United States Environmental Protection Agency
Region 10, Office of Air, Waste and Toxics AWT-150
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

Permit Number: R10NT502700
Final Issued: June 8, 2015
AFS Plant I.D. Number: 530-770-0032

Non - Title V Air Quality Operating Permit

This permit is issued in accordance with the provisions of 40 CFR § 49.139 and applicable rules and regulations to

Silgan Containers Manufacturing Corporation, Toppenish Plant

for operations in accordance with the conditions listed in this permit, at the following location:

Yakama Reservation
45 E 3rd Avenue
Toppenish, WA 98948-1783

Person Responsible for Compliance: Bob Bennett
Environmental Engineer
Silgan Containers Manufacturing Corporation
4216 Kiernan Avenue, Suite 101
Modesto, CA 95356
Phone: 209-491-7334

OR

Paul Kogut
Plant Manager
Silgan Containers Manufacturing Corporation
45 East 3rd Avenue
Toppenish, WA 98948-1783
Phone: 509-865-4125
pkogut@silgancontainers.com

A technical support document that describes the bases for conditions contained in this permit is also available.

Kate Kelly, Director
Office of Air, Waste and Toxics
U.S. Environmental Protection Agency, Region 10

6/8/15
Date

1. General Conditions

1.1. For purposes of this permit, the permitted source consists of the following equipment and/or activities. The information in this table is for descriptive purposes only.

Material Types	Description	Control Device
Coatings & Sealants	Application of VOC-containing coatings and sealants associated with the manufacture of three-piece metal cans. Liquid side stripes (coatings) are sprayed inside and/or outside of can side welds. End compounds (sealants) are sprayed on can ends.	None for VOC. There are filters designed to capture coating overspray particulate, but these filters do not capture/control VOC.
Solvents	Usage of VOC-containing solvents associated with the manufacture of two-and three piece cans. Lubricants (solvent) are applied to coating and sealant spray nozzles. Solvents are used to clean parts.	None
Inks	Application of VOC-containing inks used to mark can bodies and can ends.	None
Natural Gas	Natural gas fired space heaters and ovens for curing of side stripe coatings.	None

1.2. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Air Act.

1.3. Compliance with the terms of this permit does not relieve or exempt the permittee from compliance with other applicable Clean Air Act requirements or other applicable federal, tribal, state or local laws or regulations.

2. Emission Limits and Work Practice Requirements

2.1. At all times, including periods of startup, shutdown, maintenance and malfunction, the permittee shall, to the extent practicable, maintain and operate each emission unit, including any associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions and considering the manufacturer's recommended operating procedures. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the source.

2.2. Emissions of VOC from this source shall not exceed 77.2 tons/yr as determined on a rolling 12-month basis by calculating the emissions (tons/month) for each month and adding the emissions for the previous eleven months. Monthly VOC emissions (tons/month) shall be determined using the following equation:

$$\text{Monthly VOC Emissions} = \left[[(NG) \times (EF) \times (CF)] + \sum_{i=1}^{n} (Vol_i) \times (D_i) \times (W_i) \right] / 2000$$

Where:

NG = scf of natural gas combusted in plant each month
EF = natural gas VOC emission factor: 5.5 lb/10^6 scf
CF = conversion factor = (10^6 scf)/($1x10^6$ scf)
Vol_i = volume (gal/mo) of each coating, sealant, solvent and ink used each month
D_i = density (lbs/gal) of each coating, sealant, solvent and ink
W_i = mass fraction (lb/lb) of VOC in each coating, sealant, solvent and ink
n = number of coatings, sealants, solvents and inks used each month

3. Monitoring and Recordkeeping Requirements

3.1. Each month the permittee shall calculate and record source-wide monthly and rolling 12-month total emissions (tons) for all emission units and pollutant-emitting activities that emit VOC using the equation in Permit Condition 2.2.

3.2. The permittee shall install, calibrate, maintain and operate equipment or systems (which may include an Environmental Database Management System) for tracking and recording the operation and production, such that source-wide emissions can be calculated on a monthly and rolling 12-month basis, including, but not limited to:

3.2.1. Monitoring continuously and recording monthly the total quantity (scf) of natural gas combusted throughout the plant;

3.2.2. Monitoring continuously and recording monthly the volume (gallons) of each coating, sealant, solvent or ink applied or used;

3.2.3. Monitoring continuously and recording monthly the density (lb/gallon) of each coating, sealant, solvent or ink applied or used;

3.2.4. Monitoring continuously and recording monthly the mass fraction of VOC (lb VOC/lb) in each coating, sealant, solvent or ink applied or used; and

3.2.5. Continuously recording all purchases of coatings, sealants, solvents and inks.

3.3. The permittee shall maintain records for at least five years of emission calculations and raw data and parameters used in the calculations.

4. Reporting Requirements

4.1. Once each year, on or before February 15, the permittee shall, along with the annual registration required by 40 CFR § 49.138(e)(2), submit to Region 10 a report containing the twelve monthly rolling 12-month emissions calculations for the previous calendar year.

4.2. The report required under Permit Condition 4.1 shall contain a description of all emission estimating methods used, including emission factors and their sources, a summary of materials usage, materials characteristics (density and VOC content), assumptions made, and operations data.

4.3. All submittals, notifications and reports to Region 10 shall be sent to:

Tribal Air Permits Coordinator, AWT-150
Office of Air, Waste and Toxics
U.S. EPA, Region 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Copies to: Environmental Management Program
Yakama Nation
P.O. Box 151
Toppenish, WA 98948

5. Acronyms, Abbreviations & Units

10^6btu	One Million Btu (or MMBtu)
10^3gal	One Thousand Gallons
AFS	Air Facility System (an EPA database)
As	Arsenic
ASTM	American Society for Testing and Materials
Be	Beryllium
btu	British Thermal Unit (or Btu)
Cd	Cadmium
CFR	Code of Federal Regulations
CH_4	Methane
CMMS	Computer Maintenance Management System
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Cr	Chromium
CrVI	Chromium VI
DAF	Dissolved Air Flotation Unit
Diesel	Diesel Fuel, No. 2 Fuel Oil, Distillate Oil
EDMS	Environmental Database Management System
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FARR	Federal Air Rules for Reservations
FIP	Federal Implementation Plan
FR	Federal Register
ft	Feet
ft^3	Cubic Feet
FWS	U.S. Fish & Wildlife Service
gal	Gallon
GHG	Greenhouse Gas
gr	Grains
GWP	Global Warming Potential
H2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant
HCOH	Formaldehyde
Hg	Mercury
hp	Horsepower
hr	Hour
kW	Kilowatt
L	Liter
lb	Pound
MAU	Make-Up Air Unit
min	Minute
ml	Milliliter
Mn	Manganese
mo	Month
N2O	Nitrous Oxide
nat gas	Natural Gas
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for HAP
NHPA	National Historic Preservation Act
Ni	Nickel
NMFS	National Marine Fisheries Services
NMTOC	Non Methane Total Organic Carbon
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
O&M	Operation & Maintenance
PAH	Polynuclear Aromatic Hydrocarbons
Pb	Lead
PM	Particulate Matter
PM_{10}	PM with an aerodynamic diameter < 10 um
$PM_{2.5}$	PM with an aerodynamic diameter < 2.5 um
POM	Polycyclic Organic Matter
ppm	Parts per Million
ppmv	Parts per Million by Volume
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
Region 10	EPA, Region 10
RSC	Reduced Sulfur Compound
scf	Standard Cubic Feet
Se	Selenium
SO_2	Sulfur Dioxide
TSD	Technical Support Document
um	Micrometer
ug	Microgram
VOC	Volatile Organic Compound
yr	Year

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Technical Support Document
Non-Title V Air Quality Operating Permit

Permit Writer: Wallace Reid

Silgan Containers Manufacturing Corporation, Toppenish Plant

Yakama Reservation
45 E 3rd Avenue
Toppenish, Washington 98948-1783

Purpose of Owner-Requested Non-Title V Operating Permit and Technical Support Document

Title 40 Code of Federal Regulations Section 49.139 establishes a permitting program to provide for the establishment of federally-enforceable requirements for air pollution sources located within Indian reservations in Idaho, Oregon and Washington. The owner or operator of an air pollution source who wishes to obtain a federally-enforceable limitation on the source's actual emissions or potential to emit must submit an application to the Regional Administrator requesting such limitation.

The United States Environmental Protection Agency, Region 10, then develops the permit via a public process. The permit remains in effect until it is modified, revoked or terminated by Region 10 in writing.

This document, the technical support document, fulfills the requirement of 40 CFR § 49.139(c)(3) by describing the proposed limitation and its effect on the actual emissions and/or potential to emit of the air pollution source. Unlike the air quality operating permit, this document is not legally enforceable. The permittee is obligated to follow the terms of the permit. Any errors or omissions in the summaries provided here do not excuse the permittee from the requirements of the permit.

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1. Authority to Issue Non-Title V Permits

On April 8, 2005, Region 10 adopted regulations (70 FR 18074) codified at 40 CFR Parts 9 and 49, establishing Federal Implementation Plans under the Clean Air Act for Indian reservations in Idaho, Oregon and Washington. The FIPs, commonly referred to as the Federal Air Rules for Reservations, put in place basic air quality regulations to protect health and welfare on Indian reservations located in the Pacific Northwest. In the FARR, 40 CFR § 49.139 creates a permitting program for establishing federally enforceable requirements for air pollution sources on Indian reservations. This permit has been developed pursuant to 40 CFR § 49.139.

2. Plant Information

2.1 Location

The Silgan Containers Manufacturing Corporation (also known as the permittee) plant is located in Toppenish, Washington, within the exterior boundaries of the Yakama Reservation.

Tribal Contact: Elizabeth Sanchey, Program Manager
Environmental Management Program
Yakama Nation
P. O. Box 151
Toppenish, Washington 98948
Phone: 509-865-5121 x6038
Email: esanchey@yakama.com

2.2 Local Air Quality and Attainment Status

The Yakama Reservation is in attainment with the national ambient air quality standards or is unclassifiable. The subject plant is not located in a designated nonattainment area. With respect to prevention of significant deterioration impact evaluation, the majority of the reservation is classified as Class II lands.

2.3 General Description of Operations and Products

The Silgan Containers Manufacturing Corporation, Toppenish plant is a steel can manufacturing operation, producing a range of can sizes and types for edible food products. The North American Industry Classification System code is 332431, and the Standard Industrial Classification Code is 3411: comprising establishments primarily engaged in steel can manufacturing.

During the manufacture of steel cans at the Silgan Toppenish Plant, Silgan uses coatings, sealants, solvents, inks for a variety of purposes and burns natural gas for heating and curing, all of which result in VOC emissions from the plant. The can manufacturing description that follows is intended to highlight the processes that generate VOC emissions during the can manufacturing process.

The Silgan Toppenish Plant produces two basic can types of various sizes: a 3-piece can (meaning one can body and two can ends); and, a 2-piece can (one can body that includes one end that is formed from a single piece of sheet steel, and one can end). The Silgan Toppenish Plant uses pre-coated sheet steel as a raw material in their manufacturing operations. However, these pre-coatings on the sheet steel, if present, are not applied at the Silgan Toppenish Plant, so VOC emissions from these coating are not expected. Can ends are also manufactured at the plant for both can types; the 3-piece can requires two can ends while the 2-piece can requires one can end.

3-Piece Can Manufacturing

The Silgan Toppenish Plant has three 3-piece welded can manufacturing lines. Line speeds can range from 300 to 700 cans per minute (CPM). The 3-piece cans are made by cutting rectangular body blanks from a sheet of steel, rolling the steel into a tube shape, and welding the side to form the can body. A side stripe (a 0.5 to 1 inch wide coating covering the can weld) may be applied to the weld on the inside, outside or both, to protect the steel from damage by can contents or the external environment. The side stripe application, when using a liquid coating, can be a source of VOC emissions. A powder-based coating, which is not a source of VOC emissions, is also used. The liquid coating is dried in natural gas-fired curing ovens. The curing oven emissions, which will include VOCs, are vented through stacks.

2-Piece Can Manufacturing

The Silgan Toppenish Plant has two 2-piece can manufacturing lines. Line speeds range from 100 to 600 cans per minute. The 2-piece cans are made by cutting a circle/disk from a sheet or strip of steel and then forming a rough cup shape. The cup is then drawn into the shape of the final can. No coatings or sealants are applied during this process, and no VOC emissions are expected.

Can End Manufacturing

There are two lines for manufacturing can ends. Some of these can ends are then attached to one end of the 3-piece cans, and the remainder are for customer use after food contents have been added to the cans. The process of adding food contents to the cans and then sealing them with a can end (for both 2-piece and 3-piece cans) does not occur at the Silgan Toppenish Plant. Line speeds are about 600 can ends per minute. Steel strips are cut with a die into disks, the disks are formed with a press, and a ribbon of sealing compound is added to the inside of the can end. The compound contains organic solvents, such as heptane, which are emitted as the sealant cures. A small amount of lubricant is applied to the compound nozzle during production, to prevent clogging. The lubricant contains a solvent, such as mineral spirits, which is emitted as the lubricant is applied. Filters, nozzles and other parts are cleaned with heptane. The volatile emissions from compound application and nozzle application are emitted inside the manufacturing plant and are eventually released outside via building vents.

Can Body and Can End Marking

The can bodies and ends may be marked/coded with a high-speed inkjet printing system to identify where and when the cans were made. Some VOC emissions are created by air drying of the ink. These emissions are also eventually released outside via building vents.

Parts Cleaning

Various cleaning operations occur on the processing lines or in the shops. A low volatility parts cleaner is used for these processes. VOCs from parts cleaning are emitted inside the manufacturing plant and are eventually released outside via building vents.

Natural Gas Usage

Natural gas is used at the Silgan Toppenish Plant for heating curing ovens and for space heating. Each of the three 3-Piece can lines include a natural gas-fired oven to facilitate curing of the seam weld coating. All other natural gas usage is for space heating. There is one metered natural gas location at the plant for monitoring all natural gas usage.

The VOC-emitting plant processes have been sorted into five non-fugitive emission units (EU) by Silgan: EU-100, EU-200, EU-300, EU-500 and EU-600. The designation “EU-400” is not used; it may have been associated with a former emission unit that is no longer present at the Silgan Toppenish Plant. Each emission unit is briefly described below.

EU-100

This emission unit is the total of all VOC emissions occurring from the application and use of coatings, sealants, solvents and inks on the three 3-piece can manufacturing lines.

EU-200

This emission unit is the total of all VOC emissions occurring from the application and use of coatings, sealants, solvents and inks on the two can end press manufacturing lines.

EU-300

This emission unit is the total of all VOC emissions occurring from the application and use of coatings, sealants, solvents and inks on the two 2-piece can manufacturing lines.

EU-500

This emission unit is the total of all VOC emissions occurring from the combustion of natural gas at the plant. VOC emissions are calculated using an emission factor based upon the amount of natural gas burned.

EU-600

This emission unit is the total of all VOC emissions occurring from parts cleaning operations at the plant.

3. Project Description

The permittee is required to submit an application for a non-Title V air permit for the Silgan Toppenish Plant per the terms of a Consent Decree entered by U.S. District Court Judge, Rudolph T. Randa on August 2, 2010. A term of the Consent Decree applicable to the Toppenish plant is as follows:

"C. Application for Non-Title V Permit - Toppenish, Washington

16.a. No later than ninety (90) days after the Effective Date, Defendant shall submit to EPA Region 10 a complete non-Title V permit application pursuant to 40 C.F.R. § 49.139 and § 49.11110(k) limiting the Toppenish Facility's emissions to no more than 77.2 tons per year of VOCs, no more than 9 tons per year of any single hazardous air pollutant regulated under CAA Title III, and no more than 24 tons per year combined of all hazardous air pollutants regulated under CAA Title III. Emissions shall be calculated each month for the previous 12-month period and as required by the permit."

As stated in the Consent Decree, the non-Title V permit will contain a permit condition limiting the Silgan Toppenish Plant to no more than 77.2 tons per year of VOC. However, the non-Title V air permit will not contain permit conditions limiting HAP below 9 tons per year for any individual HAP or 25 tons per year for all HAP combined. This is because the only emission limits necessary in the air permit are those for which the EPA has calculated a PTE equal to or greater than 100 tons per year, or 25 tons per year for total HAP, or 10 tons per year for any individual HAP. The EPA-calculated PTE for total HAP in this instance is significantly less than 25 tons per year, and the largest EPA-calculated PTE for any individual HAP is significantly less than 10 tons per year. The specific calculations supporting these conclusions are included in the TSD Appendix.

On August 25, 2010, Region 10 received an application from the permittee regarding their "Sanitary Steel Can Manufacturing" plant in Toppenish, WA. In its application, the permittee requested a limitation of: "77.2 tons per year of VOCs…, no more than (9) tons per year of a single hazardous air pollutant …, and no more than (24) tons per year combined of all hazardous air pollutants.…" On October 20, 2010, Region 10 sent a letter to the permittee advising them their non-Title V permit application was complete.

Region 10 has reviewed the permittee's submitted application, toured the Silgan Toppenish Plant on November 20, 2013, and prepared an emissions inventory (TSD Appendix) based on our understanding of the permittee's operations.

The permit and this TSD are based on the permittee's final application and on subsequent discussions with the permittee, in which it requested the following limitations and requirements:

1. A limitation on the emission of VOC;

2. A requirement that all coatings, sealants, solvents, inks and natural gas being used at the Silgan Toppenish Plant be monitored and controlled, and that actual emissions of VOC from all chemicals used for any purpose at the plant be reported to the EPA and the Yakama Nation;

3. A requirement that all equipment, ducting and filters be maintained and operated in accordance with manufacturers' specifications and instructions to the extent practicable.

4. Regulatory Analysis and Permit Content

4.1 Evaluation of Synthetic Minor Emission Limit Request

Region 10 has developed a detailed PTE emissions inventory (TSD Appendix) based on maximum production levels estimated by the permittee, and assuming these production levels would be sustained over 8,760 hr/yr. These emissions are summarized as follows:

Particulate matter (PM):	<0.001	tons/yr
Particulate matter (PM_{10}), aerodynamic diameter less than 10 microns:	<0.001	tons/yr
Particulate matter ($PM_{2.5}$), aerodynamic diameter less than 2.5 microns:	<0.001	tons/yr
Sulfur dioxide (SO_2):	<0.001	tons/yr
Greenhouse gases (GHG), CO_2-equivalent basis:	0.341	tons/yr
Carbon monoxide (CO):	<0.001	tons/yr
Nitrogen oxides (NO_x):	<0.001	tons/yr
Volatile organic compounds (VOC):	106	tons/yr
Lead (Pb):	<0.001	tons/yr
Hazardous air pollutants (HAP):	2.7	tons/yr
Largest single HAP – $Xylenes_{total}$:	1.7	tons/yr

Of these, only the PTE value of 106 tons/yr for VOC is over an applicable major source threshold (100 tons/yr for VOC). The total HAP PTE value of 2.7 tons/yr is only slightly more than 10% of the total HAP threshold value of 25 tons/yr, which indicates that even at maximum operations the Silgan Toppenish Plant would not come close to emitting more than 25 tons/yr of total HAP. The same is true for Xylenes. With a PTE value of 1.7 tons/yr, xylenes emissions are less than 20% of the threshold value for the single largest individual HAP emission of 10 tons/yr. Similarly, the threshold value for GHG is 100,000 tons/yr, and the EPA-calculated PTE for GHG in this case is less than one ton/yr.

There are three assumptions reflected in these emission calculations. First, for purposes of calculating $PM_{2.5}$ emissions in the TSD Appendix, the EPA assumed that all PM_{10} is $PM_{2.5}$, so no separate $PM_{2.5}$ emissions inventory was needed. Second, it is assumed that particulate generated from welding the can body seams and from coating overspray is very small and would not substantially change the PTE for particulates calculated above. Third, it is assumed that the pre-coatings on the sheet steel Silgan uses as a raw material for their can manufacturing operations do not significantly alter the calculated PTE for VOC above.

The permittee is seeking to avoid the Title V program and is accepting practically enforceable emission limits below the 100-ton/yr threshold. Consequently, an emission limit is needed for VOC.

The emission limit requested by the permittee is presented in Permit Condition 2.2. The emission limit is accompanied by monitoring and recordkeeping requirements to ensure compliance (see Permit Conditions 3.1 through 3.3). The monitoring, recordkeeping and

reporting for this permit will require the estimation of emissions from all of the non-fugitive activities at the plant at least once a month to confirm compliance with the rolling 12-month limits.

4.2 Other Federal Regulations

Endangered Species Act Impacts: Region 10 is obligated to consider the impact that a federal project may have on listed species or critical habitats. Because the permit contains voluntarily requested emission limits, Region 10 concludes that issuance of the permit will not affect a listed species or critical habitat. Therefore, no additional requirements will be added to the permit for ESA reasons. Region 10's "no-effect" determination concludes Region 10's obligations under Section 7 of the ESA. (See Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act, FWS and NMFS, March 1998, at Figure 1).

National Environmental Policy Act Review: Under Section 793(c) of the Energy Supply and Environmental Coordination Act of 1974, no action taken under the Clean Air Act shall be deemed a major federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. The permit in this case is an action taken under regulations implementing the Clean Air Act and is therefore exempt from the NEPA.

National Historic Preservation Act: No part of the plant is listed in the National Register, and this permit does not allow or require any construction activities. Consequently, no adverse effects are expected and further review under the NHPA is not necessary.

Environmental Justice (EJ): The plant is located in the town of Toppenish, WA, and within the Yakama Reservation. Links to maps that show environmental justice indicators for poverty and people of color are available at http://yosemite.epa.gov/R10/ocrej.nsf/environmental+justice/maps. In this action, however, the permit is only creating voluntary limits on emissions which will in turn lower emissions and lesson impacts. A disproportionately high environmental or public health impact to a low income or minority population is not expected to result from this project.

4.3 Permit Content

The permit includes the requested emission limits as well as monitoring, recordkeeping and reporting requirements necessary to assure compliance with the limits. Compliance with the limits allows the permittee to be treated as a minor source for Title V purposes.

In its permit application documents submitted to Region 10 requesting emission limits, the permittee indicated that emissions from parts cleaning, can body and can end marking/coding, and other emissions not directed toward a stack are fugitive and therefore should be excluded from the PTE calculations. The EPA disagrees with this assertion. These emissions, as described in the permit application, occur inside the Toppenish plant building and are eventually released to the air outside via building vents. For this reason, Region 10 does not consider these emissions to be fugitive and has included them in the PTE calculations included in the TSD Appendix.

Each section of the permit is discussed below. The permit is organized into four sections as follows:

Permit Section 1: General Conditions

This section of the permit contains conditions of a general nature that apply to the plant. Permit Condition 1.1 identifies the emission types at the plant. Condition 1.2 requires the permittee to comply with the conditions in the permit.

The permit establishes permittee-requested limits and related compliance assurance provisions to restrict the plant's PTE. It does not contain other Clean Air Act requirements to which the plant is or may be subject, such as the FARR; New Source Performance Standards, 40 CFR Part 60; or National Emissions Standards for Hazardous Air Pollutants, 40 CFR Part 61 and 63. It also does not contain any requirements that might apply in the future, such as the Tribal New Source Review, 40 CFR Part 49, or Prevention of Significant Deterioration, 40 CFR Part 52, permitting programs. As specified in Permit Condition 1.3, compliance with the terms of the permit in no way relieves or exempts the permittee from compliance with other applicable Clean Air Act requirements or of any other applicable federal, tribal, state, or local law or regulation.

Permit Section 2: Emission Limits and Work Practice Requirements

The permit contains emission limits (in tons per year) and work practice requirements that have been established as a result of the subject permit action. Permit Condition 2.1 requires the permittee to maintain and operate all emission units and associated control equipment in a manner that minimizes air pollutant emissions.

Permit condition 2.2 contains an annual limit for the only pollutant with the potential to be emitted above a major source threshold (VOC). The emission limit was set at 77.2 tons/yr for VOC as requested in the permittee's application documents and as specified in the Consent Decree applicable to the Silgan Toppenish Plant and entered by the Court on August 2, 2010. The permit specifies how to calculate source-wide, total VOC emissions using an emission factor for emissions from the combustion of natural gas and a mass balance approach for emissions from the application and use of coatings, sealants, solvents and inks. The mass balance approach assumes all of the VOC in the materials used onsite is emitted to the air at the plant, minus the VOC that leaves the plant in a waste product. Note that for compliance purposes, consistent with the EPA policy (Performance Test Calculation Guidelines, June 6, 1990), 77.251 should be rounded to 77.3, while 77.250 should be rounded to 77.2.

Permit Section 3: Monitoring and Recordkeeping Requirements

Permit Condition 3.1 requires the permittee to calculate total monthly emissions every month. The rolling 12-month emissions must be determined by adding the emissions calculated for the most recent month with the emissions for the immediately preceding 11 months. Emissions are to be calculated for all the identified emission units and all of the materials used in those emission units. The permittee can refer to the emission estimating techniques set forth in the TSD Appendix when calculating monthly emissions.

Permit Condition 3.2 requires the permittee to maintain a system for tracking material usage, certain material characteristics (density and VOC content) and purchases. Silgan has an

environmental database management system for tracking operations. The data required to be tracked is used to calculate the VOC emissions and to determine compliance with the VOC emission limit. Purchase records are required for confirming plant-wide material usage.

Permit Condition 3.3 requires the permittee to maintain records adequate to enable the calculation of monthly emissions, including all supporting documentation, for a period of five years. Paper records may be scanned as electronic files, stored electronically, and reported to Region 10 in a widely available electronic format. However, paper records generated for monitoring plant operations and for demonstrating compliance with the Permit must be maintained with all other records for at least five years. Lastly, data and information recorded and collected in the Environmental Database Management System must also be maintained for at least five years and reported in a widely available electronic format whenever requested by Region 10.

Permit Section 4: Reporting Requirements

Permit Condition 4.1 requires the permittee to annually report to Region 10 the twelve monthly rolling 12-month emissions calculations for the previous calendar year. For ease in coordinating submittals, this report is required to be submitted concurrently with the annual FARR registration submittal due by February 15 of each year.

Permit Condition 4.2 requires that the annual report include details on how the emissions were calculated. Condition 4.3 requires copies of the report be sent to the Yakama Nation.

5. Permit Procedures

As required under 40 CFR § 49.139(c), all draft owner-requested operating permits must be publicly noticed and made available for public comment. For this permit action, the requirements of 40 CFR § 49.139(c)(5) are as follows.

Administrative Record: Make available for public inspection, in at least one location in the area affected by the air pollution source, a copy of the draft operating permit prepared by Region 10, the TSD for the draft permit, the application, and all supporting materials (see 40 CFR § 49.139(c)(5)(i)).

Publish Public Notice: Publish the draft permit notice via a prominent advertisement in a newspaper of general circulation in the area affected by the emissions source. The public notice must describe the availability of the draft permit to operate, the supporting materials and the opportunity to comment. Where possible, notices will also be made in the Tribal newspaper (see 40 CFR § 49.139(c)(5)(ii)).

Distribute Public Notice to Affected Parties: Provide copies of the public notice to the permittee, the Tribal governing body, and to the Tribal, State and local air pollution authorities having jurisdiction in areas outside of the Yakama Reservation potentially impacted by the air pollution source (see 40 CFR § 49.139(c)(5)(iii)).

30-Day Public Comment Period: Provide for a 30-day period for submittal of public comments, starting upon the date of publication of the notice. If requested, the Regional Administrator may hold a public hearing and/or extend the public comment period for up to an additional 30 days (see 40 CFR § 49.139(c)(5)(iv)).

Accept All Comments: Region 10 will accept all comments received on the draft permit during the 30-day public comment period (see 40 CFR § 49.139(c)(5)(iv)).

Prepare Final Permit and TSD: After the close of the public comment period, Region 10 will consider all comments received and prepare a final permit to operate and a final TSD. The final TSD will include a response to all comments received during the public comment period (see 40 CFR § 49.139(c)(6)).

Make the Permit Available: Region 10 will make the final permit and TSD available at all of the locations where the draft permit was made available (see 40 CFR § 49.139(c)(7)).

Send Final Documents to All Commenters: Send the final permit and TSD to all persons who provided comments on the draft permit to operate (see 40 CFR § 49.139(c)(7)).

5.1. Response to Public Comments

The public comment period for this permit ran from April 16 to May 19, 2015. All of the requirements as specified in section 5.0 were followed and met as discussed below. The EPA received no comments on the draft permit or TSD and no public hearings were requested.

Administrative Record: EPA made available the administrative record including the draft permit and TSD for public inspection at two locations in the area affected by the air pollution source, which included the Mary L. Goodich Toppenish Library and Yakima Central Library (see public notice for address). EPA also made available the administrative record in the EPA's Region 10 public library located in Seattle, Washington (see 40 CFR § 49.139(c)(5)(i)).

Published Public Notice: EPA published the draft permit notice via a prominent advertisement in a newspaper of general circulation in the area affected by the emissions source, which included the Yakima Herald and Toppenish Review Independent. The public notice described the availability of the draft permit to operate, the supporting materials and the opportunity to comment. Notice in the Tribal newspaper was not possible (see 40 CFR § 49.139(c)(5)(ii)).

Distributed Public Notice to Affected Parties: EPA provided copies of the public notice to the permittee, the Yakama Nation, and to the Yakima Regional Clean Air Agency, Southwest Clean Air Agency, and the Washington Department of Ecology, Central Regional Office, which has jurisdiction in the areas outside of the Yakama Reservation potentially impacted by the air pollution source (see 40 CFR § 49.139(c)(5)(iii)).

30-Day Public Comment Period: EPA provided a 30-day period for submittal of public comments, starting upon the date of publication of the notice April 16 to May 19, 2015. EPA received no comments during this time period and no one requested a public hearing and/or to extend the public comment period for up to an additional 30 days (see 40 CFR § 49.139(c)(5)(iv)).

Accepted All Comments: Region 10 received no comments on the draft permit during the 30-day public comment period (see 40 CFR § 49.139(c)(5)(iv)).

Prepared Final Permit and TSD: After the close of the public comment period, Region 10 received no comments and therefore no changes were made to the final permit to operate and the final TSD. The final TSD does not include a response to all comments received during the public comment period as no comments were received (see 40 CFR § 49.139(c)(6)).

Made the Permit Available: Region 10 has mailed and made the final permit and TSD available at all of the locations where the draft permit was made available including Mary L. Goodich Toppenish Library and Yakima Central Library (see 40 CFR § 49.139(c)(7).

Sent Final Documents to All Commenters: EPA did not send the final permit and TSD to any persons because no person provided comments on the draft permit (see 40 CFR § 49.139(c)(7)).

6. Acronyms, Abbreviations & Units

10^6btu	One Million Btu (or MMBtu)
10^3gal	One Thousand Gallons
AFS	Air Facility System (an EPA database)
As	Arsenic
ASTM	American Society for Testing and Materials
Be	Beryllium
btu	British Thermal Unit (or Btu)
Cd	Cadmium
CFR	Code of Federal Regulations
CH_4	Methane
CMMS	Computer Maintenance Management System
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Cr	Chromium
CrVI	Chromium VI
DAF	Dissolved Air Flotation Unit
Diesel	Diesel Fuel, No. 2 Fuel Oil, Distillate Oil
dscf	Dry Standard Cubic Feet
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FARR	Federal Air Rules for Reservations
FIP	Federal Implementation Plan
FR	Federal Register
ft	Feet
ft^3	Cubic Feet
FWS	U.S. Fish & Wildlife Service
gal	Gallon
GHG	Greenhouse Gas
gr	Grains
GWP	Global Warming Potential
H2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant
HCOH	Formaldehyde
Hg	Mercury
hp	Horsepower
hr	Hour
kW	Kilowatt
L	Liter
lb	Pound
MAU	Make-Up Air Unit
min	Minute
ml	Milliliter
Mn	Manganese
mo	Month
N_2O	Nitrous Oxide
nat gas	Natural Gas
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for HAP
NHPA	National Historic Preservation Act
Ni	Nickel
NMFS	National Marine Fisheries Services
NMTOC	Non Methane Total Organic Carbon
NO_x	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
O&M	Operation & Maintenance
PAH	Polynuclear Aromatic Hydrocarbons
Pb	Lead
PM	Particulate Matter
PM_{10}	PM with an aerodynamic diameter < 10 um
$PM_{2.5}$	PM with an aerodynamic diameter < 2.5 um
POM	Polycyclic Organic Matter
ppm	Parts per Million
ppmv	Parts per Million by Volume
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
Region 10	EPA, Region 10
RSC	Reduced Sulfur Compound
scf	Standard Cubic Feet
Se	Selenium
SO_2	Sulfur Dioxide
TSD	Technical Support Document
um	Micrometer
ug	Microgram
VOC	Volatile Organic Compound
yr	Year

Technical Support Document Appendix

Emissions Inventory

&

Potential to Emit Calculations

Technical Support Document

Non Title V Air Operating Permit

Initial Permit

Silgan Containers Manufacturing Corporation

Toppenish, Washington

AFS Plant Number 530-770-0032

Sourcewide Emission Summary

Summary of Facility Potential Air Pollutant Emissions
Potential to Emit - all values in tons/yr

Sources[1]	EU-100[2] Line 1	EU-100[3] Line 2	EU-100[4] Line 3	EU-100[5] Line 3 Out Stripe	EU-200[6] End 301	EU-200[7] End 307	EU-300[8] Press Mist	EU-400[9] Video Jet Units (8)	EU-500[10] Natural Gas	EU-600[11] Parts Cleaning	Source-Wide PTE
Particulates (PM)[12]	See Notes 2, 3, 4 & 5								0.0000217		0.0000217
Fine Particulates (PM_{10})[13]	See Notes 2, 3, 4 & 5								0.0000217		0.0000217
Sulfur Dioxide (SO_2)[14]	See Notes 2, 3, 4 & 5								0.0000043		0.0000043
Greenhouse Gases (GHG)[15]	See Notes 2, 3, 4 & 5								0.341		0.341
Carbon Monoxide (CO)[16]	See Notes 2, 3, 4 & 5								0.000240		0.000240
Nitrogen Oxides (NO_x)[17]	See Notes 2, 3, 4 & 5								0.000285		0.000285
Volatile Organic Comp (VOC)[18]	13.4	15.7	13.4	5.5	22.9	22.9	8.5	2.9	0.000016	0.29	106
Lead Compounds (Pb)[19]	See Notes 2, 3, 4 & 5								0.0000000014		0.0000000014
Hygrogen Sulfide[20] (H_2S) & RSC	No Reported H_2S or RSC Emissions										

Predicted Highest Plantwide Single HAP[21]	Xylenes	1.7	Predicted Total HAP[22]	2.7

1 Fugitive sources are not considered when making a Non-Title V permit determination and are not included in this PTE calculation; except for HAP emissions, for which fugitive sources are considered. Fugitive emissions inside the building and ultimately vented through a roof stack are not considered to be fugitive

2 **EU-100** Can Assembly Line 1; Maximum Wire Speed reported by Silgan is 60 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500

3 **EU-100** Can Assembly Line 2; Maximum Wire Speed reported by Silgan is 70 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500

4 **EU-100** Can Assembly Line 3; Maximum Wire Speed reported by Silgan is 60 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500

5 **EU-100** Can Assembly Line 3; Outside Stripe; Coating: 0X322, 940X3, density 7.79 lb/gal, %VOC by weight 61.31%; Natural Gas Emissions Accounted For EU-500

6 **EU-200** End Press 301, Maximum Production Rate reported by Silgan is as follows: 2 Press Units x 300 presses/min = 600 end presses per minute

7 **EU-200** End Press 307, Maximum Production Rate reported by Silgan is as follows: 2 Press Units x 300 presses/min = 600 end presses per minute

8 **EU-300** Press Misting Operations, Maximum Misting Solution Usage reported by Silgan is 8 gal/day

9 **EU-400** Eight Video Jet Units for placing identification information on each can; Maximum VOC Emissions from Video Jets reported by Silgan is 2 lb/day

10 **EU-500** Natural Gas Heating for both manufacturing operations and for space heating (Silgan reports no non-fugitive emissions from diesel fuel)

11 **EU-600** General parts cleaning; such cleaning inside the building and vented ultimately through roof vents is not considered to be a fugitive emissions source

12 PM (>10um diameter) is not a regulated air pollutant for purposes of a Title V or Non-Title V permit as explained more fully in the text of the Techncial Support Document. In this case virtually all or most of the particulate matter calculated here is likely to be less than 1 um.

13 The only reported emissions of PM_{10} and $PM_{2.5}$ from Silgan's Toppenish Plant are from the combution of natural gas for space heating and drying operations during the manufacturing process. All particulate is assumed to be smaller than 1 um, and the total reported emissions are significantly below 100 tons/yr.

14 The only reported emissions of SO_2 from Silgan's Toppenish Plant are from the combution of natural gas for space heating and drying operations during the manufacturing process. The total reported emissions are significantly below 100 tons/yr.

15 The only reported emissions of GHG from Silgan's Toppenish Plant are from the combution of natural gas for space heating and drying operations during the manufacturing process. The total reported emissions are significantly below 100,000 tons/yr.

16 The only reported emissions of CO from Silgan's Toppenish Plant are from the combution of natural gas for space heating and drying operations during the manufacturing process. The total reported emissions are significantly below 100 tons/yr.

17 The only reported emissions of NO_x from Silgan's Toppenish Plant are from the combution of natural gas for space heating and drying operations during the manufacturing process. The total reported emissions are significantly below 100 tons/yr.

18 VOC is reported by Silgan to be emitted from all emission units at the Toppenish Plant, and the PTE calculated by the EPA exceeds 100 tons/yr. This EPA calculation assumes the manufacturing equipment is operating 365 days/yr, 24 hr/day, at 100% mechanical efficiency and 100% coating transfer efficiency. The EPA calculation also assumes the materials used are as reported by Silgan in their application documents, and further that the maximum chemical usages reported by Silgan are accurate.

19 The only reported emissions of Pb from Silgan's Toppenish Plant are from the combution of natural gas for space heating and drying operations during the manufacturing process. The total reported emissions are significantly below 100 tons/yr.

20 There are no reported emissions of H_2S or reduced sulfur compunds from Silgan's Toppenish Plant.

21 This value is the PTE for Xylenes based on the total Xylenes emissions reported by Silgan and ramped up to 365 days/yr at 100% mechanical efficiency

22 This value is the PTE for total HAP based on the total HAP emissions reported by Silgan and ramped up to 365 days/yr at 100% mechanical efficiency

Hazardous Air Pollutant Totals by Individual Constituent and Source

HAP by Source	EU-100 Line 1 tons/yr	EU-100 Line 2 tons/yr	EU-100 Line 3 tons/yr	EU-100 Line 3 Out Stripe tons/yr	EU-200 End 301 tons/yr	EU-200 End 307 tons/yr	EU-300 Press Mist tons/yr	EU-400 Video Jets(8) tons/yr	EU-500 Natural Gas tons/yr	EU-600 Parts Clean tons/yr								
	2.7E+00																	
PTE	2.7E+00																	

HAP by Constituent

Acetaldehyde		Not Reported*
Acrolein		Not Reported
Arsenic	5.71E-10	0.000000000571
Benzene	5.99E-09	0.000000005991
Beryllium	3.42E-11	0.000000000034
Butadiene, 1,3-		Not Reported
Cadmium	3.14E-09	0.000000003138
Carbon Disulfide		Not Reported
Chloranthrene, 3-Methyl		See POM Total
Chlorine		Not Reported
Chloroform		Not Reported
Chromium	3.99E-09	0.000000003994
Chromium VI	2.00E-10	0.000000000200
Cobalt	2.40E-10	0.000000000240
Dichlorobenzene	3.42E-09	0.000000003424
Dichloromethane		Not Reported
Ethylbenzene	3.03E-01	0.303000000000
Fluoranthene		See POM Total
Fluorene		See POM Total
Formaldehyde	2.14E-07	0.000000213975
Hexane	5.14E-06	0.000005135400
Lead	1.43E-09	0.000000001427
Manganese	1.08E-09	0.000000001084
Mercury	7.42E-10	0.000000000742
Methanol	6.40E-01	0.640000000000
Naphthalene	1.74E-09	0.000000001740
Naphthalene, 2-Methyl		See POM Total
Nickel	5.99E-09	0.000000005991
Pentanone, 4-Methy-2-	3.35E-03	0.003345000000
Phenanthrene		See POM Total
POM Total	2.52E-10	0.000000000252
Pyrene		See POM Total
Selenium	6.85E-11	0.000000000068
Styrene		Not Reported
Toluene	9.70E-09	0.000000009700
Xylenes	1.72E+00	1.720000000000

* "Not Reported" in this context means that Silgan did not report air emissions of this constituent and the EPA has no data or other information to suggest there are emissions of this constituent.

PTE 2.7 tons/yr
Total HAP Emissions

Highest Single HAP Emission: Total Xylenes 1.72 tons/yr

PM Calculations

Source	Emission Factor Reference		EF	Units	Converted Value & Units	Capacity	Units	Emission Rate (lb/hr)	hr/yr	tons/lb	tons/yr	PM PTE[23]
[24]EU-100 and EU-500 - All Units	AP-42 Table 1.4-2 (Total)	PM	7.6	lb PM/10^6scf	0.00745 lb PM/10^6btu	6.64E-04	10^6btu/hr	4.95E-06	8,760	0.00050	2.17E-05	**2.17E-05**

2.17E-05

23 The PM PTE column is designed to capture the worst-case PTE scenario for each emission unit and fuel (or operating) configuration. These worst-cases are then summed below, in this case 2.2 x 10^{-5} tons PM/yr.

24 The total hourly natural gas consumption for all sources at the Toppenish Plant is reported by Silgan to be less than 6.64 x 10^{-4} MMBTU/hr

PM_{10} Calculations

Source	Emission Factor Reference		EF	Units	Converted Value & Units	Capacity	Units	Emission Rate lb/hr	hr/yr	tons/lb	tons/yr	PM_{10} PTE[25]
[26]EU-100 and EU-500 - All Units	AP-42 Table 1.4-2 (Total)	PM_{10}	7.6	lb $PM_{10}/10^6$scf	0.00745 lb PM/10^6btu	6.64E-04	10^6btu/hr	4.95E-06	8,760	0.00050	2.17E-05	**2.17E-05**

2.17E-05

25 The PM_{10} PTE column is designed to capture the worst-case PTE scenario for each emission unit and fuel (or operating) configuration. These worst-cases are then summed below, in this case 2.2×10^{-5} tons PM_{10}/yr.

26 The total hourly natural gas consumption for all sources at the Toppenish Plant is reported by Silgan to be less than 6.64×10^{-4} MMBTU/hr

SO_2 Calculations

Source	Emission Factor Reference		EF	Units	Converted Value & Units	Capacity	Units	Emission Rate lb/hr	hr/yr	tons/lb	tons/yr	SO_2 PTE[27]
[28]EU-100 and EU-500 - All Units	AP-42 Table 1.4-2 (Footnote d), Adjusted for 5,000 gr S/10^6scf	SO_2	1.5	lb SO_2/10^6scf	0.00147 lb SO_2/10^6btu	6.64E-04	10^6btu/hr	9.76E-07	8,760	0.00050	4.28E-06	**4.28E-06**

4.28E-06

27 The SO_2 PTE column is designed to capture the worst-case PTE scenario for each emission unit and fuel (or operating) configuration. These worst-case scenarios are then summed, in this case 4.3 x 10^6tons SO_2/yr.

28 The adjustment for maximum sulfur content of pipeline natural ga is as follows: 0.6 lb SO_2/10^6scf x (5,000gr/10^6scf)/(2,000gr/10^6scf) = 1.5 lb SO_2/10^6scf. See 40 CFR §72.2 Definitions - "Pipeline natural gas".

Greenhouse Gas (GHG) Calculations

Source	Emission Factor Reference		EF	Units	Converted Value & Units	Capacity	Units	Emission Rate (lb/hr)	hr/yr	tons/lb	tons/yr	CO_2e PTE[29]
[30]EU-100 and EU-500 - All Units	40 CFR 98 Tables C-1 (CO_2) and C-2 (CH_4, N_2O)	CO_2e	119,440	lb $CO_2e/10^6$scf	117 lb $CO_2e/10^6$btu	6.6E-04	10^6btu/hr	7.78E-02	8,760	0.00050	3.41E-01	**3.41E-01**

3.41E-01

29 The CO_2e PTE column is designed to capture the worst-case PTE scenario for each emission unit and fuel (or operating) configuration. These worst-case scenarios are then summed, in this case 3.41 x 10^1tons CO_2e/yr

30 See 40 CFR 98 Table A-1 for GWP: CO_2=1, N_2O=298, CH_4=25. [53.06 kg $CO_2/10^6$btu + (0.0001 x 298) kg $N_20/10^6$btu + (0.001 x 25) kg $CH_4/10^6$btu] x (2.20462 lb/kg) x (1,020 10^6btu/10^6scf) = 119,440 $CO_2e/10^6$scf

CO Calculations

Source	Emission Factor Reference		EF	Units	Converted Value & Units	Capacity	Units	Emission Rate (lb/hr)	hr/yr	tons/lb	tons/yr	CO PTE[31]
[32]EU-100 and EU-500 - All Units	AP-42 Table 1.4-1	CO	84	lb CO/10^6scf	0.082 lb CO/10^6btu	6.64E-04	10^6btu/hr	5.47E-05	8,760	0.00050	2.40E-04	**2.40E-04**

2.40E-04

31 The CO PTE column is designed to capture the worst-case PTE scenario for each emission unit and fuel (or operating) configuration. These worst-case scenarios are then summed, in this case 2.4 x 10^{-4} CO/yr

32 Small Boilers < 100 10^6btu/hr

NO_x Calculations

Source	Emission Factor Reference		EF	Units	Converted Value & Units	Capacity	Units	Emission Rate (lb/hr)	hr/yr	tons/lb	tons/yr	NO_x PTE[33]
[34]EU-100 and EU-500 - All Units	AP-42 Table 1.4-1	NO_x	100	lb $NO_x/10^6$scf	0.098 lb $NO_x/10^6$btu	6.64E-04	10^6btu/hr	6.51E-05	8,760	0.00050	2.85E-04	**2.85E-04**

2.85E-04

33 The NO_x PTE column is designed to capture the worst-case PTE scenario for each emission unit and fuel (or operating) configuration. These worst-case scenarios are then summed, in this case 2.9 x 10^4tons NO_x/yr

34 Small Boilers < 100 10^6btu/hr

VOC Calculations

Source	Emission Factor Reference		EF	Units	Converted Value & Units	Capacity	Units	Emission Rate (lb/hr)	hr/yr	tons/lb	tons/yr	VOC PTE[35]
[36]EU-100 and EU-500 - All Units	AP-42 Table 1.4-2	VOC	5.5	lb VOC/10^6scf	0.0054 lb VOC/10^6btu	6.64E-04	10^6btu/hr	0.0000036	8,760	0.00050	0.000016	**0.000016**
[37]EU-100 Line 1	Data from Silgan NT5 Permit Application Documents	VOC	4.7	lb VOC/gal		0.658	gal/hr	3.07	8,760	0.00050	13.43	**13.4**
[38]EU-100 Line 2	Data from Silgan NT5 Permit Application Documents	VOC	4.7	lb VOC/gal		0.767	gal/hr	3.57	8,760	0.00050	15.65	**15.7**
[39]EU-100 Line 3	Data from Silgan NT5 Permit Application Documents	VOC	4.7	lb VOC/gal		0.658	gal/hr	3.07	8,760	0.00050	13.43	**13.4**
[40]EU-100 Line 3 Outside Stripe	Data from Silgan NT5 Permit Application Documents	VOC	4.8	lb VOC/gal		0.261	gal/hr	1.25	8,760	0.00050	5.46	**5.5**
[41]EU-200 End Press 301	Data from Silgan NT5 Permit Application Documents	VOC	42.7	% VOC by weight		12.3	lb/hr	5.23	8,760	0.00050	22.91	**22.9**
[42]EU-200 End Press 307	Data from Silgan NT5 Permit Application Documents	VOC	42.7	% VOC by weight		12.3	lb/hr	5.23	8,760	0.00050	22.91	**22.9**
[43]EU-300 Press Misting	Data from Silgan NT5 Permit Application Documents	VOC	96.0	% VOC by weight		8.0	gal/day	1.95	8,760	0.00050	8.53	**8.5**
[44]EU-400 Video Jet Units (8)	Data from Silgan NT5 Permit Application Documents	VOC	2.0	lb VOC/day		16.0	lb VOC/day	0.67	8,760	0.00050	2.92	**2.9**
[45]EU-600 Parts Cleaning	Data from Silgan NT5 Permit Application Documents	VOC	6.6	lb VOC/gal		88.0	gal/yr	0.066	8,760	0.00050	0.29	**0.29**

106

35	The VOC PTE column is designed to capture the worst-case PTE scenario for each emission unit and fuel (or operating) configuration. These worst-case scenarios are then summed, in this case 106 tons VOC/yr
36	Small Boilers < 100 10^6btu/hr
37	EU-100 Can Assembly Line 1; Maximum Wire Speed reported by Silgan is 60 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500
38	EU-100 Can Assembly Line 2; Maximum Wire Speed reported by Silgan is 70 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500
39	EU-100 Can Assembly Line 3; Maximum Wire Speed reported by Silgan is 60 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500
40	EU-100 Can Assembly Line 3; Outside Stripe; Coating: 0X322, 940X3, density 7.79 lb/gal, %VOC by weight 61.31%; Natural Gas Emissions Accounted For EU-500
41	EU-200 End Press 301, Maximum Production Rate reported by Silgan is as follows: 2 Press Units x 300 presses/min = 600 end presses per minute
42	EU-200 End Press 307, Maximum Production Rate reported by Silgan is as follows: 2 Press Units x 300 presses/min = 600 end presses per minute
43	EU-300 Press Misting Operations, Maximum Misting Solution Usage reported by Silgan is 8 gal/day
44	EU-400 Eight Video Jet Units for placing identification information on each can; Maximum VOC Emissions from Video Jets reported by Silgan is 2 lb/day
45	EU-600 General parts cleaning; such cleaning inside the building and vented ultimately through roof vents is not considered to be a fugitive emissions source

Hazardous Air Pollutant Summary Calculations

Source	Emission Factor Reference		EF	Units	Converted Value & Units	Capacity	Units	Emission Rate (lb/hr)	hr/yr	tons/lb	tons/yr	[46] HAP PTE
[47]EU-100 and EU-500 - All Units	Data from Silgan NT5 Permit Application Documents and Correspondence Included in the Administrative Record	HAP	1.89E+00	lb HAP/10^6scf	0.0019 lb HAP/10^6btu	6.64E-04	10^6btu/hr	1.23E-06	8,760	0.00050	5.38E-06	5.38E-06
[48]EU-100 Line 1	Data from Silgan NT5 Permit Application Documents and correspondence Included in the Administrative Record. The reported data is insufficient to allocate non-natural gas HAP amongst the particular emission units, so it is allocated equally between them for the purposes of this calculation.	HAP	2.22E-01	tons HAP/mo				6.09E-01	8,760	0.00050	2.7	2.7
[49]EU-100 Line 2												
[50]EU-100 Line 3												
[51]EU-100 Line 3 Outside Stripe												
[52]EU-200 End Press 301												
[53]EU-200 End Press 307												
[54]EU-300 Press Misting												
[55]EU-400 Video Jet Units (8)												
[56]EU-600 Parts Cleaning												

2.7

46 The HAP PTE column is designed to capture the worst-case PTE scenario for each emission unit and fuel (or operating) configuration. These worst-case scenarios are then summed, in this case 2.7 tons HAP/yr

47 Summation of all natural gas HAP factors specifc to the plant. See "HAPfact" worksheet that displays and sums all relevant natural gas HAP factors.

48 EU-100 Can Assembly Line 1; Maximum Wire Speed reported by Silgan is 60 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500

49 EU-100 Can Assembly Line 2; Maximum Wire Speed reported by Silgan is 70 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500

50 EU-100 Can Assembly Line 3; Maximum Wire Speed reported by Silgan is 60 m/min; PM, PM10, SO2, GHG, CO, NOx, Pb accounted for in EU-500

51 EU-100 Can Assembly Line 3; Outside Stripe; Coating: 0X322, 940X3, density 7.79 lb/gal, %VOC by weight 61.31%; Natural Gas Emissions Accounted For EU-500

52 EU-200 End Press 301, Maximum Production Rate reported by Silgan is as follows: 2 Press Units x 300 presses/min = 600 end presses per minute

53 EU-200 End Press 307, Maximum Production Rate reported by Silgan is as follows: 2 Press Units x 300 presses/min = 600 end presses per minute

54 EU-300 Press Misting Operations, Maximum Misting Solution Usage reported by Silgan is 8 gal/day

55 EU-400 Eight Video Jet Units for placing identification information on each can; Maximum VOC Emissions from Video Jets reported by Silgan is 2 lb/day

56 EU-600 General parts cleaning; such cleaning inside the building and vented ultimately through roof vents is not considered to be a fugitive emissions source

Hazardous Air Pollutant Emission Factors

Hazardous Air Pollutants	EU-100 Line 1 lb/10^6scf	EU-100 Line 2 lb/10^6scf	EU-100 Line 3 lb/10^6scf	EU-100 Line 3 Out Stripe lb/10^6scf	EU-200 End 301 tons/mo	EU-200 End 307 tons/mo	EU-300 Press Mist tons/mo	EU-400 Video Jets(8) tons/mo	EU-500 Natural Gas lb/10^6scf	EU-600 Parts Clean tons/mo								
Acetaldehyde																		
Acrolein																		
Arsenic	Accounted For in EU-500								2.00E-04									
Benzene	Accounted For in EU-500								2.10E-03									
Beryllium	Accounted For in EU-500								1.20E-05									
Butadiene, 1,3-																		
Cadmium	Accounted For in EU-500								1.10E-03									
Carbon Disulfide																		
Chloranthrene, 3-Methyl	Accounted For in EU-500								POM	See POM Total								
Chlorine																		
Chloroform																		
Chromium	Accounted For in EU-500								1.40E-03									
Chromium VI	Accounted For in EU-500								7.00E-05									
Cobalt	Accounted For in EU-500								8.40E-05									
Dichlorobenzene	Accounted For in EU-500								1.20E-03									
Dichloromethane																		
Ethylbenzene	2.53E-02									Allocated equally between all EU; actual allocation unknown								
Fluoranthene	Accounted For in EU-500								POM	See POM Total								
Fluorene	Accounted For in EU-500								POM	See POM Total								
Formaldehyde	Accounted For in EU-500								7.50E-02									
Hexane	Accounted For in EU-500								1.80E+00									
Lead	Accounted For in EU-500								5.00E-04									
Manganese	Accounted For in EU-500								3.80E-04									
Mercury	Accounted For in EU-500								2.60E-04									
Methanol	5.33E-02									Allocated equally between all EU; actual allocation unknown								
Naphthalene	Accounted For in EU-500								6.10E-04									
Naphthalene, 2-Methyl	Accounted For in EU-500								POM	See POM Total								
Nickel	Accounted For in EU-500								2.10E-03									
Pentanone, 4-Methy-2-	2.79E-04									Allocated equally between all EU; actual allocation unknown								
Phenanthrene	Accounted For in EU-500								POM	See POM Total								
POM Total	Accounted For in EU-500								8.82E-05									
Pyrene	Accounted For in EU-500								POM	See POM Total								
Selenium	Accounted For in EU-500								2.40E-05									
Styrene																		
Toluene	Accounted For in EU-500								3.40E-03									
Xylenes	1.43E-01									Allocated equally between all EU; actual allocation unknown								
	2.22E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E+00	0.00E+00								

Hazardous Air Pollutant Calculations by Individual Constituent and Source

Hazardous Air Pollutants	EU-100 Line 1 tons/yr	EU-100 Line 2 tons/yr	EU-100 Line 3 tons/yr	Line 3 Out Stripe tons/yr	EU-200 End 301 tons/yr	EU-200 End 307 tons/yr	EU-300 Press Mist tons/yr	EU-400 Video Jets(8) tons/yr	EU-500 Natural Gas tons/yr	EU-600 Parts Clean tons/yr								tons/yr
Acetaldehyde																		
Acrolein																		
Arsenic	Accounted For in EU-500								5.71E-10									5.71E-10
Benzene	Accounted For in EU-500								5.99E-09									5.99E-09
Beryllium	Accounted For in EU-500								3.42E-11									3.42E-11
Butadiene, 1,3-																		
Cadmium	Accounted For in EU-500								3.14E-09									3.14E-09
Carbon Disulfide																		
Chloranthrene, 3-Methyl	Accounted For in EU-500								POM	See POM Total								
Chlorine																		
Chloroform																		
Chromium	Accounted For in EU-500								3.99E-09									3.99E-09
Chromium VI	Accounted For in EU-500								2.00E-10									2.00E-10
Cobalt	Accounted For in EU-500								2.40E-10									2.40E-10
Dichlorobenzene	Accounted For in EU-500								3.42E-09									3.42E-09
Dichloromethane																		
Ethylbenzene	3.03E-01										Allocated equally between all EU; actual allocation unknown							3.03E-01
Fluoranthene	Accounted For in EU-500								POM	See POM Total								
Fluorene	Accounted For in EU-500								POM	See POM Total								
Formaldehyde	Accounted For in EU-500								2.14E-07									2.14E-07
Hexane	Accounted For in EU-500								5.14E-06									5.14E-06
Lead	Accounted For in EU-500								1.43E-09									1.43E-09
Manganese	Accounted For in EU-500								1.08E-09									1.08E-09
Mercury	Accounted For in EU-500								7.42E-10									7.42E-10
Methanol	6.40E-01										Allocated equally between all EU; actual allocation unknown							6.40E-01
Naphthalene	Accounted For in EU-500								1.74E-09									1.74E-09
Naphthalene, 2-Methyl	Accounted For in EU-500								POM	See POM Total								
Nickel	Accounted For in EU-500								5.99E-09									5.99E-09
Pentanone, 4-Methy-2-	3.35E-03										Allocated equally between all EU; actual allocation unknown							3.35E-03
Phenanthrene	Accounted For in EU-500								POM	See POM Total								
POM Total	Accounted For in EU-500								2.52E-10									2.52E-10
Pyrene	Accounted For in EU-500								POM	See POM Total								
Selenium	Accounted For in EU-500								6.85E-11									6.85E-11
Styrene																		
Toluene	Accounted For in EU-500								9.70E-09									9.70E-09
Xylenes	1.72E+00										Allocated equally between all EU; actual allocation unknown							1.72E+00

PTE **2.67E+00**

Natural Gas Emission Factor Calculations

	Source	Emission Factor Reference	Pollutant	EF	Units	Derivation and/or calculation of emission factor
1	EU-100 and EU-500	AP-42 Table 1.4-1	**CO**	**84.0**	**lb CO/10^6scf**	Directly from AP-42 Table 1.4-1, Small Boilers < 100 10^6 Btu/hr
2	EU-100 and EU-500	40 CFR 98 Tbl C-1 (CO_2) and C-2 (CH_4, N_2O)	**CO_2e**	**119,440**	**lb CO_2e/10^6scf**	[53.06 kg CO_2/10^6btu + (0.0001 x 298) kg $N_2$0/10^6btu + (0.001 x 25) kg CH_4/10^6btu] x (2.20462 lb/kg) x (1,020 10^6btu/10^6scf) = 119,440 CO_2e/10^6scf
3	EU-100 and EU-500	AP-42 Table 1.4-1	**NO_x**	**100**	**lb NO_x/10^6scf**	Directly from AP-42 Table 1.4-1, <100 10^6btu/hr
4	EU-100 and EU-500	AP-42 Table 1.4-2	**PM**	**7.60**	**lb PM/10^6scf**	Directly from AP-42 Table 1.4-2, PM (Total); all natural gas particulate matter is assumed to be less than 1 um
5	EU-100 and EU-500	AP-42 Table 1.4-2	**PM_{10}**	**7.60**	**lb PM_{10}/10^6scf**	Directly from AP-42 Table 1.4-2, PM (Total); all natural gas particulate matter is assumed to be less than 1 um
6	EU-100 and EU-500	AP-42 Table 1.4-2 and Footnote d	**SO_2**	**1.50**	**lb SO_2/10^6scf**	(0.6 lb/10^6 scf) x (5,000grains/10^6 scf)/(2,000grains/10^6 scf) = 1.5 lb/10^6 scf (Assume maximum S in pipeline qulaity natural gas)
7	EU-100 and EU-500	AP-42 Table 1.4-2	**VOC**	**5.50**	**lb VOC/10^6scf**	Directly from AP-42 Table 1.4-2
8	EU-100 and EU-500	AP-42 Table 1.4-3	**Acenaphthene**	**1.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
9	EU-100 and EU-500	AP-42 Table 1.4-3	**Acenaphthylene**	**1.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
10	EU-100 and EU-500	AP-42 Table 1.4-3	**Anthracene**	**2.40E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
11	EU-100 and EU-500	AP-42 Table 1.4-3	**Anthracene, Benz(a)**	**1.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
12	EU-100 and EU-500	AP-42 Table 1.4-3	**Anthracene, Dibenzo(a,h)**	**1.20E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
13	EU-100 and EU-500	AP-42 Table 1.4-3	**Anthracene, 7,12-Dimethylbenz(a)**	**1.60E-05**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
14	EU-100 and EU-500	AP-42 Table 1.4-3	**Chloranthrene, 3-Methyl**	**1.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
15	EU-100 and EU-500	AP-42 Table 1.4-3	**Chrysene**	**1.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
16	EU-100 and EU-500	AP-42 Table 1.4-3	**Fluoranthene**	**3.00E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
17	EU-100 and EU-500	AP-42 Table 1.4-3	**Fluoranthene, Benzo(b)**	**1.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
18	EU-100 and EU-500	AP-42 Table 1.4-3	**Fluoranthene, Benzo(k)**	**1.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
19	EU-100 and EU-500	AP-42 Table 1.4-3	**Fluorene**	**2.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
20	EU-100 and EU-500	AP-42 Table 1.4-3	**Naphthalene, 2-Methyl**	**2.40E-05**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
21	EU-100 and EU-500	AP-42 Table 1.4-3	**Perylene, Benzo(g,h,i)**	**1.20E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
22	EU-100 and EU-500	AP-42 Table 1.4-3	**Phenanathrene**	**1.70E-05**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
23	EU-100 and EU-500	AP-42 Table 1.4-3	**Pyrene**	**5.00E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
24	EU-100 and EU-500	AP-42 Table 1.4-3	**Pyrene, Benzo(a)**	**1.20E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
25	EU-100 and EU-500	AP-42 Table 1.4-3	**Pyrene, Indeno(1,2,3-cd)**	**1.80E-06**	**lb POM/10^6scf**	Directly from AP-42 Table 1.4-3
26	EU-100 and EU-500	Summation of all POM Table 1.4-3	**Total POM**	**8.82E-05**	**lb POM_{total}/10^6scf**	
27	EU-100 and EU-500	AP-42 Table 1.4-3, 71-43-2	**Benzene**	**2.10E-03**	**lb Benzene/10^6scf**	Directly from AP-42 Table 1.4-3
28	EU-100 and EU-500	AP-42 Table 1.4-3, 25321-22-6	**Benzene, Dichloro**	**1.20E-03**	**lb Dichlorobenzene/10^6scf**	Directly from AP-42 Table 1.4-3
29	EU-100 and EU-500	AP-42 Table 1.4-3, 50-00-0	**Formaldehyde**	**7.50E-02**	**lb HCOH/10^6scf**	Directly from AP-42 Table 1.4-3
30	EU-100 and EU-500	AP-42 Table 1.4-3, 110-54-3	**Hexane**	**1.80E+00**	**lb Hexane/10^6scf**	Directly from AP-42 Table 1.4-3
31	EU-100 and EU-500	AP-42 Table 1.4-3, 91-20-3	**Naphthalene**	**6.10E-04**	**lb Naphthalene/10^6scf**	Directly from AP-42 Table 1.4-3
32	EU-100 and EU-500	AP-42 Table 1.4-3, 108-88-3	**Toluene**	**3.40E-03**	**lb Toluene/10^6scf**	Directly from AP-42 Table 1.4-3
33	EU-100 and EU-500	AP-42 Table 1.4-3	**Total Non-POM Organic HAP**	**1.88E+00**	**lb HAP_{NP}/10^6scf**	Summation of all natural gas Non-POM HAP factors from AP-42 Tables 1.4-3

Natural Gas Emission Factor Calculations (continued)

	Source	Emission Factor Reference	Pollutant	EF	Units	Derivation and/or calculation of emission factor
34	EU-100 and EU-500	AP-42 Table 1.4-4, 7440-38-2	**Arsenic (As)**	**2.00E-04**	**lb As/10^6scf**	Directly from AP-42 Table 1.4-4
35	EU-100 and EU-500	AP-42 Table 1.4-4, 7440-41-7	**Beryllium (Be)**	**1.20E-05**	**lb Be/10^6scf**	Directly from AP-42 Table 1.4-4
36	EU-100 and EU-500	AP-42 Table 1.4-4, 7440-43-9	**Cadmium (Cd)**	**1.10E-03**	**lb Cd/10^6scf**	Directly from AP-42 Table 1.4-4
37	EU-100 and EU-500	AP-42 Table 1.4-4, 7440-47-3	**Chromium (Cr)**	**1.40E-03**	**lb Cr/10^6scf**	Directly from AP-42 Table 1.4-4
38	EU-100 and EU-500	AP-42 Table 1.4-4, Cr(VI) = 5% total Cr	**Chromium VI (CrVI)**	**7.00E-05**	**lb CrVI/10^6scf**	(0.0014 lb HAP/10 scf) x 0.05 = 0.000070 (7.0E-05), See CARB AB 2588 Guidance
39	EU-100 and EU-500	AP-42 Table 1.4-4, 7440-48-4	**Cobalt**	**8.40E-05**	**lb Cobalt/10^6scf**	Directly from AP-42 Table 1.4-4
40	EU-100 and EU-500	AP-42 Table 1.4-2	**Lead (Pb)**	**5.00E-04**	**lb Pb/10^6scf**	Directly from AP-42 Table 1.4-2
41	EU-100 and EU-500	AP-42 Table 1.4-4, 7439-96-5	**Manganese (Mn)**	**3.80E-04**	**lb Mn/10^6scf**	Directly from AP-42 Table 1.4-4
42	EU-100 and EU-500	AP-42 Table 1.4-4, 7439-97-6	**Mercury (Hg)**	**2.60E-04**	**lb Hg/10^6scf**	Directly from AP-42 Table 1.4-4
43	EU-100 and EU-500	AP-42 Table 1.4-4, 7440-02-0	**Nickel (Ni)**	**2.10E-03**	**lb Ni/10^6scf**	Directly from AP-42 Table 1.4-4
44	EU-100 and EU-500	AP-42 Table 1.4-4, 7782-49-2	**Selenium (Se)**	**2.40E-05**	**lb Se/10^6scf**	Directly from AP-42 Table 1.4-4
45	EU-100 and EU-500	AP-42 Table 1.4-4, plus Lead	**Total Metal HAP**	**6.13E-03**	**lb HAP_{Metal}/10^6scf**	Summation of all natural gas Metal HAP factors from AP-42 Tables 1.4-4, plus Lead
	EU-100 and EU-500	AP-42 Table 1.4-3	**Butane**	**2.10E+00**	**lb/10^6scf**	Directly from AP-42 Table 1.4-4
	EU-100 and EU-500	AP-42 Table 1.4-3	**Ethane**	**3.10E+00**	**lb/10^6scf**	Directly from AP-42 Table 1.4-4
	EU-100 and EU-500	AP-42 Table 1.4-3	**Pentane**	**2.60E+00**	**lb/10^6scf**	Directly from AP-42 Table 1.4-4
	EU-100 and EU-500	AP-42 Table 1.4-3	**Propane**	**1.60E+00**	**lb/10^6scf**	Directly from AP-42 Table 1.4-4
	EU-100 and EU-500	AP-42 Table 1.4-3	**Total Non-HAP**	**9.40E+00**	**lb/10^6scf**	Summation of all non-HAP factors from AP-42 Table 1.4-3