

**PERMIT APPLICATION REVIEW
COVERED SOURCE PERMIT NO. 0074-01-C
Application for Renewal No. 0074-04**

Company: Ball Metal Beverage Container Corporation

Mailing Address: 91-320 Komohana Street
Kapolei, Hawaii 96707

Facility: Two-Piece Aluminum Can Production Plant

Location: 91-320 Komohana Street, Kapolei, Oahu

SIC Code: 3411 (Metal Cans)

Responsible Official: Paul Labbe
Plant Manager
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Equipment: This facility encompasses the following equipment and associated appurtenances.

One (1) can washer
Reynolds Metals Company (model no. RMC 96", max. fuel consumption of 1,850 cf/hr,
with three Maxon burners, model nos. 415, 161P, and 67)

Three (3) can printers
Three (3) Rutherford Machine Company (model no. ACP-400)

Three (3) can overvarnish units
Three (3) Reynolds Metals Company (Reynolds designed Gravure Unit R-400)

Three (3) can printer ovens
Two (2) Ross (max. fuel consumption of 2,000 cf/hr, with two Eclipse Fuel Engineering
Company burners, model nos. RAH80 and RAH120); and

One (1) Feco (max. fuel consumption of 2,000 cf/hr, with two Eclipse Fuel Engineering
Company burners, model nos. RAH80 and RAH120)

Eight (8) can inside spray machines
Eight (8) Reynolds Metals Company (model no. DG-250)

Two (2) can inside bake ovens

One (1) Feco (model no. Magna Air, serial no. 15357, max. fuel consumption of 2,400 cf/hr, with two Eclipse Fuel Engineering Company burners, model no. RAH120); and

One (1) Ross (model no. Inside Bake, serial no. 75530, max. fuel consumption of 2,000 cf/hr, with two Eclipse Fuel Engineering Company burners, model nos. RAH80 and RAH120).

BACKGROUND

Ball Metal Beverage Container Corporation has submitted an application to renew its covered source permit. This facility is a major source of VOC because potential emissions from can coatings and solvents exceed 100 tons/year. The applicant has proposed to remove the usage limitations of coating materials (exterior base coat, clear base coat, overvarnish, inside spray coat) and isopropyl alcohol (IPA).

Ball has requested to add an alternate operating scenario to allow replacement of the three (3) can printers and three can printer ovens for future consideration. Ball should instead submit a permit modification to replace these equipment when necessary.

An ink marking system has been added to provide date code and manufacturing data, which is an insignificant activity. There are no other changes proposed for this facility.

Process

This is a two-piece aluminum beverage can plant and the following is the process description (from review no. 0074-03):

1) Cup forming from aluminum sheets; 2) Draw and iron to produce the full height of the can; 3) Trimming to the exact height of the can; 4) Cleaning prior to printing; 5) Printing exterior of can; 6) Varnish over the print; 7) Varnish to the bottom of the can; 8) Print oven drying; 9) Inside spraying; 10) Bake oven to cure the inside; 11) Waxing and flanging to receive the top; and 12) Light testing to check if there are any pin holes on the can. The can top is attached by others after the beverage is filled.

There are basically two emission types:

1. Can coating operations which emit evaporated VOCs and HAPs (fugitive); and
2. Natural gas combustion which primarily emit NO_x and CO (point).

Doug Barndt of Ball mentioned that most of the emitted VOC is ethylene glycol monobutyl ether (EGBE). However, pursuant to a CFR final rule dated 11/18/04, EGBE was delisted as a HAP. Through a seven year petition process a risk assessment demonstrated that emissions of EGBE may not reasonably be anticipated to result in adverse human health or environmental effects.

The chronological description of processes that involve air permitting are as follows:

1. Can Washing & Drying (NO_x, CO)
2. Printing & Varnishing (VOC, HAP)
3. Printer Curing Oven (VOC, HAP, NO_x, CO)
4. Inside Spraying (VOC, HAP)
5. Inside Spraying Curing Oven (VOC, HAP, NO_x, CO)

APPLICABLE REQUIREMENTS

Hawaii Administrative Rules (HAR)

Title 11 Chapter 59, Ambient Air Quality Standards

Title 11 Chapter 60.1, Air Pollution Control

Subchapter 1, General Requirements

Subchapter 2, General Prohibitions

11-60.1-31, Applicability

11-60.1-32, Visible Emissions

11-60.1-38, Sulfur Oxides from Fuel Combustion

Subchapter 5, Covered Sources

Subchapter 6, Fees for Covered Sources, Noncovered Sources, and Agricultural Burning

11-60.1-111, Definitions

11-60.1-112, General Fee Provisions for Covered sources

11-60.1-113, Application Fees for Covered sources

11-60.1-114, Annual Fees for Covered sources

11-60.1-115, Basis of Annual Fees for Covered Sources

Subchapter 8, Standards of Performance for Stationary Sources

11-60.1-161, New Source Performance Standards

Subchapter 9, Hazardous Air Pollutant Sources

Subchapter 10, Field Citations

Standard of Performance for New Stationary Sources (NSPS), 40 CFR Part 60

Subpart WW - Standards of Performance for the Beverage Can Surface Coating Industry is applicable because the plant was modified after November 26, 1980. The modifications included increases in VOC with the addition of an inside bake oven, can inside spray machines, and a necking lubricator (closed File Nos. 436 and 560). There was also an operational modification to increase the VOC limits (closed File No. 853).

National Emission Standards for Hazardous Air Pollutants (NESHAPS), 40 CFR Part 61

This source is not subject to NESHAPS as no hazardous air pollutants are emitted at significant levels and there are no NESHAPS requirements in 40 CFR Part 61.

National Emission Standards for Hazardous Air Pollutants for Source Categories (Maximum Achievable Control Technology (MACT)), 40 CFR Part 63

Subpart KKKK - National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Cans is not applicable because the plant is not a major source of HAP emissions.

Prevention of Significant Deterioration (PSD)

This source is not subject to PSD requirements because it is not a major stationary source as defined in 40 CFR 52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

Compliance Assurance Monitoring (CAM), 40 CFR 64

This source is not subject to CAM since the facility does not use a control device to achieve compliance. The purpose of CAM is to provide a reasonable assurance that compliance is being achieved with large emissions units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 Code of Federal Regulations, Part 64, for CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device to achieve compliance; (4) have

potential pre-control emissions that are 100% of the major source level; and (5) not otherwise be exempt from CAM.

Consolidated Emissions Reporting Rule (CERR)

This source is subject to CERR since 40 CFR Part 51, Subpart A - Emissions Inventory Reporting Requirements, determines CERR based on facility wide emissions of each air pollutant at the CERR triggering levels. VOC emissions exceed respective CERR threshold levels.

DOH Annual Emissions Reporting

The Clean Air Branch requests annual emissions reporting from those facilities that have facility wide emissions exceeding the DOH reporting level(s) and for all covered sources. Internal annual emissions reporting will be required because this is a covered source.

Best Available Control Technology (BACT)

This source is not subject to BACT analysis because the potential to emit emissions due to the modifications (removal of coating limits) are below the significant levels as shown in the table below. BACT analysis is required for new sources or modifications to sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, §11-60.1-1.

BACT		
Pollutant	Potential Emissions (TPY)	Significant Levels (TPY)
CO	0	100
NO _x	0	40
SO ₂	0	40
PM	0	25
PM-10	0	15
VOC	10.2	40

Synthetic Minor Source

A synthetic minor source is a facility that is potentially major as defined in HAR, §11-60.1-1, but is made non-major through federally enforceable permit conditions. This facility is not a synthetic minor source because the facility is classified as a major source.

INSIGNIFICANT ACTIVITIES / EXEMPTIONS

1. The 2.7 MMBtu/hr water boiler is insignificant in accordance with HAR §11-60.1-82(f)(3) as the heat input capacity is less than 5 MMBtu/hour and is fired exclusively on synthetic natural gas. Hot water will be used for can washing.
2. The following equipment are insignificant in accordance HAR §11-60.1-82(f)(7):
 - a. Waxer and can washing because hydrogen fluoride emissions were calculated to be 0.028 tpy and sulfuric acid emissions to be 0.14 tpy (based on similar can plants);
 - b. Wastewater treatment because the diluted sulfuric acid solution which are held in tanks at a steady state will have negligible vapor emissions;

PROPOSED

- c. Individual solvent cleaning sinks because the solvent is pumped as needed and collected back into the 55 gallon drum. These operations are small and intermittent and therefore VOC emissions are insignificant;
- d. Three (3) cyclones because based on an emissions test for a similar can plant, the average PM emission rate was 0.10 lb/hr per cyclone. Therefore, each cyclone operating 8760 hr/yr will have a maximum potential emission of 0.43 tpy; and
- e. Ink marking system to provide date code and manufacturing data. The annual emission rate is less than 50 lbs VOC per year.

$$(25 \text{ qt/yr}) / (4 \text{ qt/gal}) * (6.82 \text{ lb VOC/gal}) = 43 \text{ lbs}; 6.82 \text{ lb VOC/gal from ink data sheet}$$

Note that the ovens and washers which burn synthetic natural gas are not exempt because the individual heat input of the ovens and washers exceed 1 MMBtu/hr pursuant to HAR §11-60.1-82(f)(2).

Sample calc: 1020 Btu/cf x 1,850 cf/hr = 1,887,000 Btu/hr for the can washer.

ALTERNATIVE OPERATING SCENERIOS

There are no alternate operating scenarios.

AIR POLLUTION CONTROLS

There are no air pollution controls for this facility.

PROJECT EMISSIONS

Oven and Can Washer Burners

The burners for the ovens and can washer are fired on synthetic natural gas. The total combined fuel consumption for the permitted burners is 12,250 cf/hr (12.495 MMBtu/hr). Emissions were based on emission factors from AP-42 Section 1.4 (7/98) - Natural Gas Combustion.

Oven and Can Washer Burners		
Pollutant	Emissions (lb/hr)	Emissions (TPY) [8,760 hr/yr]
CO	1.03	4.51
NO _x	1.23	5.37
SO ₂	0.01	0.03
PM	0.09	0.41
PM-10	0.09	0.41
PM-2.5	0.09	0.41
VOC	0.07	0.30
HAPs	0.02	0.10

PROPOSED

Coatings Materials

VOC emissions from coating materials were calculated using the standards for VOC from 40 CFR, Part 60, Subpart WW, and data sheets from coating suppliers. Maximum emissions are based on the maximum can production rate of the plant. HAP emissions were based on data sheets from coating suppliers. The maximum can production rate is 630,720,000 cans/year based on 1,200 cans/min.

VOC/HAP Emissions (TPY)		
Material	VOC	HAPs
Exterior Base Coat	13.84	1.69
Overvarnish	32.85	2.52
Inside Spray Coat	76.28	4.33
Inks	3.44	0.01
Cleaners (IPA)	9.21	0
Permitted Burners	0.30	0.10
Misc. / Insignificant Activities	5	0
Generated formaldehyde	0	4.16
Total	140.92	12.81

notes:

1. Emissions for clean-up solvent based on isopropyl alcohol (IPA).
2. Generated formaldehyde from oven curing. An emission factor of 0.0066 lb of formaldehyde per 1,000 cans was used based on stack testing of seven other Ball can plants (review no. 0074-03).
3. Miscellaneous / insignificant activities conservatively assumed to be 5 TPY of VOC.

Total Emissions

Total facility emissions are summarized in the table below.

Total Facility Emissions and Trigger Levels (TPY)				
Pollutant	Emissions (No Limits 8,760 hr/yr)	BACT Significant Level	CERR Triggering Level (Type A sources / Type B sources)	DOH Level
CO	4.51	100	2,500 / 1000	250
NO _x	5.37	40	2,500 / 100	25
SO ₂	0.03	40	2,500 / 100	25
PM	0.41	25	-	25
PM-10	0.41	15	250 / 100	25
PM-2.5	0.41	-	250 / 100	-
VOC	140.9	40	250 / 100	25
HAPs	12.8	-	-	5

AIR QUALITY ASSESSMENT

An ambient air quality impact assessment (AAQIA) is generally required for new sources or modified sources with emission increases. An ambient air quality assessment was performed previously for the natural gas combustion sources.

PROPOSED

As confirmed by Department of Health letter dated July 19, 1994, an air dispersion modeling analysis is not required for the can coating operations. The reasons are:

1. Air dispersion modeling techniques do not exist for modeling a single VOC area source in a given region for purposes of determining the source's impact on regional ambient ozone concentrations.
2. 40 CFR Part 51 Appendix W - Guideline on Air Quality Models (Revised) offers a complex model for entire urban areas. However, the process involved is considered extensive and normally conducted only for attainment demonstrations in ozone nonattainment areas.

SIGNIFICANT PERMIT CONDITIONS

There are no new significant permit conditions. The coating material and isopropyl alcohol/butanol solvent limitations will be removed.

CONCLUSION

Actual emissions should be less than those estimated. Emission calculations were based on the standards for VOC from 40 CFR Part 60, Subpart WW. Actual VOC content is lower based on formulation data from coating suppliers. Recommend issuance of the covered source permit subject to the incorporation of the significant permit conditions, 30-day public comment period, and 45-day Environmental Protection Agency review period.

Mark Saewong
May 10, 2010