted in accordance with the District Manual of Procedures. All tests shall be conducted under normal operating conditions.
14. If annual emissions screening testing in part 12 is chosen, the owner/operator shall notify the Director of the Compliance and Enforcement Division of the planned test date at least one week prior to conducting the test. The results of valid annual screening testing shall be submitted to the District within 60 days of completion of the screening test. If such results measure outlet NMHC at a level exceeding 10 ppmv, then within 30 days of conducting the screening test, the owner/operator may conduct a screening test of each oxidizer individually. If a valid screening test on an individual oxidizer is not done or if a valid screening test is done and measured outlet NHMC is at a level exceeding 10 ppmv, the owner/operator shall then within 60 days of the original test date conduct inlet/outlet testing. All tests shall be conducted under normal operating conditions. The results of any such additional testing shall be submitted to the District within 60 days of completion of the testing. [basis: BACT, District Regulation 2-6-503].

For
S-26

15. The owner/operator shall ensure that the total volatile organic compound (VOC) emissions due to ink, coatings, and cleanup solvent usage at S-26 shall not exceed 39 tons totaled over any consecutive twelve-month period. [basis: cumulative increase]
16. The owner/operator of S-26 shall abate the between-color dryers and tunnel dryer associated with S-26 Flexographic Printing Press by A-2 and/or A-3 Catalytic Oxidizers and/or A-4 Thermal Oxidizer whenever solvent borne ink and coatings are applied at S-26. [basis: cumulative increase]
17. The owner/operator of A-2 and/or A-3 Catalytic Oxidizer and/or A-4 Thermal Oxidizer shall achieve an overall (capture x destruction) POC control efficiency of 97% by weight when abating POC emissions from S-26. The capture efficiency is assumed to be 100%, due to the owner/operator satisfying USEPA Method 204 criteria for 100% capture efficiency from a "Permanent Total Enclosure". [basis: cumulative increase, USEPA Reference Method 204]
18. The owner/operator shall ensure that the VOC content of the waterborne inks (excluding metallic inks) applied at S-26 shall not exceed 1 pound per gallon, as applied. [basis: cumulative increase]
19. The owner/operator of S-26 shall maintain records of the following, VOC content, and net usage on a monthly basis in a District-approved log and retained on site for a minimum of five years from the date of entry: [basis: cumulative increase]
 - a. ink, coating, makeup solvent, and cleanup solvent type (waterborne, solvent borne, metallic)

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- b. ink, coating, makeup solvent, and cleanup solvent VOC content (pounds per gallon, as-supplied)
- c. ink, coating, makeup solvent, and cleanup solvent net usage (pounds per month)
- d. calculation of monthly VOC emissions (pounds per month) based on a 97% overall abatement efficiency for solvent based inks. (The capture efficiency is assumed to be 100%, due to the owner/operator satisfying USEPA Method 204 criteria for 100% capture efficiency from a "Permanent Total Enclosure".)

For

S-27, S-28, S-29, S-30, S-31, and S-32

- 20. The owner/operator shall ensure that total volatile organic compound (VOC) emissions due to ink, coatings, and cleanup solvent usage at S-27, S-29, S-31, and S-32 shall not exceed 28.33 tons totaled over any consecutive twelve-month period.
- 21. The owner/operator shall not operate the A-2, A-3 and/or A-4 oxidizers (catalytic or thermal) unless one of the following is met. [basis: BACT]
 - a. an outlet non-methane hydrocarbon (NMHC) concentration of 10 ppmv or less
OR
 - b. one of the following, as determined by the inlet NMHC concentration into A-2 and/or A-3 and/or A-4:
 - 1. NMHC destruction efficiency of at least 98.5% if inlet NMHC concentration is greater than 2000 ppmv; OR
 - 2. NMHC destruction efficiency of at least 97% if inlet NMHC concentration is greater than 200 ppmv, but no greater than 2000 ppmv; OR
 - 3. NMCH destruction efficiency of at least 90% if inlet NMHC concentration is 200 ppmv or less.
- 22. The owner/operator shall abate the between-color dryers and tunnel dryer associated with S-27, S-29 and S-31 Flexographic Printing Press by A-2, A-3 and/or A-4 Oxidizers (catalytic or thermal) whenever solvent borne ink and coatings are applied at S-27, S-29, and S-31. [basis: cumulative increase]
- 23. The owner/operator shall abate S-32 Photopolymer Plate Wash by A-2, A-3, and/or A-4 Oxidizers (catalytic or thermal) whenever solvents are in use. [basis: cumulative increase]
- 24. The owner/operator shall ensure that the VOC content of waterborne inks (excluding metallic inks) applied at S-27, S-29, and S-31 shall not exceed 1 pound per gallon, as applied. [basis: cumulative increase]
- 25. The owner/operator shall conduct a source test no later than 60 days after startup of A-4 Thermal Oxidizer to determine compliance with part 21. The source test protocol shall be approved by the District's Source Test Manager. A copy of the test results shall be submitted to the District Staff no later than 30 days after the test has been conducted. [basis: BACT, district Regulation 2-6-503]
- 26. The owner/operator of the A-4 thermal oxidizer shall not exceed the following emissions rate limits: [basis: RACT]
NOx: 0.2 lbs/MMBtu
CO: 0.8 lbs/MMBtu

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27. The owner/operator shall ensure that the minimum combustion chamber temperature of A-4 thermal oxidizer be at least 1400 degrees F. The District may adjust this minimum temperature if source test data demonstrate that an alternate temperature is necessary for or capable of maintaining compliance with 21 above. [basis: Regulation 2-1-403]
28. The owner/operator shall equip the A-4 thermal oxidizer with a temperature-measuring device capable of continuously measuring and recording the temperature in A-4. This device shall be accurate to within 20 degrees Fahrenheit and shall be maintained in accordance with manufacturer's recommendations. This temperature monitor shall be used to determine compliance with the temperature requirements in part 27. [basis: Regulation 1-521]
29. The minimum temperature requirement of part 27 shall not apply during an "Allowable Temperature Excursion" below the minimum temperature, provided that the controller set temperature is at or above the minimum temperature requirement. An Allowable Temperature Excursion is one of the following: [basis: Regulation 2-1-403]
 - a. A temperature excursion not exceeding 20 degrees F; or
 - b. A temperature excursion for a period or periods aggregating less than or equal to 15 minutes in any hour; or
 - c. A temperature excursion for a period or periods aggregating more than 15 minutes in any hour, provided that both of the following criteria are met. Only twelve such excursions are allowed per calendar year.
 - 1) the excursion does not exceed 50 degrees F; and
 - 2) the duration of the excursion does not exceed 24 hours.Two or more excursions greater than 15 minutes in duration occurring during the same 24-hour period shall be counted as one excursion toward the 12-excursion limit.
30. For each Allowable Temperature Excursion that exceeds 20 degrees F and 15 minutes in duration, the owner/operator shall keep sufficient records to demonstrate that they meet the qualifying criteria described above. Records shall be retained for a minimum of two years from the date of entry, and shall be made available to the District upon request. Records shall include at least the following information: [basis: Regulation 2-1-403]
 - a. Thermal oxidizer controller set temperature;
 - b. Starting date and time, and duration of each Allowable Temperature Excursion;
 - c. Minimum temperature during each Allowable Temperature Excursion;
 - d. Number of Allowable Temperature Excursions per month, and total number for the current calendar year; and
 - e. All strip charts or other temperature records.
31. The owner/operator of S-27, S-29, S-31, and S-32 shall maintain records of the following: VOC content, and net usage on a monthly basis in a District-approved log and retained on site for a minimum of five years from the date of entry: [basis: cumulative increase]
 - a. ink, coating, makeup solvent, and cleanup solvent type (waterborne, solvent borne, metallic)

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- b. ink, coating, makeup solvent, and cleanup solvent VOC content (pounds per gallon, as applied)
 - c. ink, coating, makeup solvent, and cleanup solvent net usage (pounds per month)
 - d. calculation of monthly VOC emissions (pounds per month) based on a 97% overall abatement efficiency for solvent based inks. For water based inks, assume all VOC contained in water based inks are emitted.
32. The temperature data collected from the temperature recorder shall be maintained in a file which shall be available for District inspection for a period of at least five years following the date on which such data or reports are recorded or made. [basis: BACT]

Facility Wide Conditions

33. The owner/operator shall calculate and maintain records on a monthly basis of the quantities of HAPs and POC emitted into the atmosphere from all sources at the facility. The owner/operator shall use the manufacturer's chemical speciation data or the MSDS information to calculate the HAPs and POC emissions. For abated operations, the overall control efficiency shall be considered to be the overall control efficiency required by part 2, 17, and 31d, provided that, the most recent source test for the abatement device meets the destruction efficiency requirements in part 3 and 21. For unabated operations, all HAPs shall be considered fugitive. Within 30 days of the end of each month the HAPs and POC emission must be totaled for the last consecutive 12-month period to ensure compliance with part 1. A summary of these records shall be submitted to the District's Director of Compliance & Enforcement on an annual basis. [basis: Regulation 2-4-414]
34. To determine the emission compliance in part 1, the owner/operator of this source shall maintain the following data on a daily basis:
- a. operating time of all sources.
 - b. amount and type of coating applied, by use of a daily measurement and a daily District approved log.
 - c. amount of clean-up solvent used.
 - d. a list of all products coated per day and the production rate for each.
 - e. charts from the temperature recorder at each oxidizer (catalytic and thermal).
 - f. all invoice records of coatings and solvents purchased.
 - g. thinning ratios for respective coatings being thinned.
 - h. maintain records of Material Safety Data Sheets (MSDS) or other product information identifying the POC content and individual HAP contents for each of the solvent-containing materials used at all sources
 - i. calculate monthly emissions of POC and individual HAPs from each source as listed in part 1, based on the quantities of materials used and the chemical composition information from the associated Material Safety Data Sheets (MSDS)
 - j. calculate total POC and individual HAP emissions from the total of all sources for each month, and on a rolling 12-month basis.

Records shall be available for District inspection for a period of at least five years following the date on which such data or reports are recorded or made.
[basis: BACT, Cumulative Increase, Synthetic minor]

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35. The Owner/Operator shall prepare an annual emissions report. The report shall contain the following items for the year ending April 1:
- a. Monthly report on each individual HAP and total individual HAP emissions for the rolling 12 month period.
 - b. Monthly report on each POC and total POC emissions for the rolling 12 month period.
- This report shall be submitted to the Director of Compliance and Enforcement by June 1 of each year.
[basis: Synthetic Minor]
36. Together with the annual emissions report, the owner/operator shall submit an annual certification of compliance, signed by the owner/operator's responsible official. The certification shall read: "Under penalty of perjury, I certify the following: based on information and belief formed after reasonable inquiry, the owner/operator facility has been in compliance with the synthetic minor conditions for the following period of time:_____"
37. The owner/operator shall report non-compliance with any of the conditions in writing to the Director of Compliance and Enforcement within 10 calendar days of discovery of non-compliance.
[basis: Synthetic Minor]

October 15, 2008

Date

Signed by Greg A Stone for Pamela J. Leong
Pamela Leong
Air Quality Engineer II

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Appendix A Emission Calculations from Exempt Sources

S-33 Cold Cleaner: Parts Washer

Calculations for VOC Emissions from a SWS System utilizing HCS 402

Given following data:

P_{vap}	Vapor Pressure	0.011 psia @ 65° F
		Assumes 55° F water
MW_{av}	Average Molecular Weight	126
T_R	Cooling Coil Temp (55°F + 460)	525° Rankine
R	Gas Law Constant	10.73 lbs ft ³ /psia °R

To calculate the potential emissions from the exhaust of a wash chamber:

$$\text{Weight Emissions (lbs)} = \text{Flowrate of Blower (cfm)} \times \text{Saturated Vapor Density} \\ \times \text{Exhaust Time (min)}$$

Saturated vapor density calculation:

From Gas law equation: $P_{vap} * V = n * R * T$

$$P_{vap} * V = (m/MW) * R * T$$

or lb/ft³ Envirosoolv = $P_{vap} * \text{Mol Wt(Envirosoolv)} / R * T^{\circ R}$

$$= 0.011 \text{ psia} * 126 / 10.73 \text{ (lb ft}^3\text{/psia }^{\circ}\text{R)} * 525^{\circ}\text{R}$$
$$= .00025 \text{ lb/ft}^3$$

$$\text{For HCS 402: lbs VOC} = 800 \text{ ft}^3\text{/min} \times .00025 \text{ lb/ft}^3 \times 5 \text{ min} * 50\% = \mathbf{0.5 \text{ lbs per cycle}}$$

A 50% correction factor is used assuming a completely saturated wash chamber at the beginning of the exhaust and a linear decrease in emissions until dry at the end of the exhaust time. This factor is based on data from other installations.

$$\text{Cleaning cycles per day} = 1 \text{ per shift} \times 3 \text{ shifts/day} = 3 \text{ cleaning cycles/day}$$

$$\text{Cleaning cycles per year} = 3 \text{ cycles/day} \times 365 \text{ days/year maximum} = 1,095 \text{ cycles/year maximum}$$

$$\text{Annual POC emissions} = 1,095 \text{ cycles/year} \times 0.5 \text{ lbs POC/cycle} = 547.5 \text{ lb/yr}$$
$$= 0.27 \text{ tpy} (< 5 \text{ tons/yr})$$

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S-35 Plastic Film Extrusion Line

PPPI-Newark
Plastic Film Extrusion Line Emission Calculations

Note: Emission factor equations from Society of the Plastics Industry (SPI)

Processing Rates of Resins:

Maximum Hourly Rate = 600 lbs/yr

Maximum Annual Rate = 2628 tons/yr

VOC Emissions:

Lbs. VOC/MMLbs. Processed = $[1.22075 * T] - 575.04$

Assume a maximum processing temperature of: 550 deg. F

Emission Factor (Lbs. VOC/MMlbs.) = 96.3725

Maximum lbs VOC/hr = 0.058

Maximum tons VOC/yr = 0.25 (< 5 tons/yr)

Particulate Emissions:

Lbs. PM/MMLbs. Processed = $[2.223355 * T] - 1025.2$

Assume a maximum processing temperature of: 550 deg. F

Emission Factor (Lbs. PM/MMlbs.) = 136.5375

Maximum lbs PM/hr = 0.082

Maximum tons PM/yr = 0.36 (< 5 tons/yr)

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S-36 Batch Solvent Still Recycler: 40 gal/hr

PPPI-Newark

Batch Solvent Recycling (Flammable Solvent Still) Emission Calculations

Note: Emission factors from AP-42 Table 4.7-1 (for flammable solvent)

Source:	EF (lbs/ton)
Storage tank vent:	0.02
Condenser vent:	Not Applicable (not equipped w/ condenser vent)
Fugitive Emission – spilling:	0.20
Fugitive Emission – loading:	0.72
Sum:	0.94

Processing Rates of Flammable Solvent:

Maximum Hourly Rate = 280 lbs/yr (40 gal/hr @ 7 lbs./gal)

Maximum Annual Rate = 1226.4 tons/yr

Maximum lbs. VOC/hr = 0.13

Maximum tons VOC/yr = 0.58 (< 5 tons/yr)

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S-37 Batch Solvent Still Recycler: 40 gal/hr

PPPI-Newark

Batch Solvent Recycling (Low Volatility Solvent Still) Emission Calculations

Note: Emission factors from AP-42 Table 4.7-1 (for flammable solvent)

Source:	EF (lbs/ton)
Storage tank vent:	0.02
Condenser vent:	Not Applicable (not equipped w/ condenser vent)
Fugitive Emission – spilling:	0.20
Fugitive Emission – loading:	0.72
Sum:	0.94

Per MSDS data for the low volatility solvent:

The low volatility solvent vapor pressure is app. 0.4 mm HG at 70 deg. F

The low volatility solvent flash point is app. 158 deg. F

The low volatility solvent minimum boiling point is app. 338 deg. F

Therefore presume a max. emission factor for this still of 0.5 lbs/ton

Processing Rates of Flammable Solvent:

Maximum Hourly Rate = 320 lbs/yr (40 gal/hr @ 8 lbs./gal)

Maximum Annual Rate = 1401.6 tons/yr

Maximum lbs. VOC/hr = 0.08

Maximum tons VOC/yr = 0.35 (< 5 tons/yr)

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S-38 Six Ozone Generators: Corona Treatment Equipment

PPI-Newark

Corona Treatment Equipment Ozone (O3) Emission Calculations

Emission Factor: 0.073 lb/hr * KW

Note: Emission Factor from Enercon Industries Corp.

Source	Power (KW)	Max. Run (hrs/yr)	Overall Collection and Control Efficiency (%)*	Maximum Ozone Emission (lbs/yr)	Maximum Ozone Emission (tons/yr)
Press P-6 Corona Treater #1	12	8760	97	230	0.12
Press P-6 Corona Treater #2	12	8760	97	230	0.12
Total Press P-6				460	0.23 < 5 tpy
Press P-7 Corona Treater #1	12	8760	97	230	0.12
Press P-7 Corona Treater #2	12	8760	97	230	0.12
Total Press P-7				460	0.23 < 5 tpy
Press P-78 Corona Treater #1	12	8760	97	230	0.12
Press P-8 Corona Treater #2	12	8760	97	230	0.12
Total Press P-8				460	0.23 < 5 tpy

*Note: Collection and control of corona treater exhaust is integral to the corona treatment process since fresh air supply for the corona treaters will be from within the permanent total enclosure.

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S-39 QC Laboratory Testing

IPA is dispensed from a squirt bottle. Maximum of one gallon per month is used.

$$\text{Annual POC emissions} = (12 \text{ gal/yr})(6.53 \text{ lb/gal}) = 78.36 \text{ lb/yr} = 0.04 \text{ tpy}$$

S-40 Ink and Coating Mixing

130 gallons of ink and coating are mixed per day.

The most commonly used coating with the highest VOC content will be used to calculate organic emissions.

$$\begin{aligned} \text{Tons of paint mixed per year} &= (130 \text{ gal/day})(5.83 \text{ lb/gal})(365 \text{ days/yr}) \\ &= 276,633.6 \text{ lbs/yr} = 138.32 \text{ tpy} \end{aligned}$$

The emission factor for paint mixing is from EPA AP-42 Table 6.4-1 "Uncontrolled Emission Factors for Paint and Varnish Manufacturing"

Emissions from the mixing of paint = 30 lbs POC/ton of paint mixed

$$\text{Annual POC emissions} = (30 \text{ lbs/ton})(138.32 \text{ tpy}) = 4,149.50 \text{ lb/yr} = 2.07 \text{ tpy}$$