Synthetic Minor Operating Permit Application Evaluation Report
Silgan Containers Manufacturing Corp.
Application #12051 – Site (Plant) #14327

Background:

Silgan Containers Manufacturing Corp., Plant #14327 (formerly know as Crown Cork and Seal, Plant # 10989), located at 2200 Wilbur Ave., Antioch, California, is a metal can coating manufacturing plant. The company's Title V was issued on January 31, 2001 and will be expired on January 31, 2006. On November 29, 2004, EPA has removed Ethylene Glycol Monobutyl Ether from the list of Hazardous Air Pollutants (HAPs); therefore, Silgan Containers is now qualified as a Synthetic Minor Plant for Title V permit because the emission from each individual HAP is less than 10 tons per year and total combined HAP is less than 25 tons per year per Regulation 2, Rule 6.

The sources identified at this plant include:

Permitted Sources

S-1 No. 1 Sheet Coater equipped with either Anilox single-roller or Wagner two-roller, and the back roller cleaning system may be either a solvent flood, brush, felt bar or a solvent-less scraper system, abated by A-1 Direct Flame Afterburner, J.P. Thorpe, 10 MMBtu/hr capacity.
S-2 Oven No.1 Coater, Wagner, abated by A-1 Direct Flame Afterburner, J.P. Thorpe, 10 MMBtu/hr capacity.
S-3 No. 2 Sheet Coater equipped with either Anilox single-roller or Wagner two-roller, and the back roller cleaning system may be either a solvent flood, brush, felt bar or a solvent-less scraper system, abated by A-1 Direct Flame Afterburner, J.P. Thorpe, 10 MMBtu/hr capacity.
S-4 Oven No.2 Coater, Wagner, abated by A-1 Direct Flame Afterburner, J.P. Thorpe, 10 MMBtu/hr capacity.
S-5 Spent Solvent Tank, 2300 gallons capacity.

Emission Limits Strategy and emission calculation

To obtain a synthetic minor permit, a facility must have federally enforceable emission limits that keep the potential to emit below 95 tons per year of any regulated air pollutant, below 9 tons per year of any single HAP, and below 23 tons per year of any combination of HAPs.

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 records are kept, and the emission are calculated monthly with a total summary of twelve consecutive months.

The District imposed a twelve month throughput limitation on each source or group of sources, and Silgan Containers is required to keep a record of daily throughput, summarized on a monthly basis and monthly year-to-date summaries. The sum of

twelve months of operation would not exceed the rolling annual throughput limit is an acceptable approach in this case for the facility with many different coatings. Silgan Container will submit a usage report every year. In addition, their records will be inspected at least annually to determine compliance. The records will clearly show if, when, and for how long the plant has been out of compliance and the District will take enforcement action accordingly. EPA is also free to inspect the records at any time.

A listing of the HAPs currently in use at Silgan Container is as follows:

- Ethylbenzene
- Methyl Isobutyl Ketone
- Diethylene Glycol Monobutyl Ether
- Cumene
- Isophorone
- Butyl Cellosolve Acetate
- Formaldehyde
- Phenol
- Naphthalene
- Toluene
- Benzene

Emissions calculation from S-1, S-2, S-3, S-4 abated by A-1 Direct Flame Afterburner.

The existing throughput limit imposed in condition # --------, Part 3 will be used for all four sources, S-1 through S-4, which limit to annual throughput to less than 104,720 gallons of coating. If more than 104, 720 gallons per year is used, then Silgan Containers must demonstrates that the total annual emissions are less than 32.9 tons per year of Precursor Organic (POC).

The POC emissions from S-1 through S-4 are being abated by the Direct Flame Afterburner, A-1, with an operating temperature of at least 1450 ^{0}F, and with an overall control efficiency of 90%. The District conducted a source test on February 8, 2001 to verify compliance with the overall efficiency of 90% for sources S-1 through S-4 and A-1 afterburner.

The table below summarized total HAP Emissions from different coatings ranging from the most frequently used coating (V.20.5) to the worst case scenario with the highest possible HAPs from other coatings assuming the target coating is used until maximum 32.9 tons POC is emitted.

	Frequently Used Coating		
HAP	Weight %	tons/yr (V.20.5)	tons/yr (coatings)
Xylene	0.14	0.046 (V.20.5)	12.6 (G.24.4)
Ethylbenzene	0.07	0.023 (V.20.5)	14.82 (E.13.5)
Methyl Isobutyl Ketone	0.10	0.033 (V.20.5)	6.13 (E.13.5)
Diethylene Glycol Monobutyl Ether			1.90 (CH.8.5)
Cumene			0.23 (E.12.1)
Isophorone			4.92 (G.21.5)
Butyl Cellosolve Acetate			2.31 (W.34.5)

Formaldehyde	0.02	0.007 (V.20.5)	0.23 (A.30.5)
Phenol			0.46 (A.30.5)
Naphthalene			0.69 (W.10.5)
Toluene	0.07	0.023 (V.20.5)	0.18 (O.116.2)
Benzene			0.01 (G24.4)
Total		0.132 (V20.5)	

Note: Coating G.24.4 has not been used; only 300 gallons of E.13.5 have been used in 2004 and none for 2005 so far.

Natural-Gas Fired Equipment: A-1 Direct Flame Afterburner:

The burners from S-2 and S-4, Coating Ovens have never been used since installations of the ovens. The ovens are heated between 200-400 ^{0}F by circulated, exhausted air from the Direct Flame Afterburner. Therefore, only the combustion emissions of the Direct Flame Afterburner at the design capacity of 10 MMBtu/hr are calculated here. The natural gas combustion products from the Direct Flame Afterburner are tabulated below.

- Afterburner = 10 MMBtu/hr
- Operation hours = 24 hour/day, 7 day/wk, 52 wk/yr
- Heat capacity = 1,020 MMBtu/10^6 ft^3 natural gas
- Emission factors taken from AP-42, Table 1.4-1 and 2 (revised 7/1/98) for small boiler <100 MMBtu/hr
  NOx = (100 lb/MMscf)/(1020 MMBtu/10^6 ft^3) = 0.098 lb/MMBtu
  CO = (84 lb/MMscf)/(1020 MMBtu/10^6 ft3) = 0.082 lb/MMBtu
  SO2 = (0.6 lb/MMscf)/(1020 MMBtu/10^6 ft^3) = 5.882 x 10^{-4} lb/MMBtu
  PM10 = (7.6 lb/MMscf)/(1020 MMBtu/10^6 ft^3) = 0.00745 lb/MMBtu
  POC = (5.5 lb/MMscf)/(1020 MMBtu/10^6 ft^3) = 0.00539 lb/MMBtu
  NPOC = (2.3 lb/MMscf)/(1020 MMBtu/10^6 ft^3) = 0.00225 lb/MMBtu

NOx = 87,360 MMBtu/yr X 0.098 lb/MMBtu = 8,561 lb/yr, or 4.28 ton/yr
CO = 87,360 MMBtu/yr X 0.082 lb/MMBtu = 7,163 lb/yr, or 3.58 ton/yr
SO2 = 87,360 MMBtu/yr X 0.0005882 lb/MMBtu = 51 lb/yr, or 0.026 ton/yr
PM10 = 87,360 MMBtu/yr X 0.00745 lb/MMBtu = 651 lb/yr, or 0.325 ton/yr
POC = 87,360 MMBtu/yr X 0.00539 lb/MMBtu = 471 lb/yr, or 0.235 ton/yr
NPOC = 87,360 MMBtu/yr X 0.00225 lb/MMBtu = 197 lb/yr, or 0.098 ton/yr

NOx 4.28 tons per year
CO 3.58 tons per year
SO2 0.026 tons per year
POC 0.235 tons per year
NPOC 0.098 tons per year
PM10 0.325 tons per year

The only sources of NOx, CO and SO2 are from the products of combustion and are very low. The amount of VOC and PM10 from combustion is extremely 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.

S-5 Spent Solvent Tank

The POC emissions from this tank are based on AP-42 Tank 4.0 program. Silgan Containers accepted total throughput of 10,130 gallons of spent solvent per consecutive 12 months. The total estimated POC emissions are 1.11 pounds per year. See attached Tanks 4.0 emission report for detail calculation.

Statement of Compliance:

This facility is in compliance with the necessary requirements in Regulation 2, Rule 6 to obtain a synthetic minor permit. Silgan Container has voluntarily accepted federally enforceable permit conditions including emission limits that will keep its annual emissions within 32.9 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

Silgan Containers Manufacturing Corp. Site #B4327 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 2370 for S-1, S-2, S-3 and S-4 (Applications 13030 & 15645)
- Condition 10946 for S-5 (Applications 13030 & 15645)

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

Synthetic Minor Condition #--------

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 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]

<u>For S-1, S-2, S-3 and S-4</u>

2. In no event shall the total combined daily and annual emissions from S-1, S-2, S-3, and S-4 exceed 32.9 tons of Precursor Organic Compounds (POC) in any consecutive 12 month period. [basis: BACT]

3. The total coating and solvent usage at sources S-1, S-2, S-3 and S-4 shall not exceed 104,720 gallons in any consecutive 12 month period unless the operator of this source can demonstrate that a change in coating usage and/or composition would not result in emissions exceeding those stipulated in Part #1. [basis: BACT, Cumulative Increase]

4. VOC emissions from coatings used at sources S-1, S-2, S-3 and S-4 shall be controlled by at least 90% on a mass basis overall (capture and destruction efficiencies combined). [basis: BACT]

5. Precursor Organic Compound (POC) emissions from S-1, S-2, S-3, and S-4 shall be controlled by a Direct Flame Afterburner, A-1 during all periods of operation. [basis: BACT]

6. The Precursor Organic Compound destruction efficiency of the afterburner shall be maintained at a minimum of 98.5%, by weight. [basis: BACT]

7. Afterburner, A-1, shall be properly maintained and kept in good operating condition at all times. In no event shall the afterburner temperature (average of the three thermocouples) be less than 1450 degrees F. when S-1, S-2, S-3, and/or S-4 are in operation, unless the permit holder can demonstrate to the satisfaction of the APCO that the permit conditions can be met with the afterburner operating at a lower temperature. The temperature shall be

automatically controlled at all times during operation of S-1, S-2, S-3, and/or S-4. [basis: BACT]

8. To determine compliance with Part #6, the afterburner shall be equipped with continuous measuring and recording instrumentation consisting of at least 3 thermocouple temperature probes in the afterburner and at least one recording device, which will continuously record the afterburner temperature as measured by each of the 3 probes. [basis: BACT]

9. The temperature limit in Part 6 shall not apply during an "Allowable Temperature Excursion", provided that the temperature controller set point complies with the temperature limit. An Allowable Temperature Excursion is one of the following:

   a. A temperature excursion not exceeding 20 degrees F; or
   b. A temperature excursion for a period or periods which when combined are less than or equal to 15 minutes in any hour; or
   c. A temperature excursion for a period or periods which when combined is more than 15 minutes in any hour, provided that all three of the following criteria are met.
      i. the excursion does not exceed 50 degrees F;
      ii. the duration of the excursion does not exceed 24 hours; and
      iii. the total number of such excursions does not exceed 12 per calendar year (or any consecutive 12-month period).

   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. [basis: Regulation 2-1-403]

10. For each Allowable Temperature Excursion that exceeds 20 degrees F. and 15 minutes in duration, the Permit Holder shall keep sufficient records to demonstrate that they meet the qualifying criteria described above. Records shall be retained for a minimum of five years from the date of entry, and shall be made available to the District upon request. Records shall include at least the following information:

    a. Temperature controller set point;
    b. Starting date and time, and duration of each Allowable Temperature Excursion;
    c. Measured 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.
    [basis: Regulation 2-1-403]

11. For the purposes of parts 8 and 9, a temperature excursion refers only to temperatures below the limit.

12. 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]

13. To ensure emissions capture, the average intake flow velocities (face velocity) at each emissions collection point for the above sources shall be 100 ft/min or more.

    The owner/operator shall verify the face velocity at each collection point on a quarterly basis. [Basis: Regulation 2-6-501]

14. To determine compliance, the operator of this source shall maintain the following data on a daily basis:
    a. operating time of Coating Lines 1 & 2.
    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 sheet production rate for each product (sheets/day).
    e. film thickness requirements of product being coated.
    f. charts from the afterburner temperature recorder.
    g. all invoice records of coatings and solvents purchased.
    h. thinning ratios for respective coatings being thinned.
    i. 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
    j. calculate monthly emissions of POC and individual HAPs from each source, based on the quantities of materials used and the chemical composition information from the associated Material Safety Data Sheets (MSDS)
    k. 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]

15. Rail shipments/receipts from/to the permit holder shall not exceed 50,000 tons during any consecutive 12-month period. A District approved log shall be kept for all rail activity at the facility.
    [basis: Cumulative Increase]

16. In accordance with the provisions of Regulation 2-3-414, should the facility precursor organic compound (POC. emissions ever equal or exceed 35 tons per year, on a pollutant specific basis, the facility owner/operator shall reimburse the District with emission reduction credits for all offsets of that pollutant provided from the Small Facility Banking Account or its predecessor, the Small Facility Bank. [basis: Offsets]

17. 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]

18. 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:_____"

19. 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]

For S-5 solvent tank

20. The total throughput for S-5 shall not exceed 10,130 gallons during any consecutive 12-month period. [basis: cumulative increase]

21. The true vapor pressure of the bulk material stored in S-5 shall not exceed 1.0 psia. [basis: cumulative increase]

22. To demonstrate compliance with the above conditions, the following records shall be kept on site and made available for District inspection for a period of five years from the date on which a record was made.
    a. The types of organic liquids stored
    b. The true vapor pressure of each liquid stored, and;
    c. The quarterly throughput quantities.
    [basis: cumulative increase]

_____ _____

Date Thu Bui
Air Quality Engineer II

h:\pub_data\titlev\synmin\evals\12051e.doc