



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 062011-010 Project Number: 2011-03-047
Installation Number: 021-0064

Parent Company: Silgan Containers Manufacturing Corporation

Parent Company Address: 21800 Oxnard Street, Suite 600, Woodland Hills, CA 91367

Installation Name: Silgan Containers Manufacturing Corporation

Installation Address: 2155 Southwest Lower Lake Road, St. Joseph, MO 64504

Location Information: Buchanan County, S25, R36W, T57N

Application for Authority to Construct was made for:

Removal of butyl cellosolve acetate (CAS 112-07-2) and ethylene glycol monoethyl ether acetate (CAS 111-15-9) limitation from Permit No. 092002-023. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

JUN 21 2011

EFFECTIVE DATE



DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Departments' Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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Permit No.	
Project No.	2011-03-047

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Silgan Containers Manufacturing Corporation
Buchanan County, S25, R36W, T57N

1. **Superseding Condition**

The conditions of this permit supersede the following special conditions found in previously issued construction permits issued by the Air Pollution Control Program.

 - A. Special Condition 1 from Permit No. 122008-001
 - B. Special Condition 1 from Permit No. 092002-023

2. **Hazardous Air Pollutants (HAPs) Emission Limitation**
 - A. Silgan Containers Manufacturing Corporation shall emit less than ten (10) tons individually or twenty-five (25) tons combined of HAPs from the installation in any consecutive 12-month period. The installation consists of the emission sources listed in Attachment A.

 - B. Attachment B and Attachment C or equivalent forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 2.A. Silgan Containers Manufacturing Corporation shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all materials used in the installation.

 - C. Silgan Containers Manufacturing Corporation shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 2.B indicate that the source exceeds the limitation of Special Conditions Number 2.A.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2011-03-047
Installation ID Number: 021-0064
Permit Number:

Silgan Containers Manufacturing Corporation
2155 Southwest Lower Lake Road
St. Joseph, MO 64504

Complete: March 16, 2011

Parent Company:
Silgan Containers Manufacturing Corporation
21800 Oxnard Street, Suite 600
Woodland Hills, CA 91367

Buchanan County, S25, R36W, T57N

REVIEW SUMMARY

- Silgan Containers Manufacturing Corporation has applied for authority to remove the butyl cellosolve acetate (CAS 112-07-2) and ethylene glycol monoethyl ether acetate (CAS 111-15-9) limitation from Permit No. 092002-023.
- An increase in the following Hazardous Air Pollutant (HAP) emissions are expected as a result of this project. The HAPs of concern for this project are butyl cellosolve acetate (CAS 112-07-2) and ethylene glycol monoethyl ether acetate (CAS 111-15-9).
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations as a result of the removal of the limits. The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart KKKK National Emission Standards for Metal Can Surface coating Operations does not apply to the installation since the facility is not considered a major source of HAPs.
- A recuperative thermal oxidizer (EP-330A) and a regenerative thermal oxidizer (EP-330B) are being used to control the volatile organic compound emission (VOC) and HAP emissions from all equipment affected by this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of all pollutants are below de minimis levels.
- This installation is located in Buchanan County, an attainment area for all criteria air pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was performed to determine the ambient impact of butyl cellosolve acetate (CAS 112-07-2) and ethylene glycol monoethyl ether acetate (CAS 111-15-9).
- Emissions testing are not required as a result of removing the limitations on butyl cellosolve acetate and ethylene glycol monoethyl ether acetate.
- The removal of the limitations should be included in the next Part 70 Operating Permit renewal application. The Part 70 renewal application is due May 6, 2011.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Silgan Containers Manufacturing Corporation (Silgan) owns and operates a food product can manufacturing plant in St. Joseph, Missouri. There are five (5) major departments within the St. Joseph Plant: the Draw and Iron (D&I) Can Manufacturing Line, the Steel and Aluminum Draw/Redraw Can Lines, the Steel End Manufacturing Lines, the Sheet Coating and Lithography Lines, and the Coil Shearing Line.

A Part 70 Operating Permit (OP2006-078) was issued to Silgan in November of 2006.

The following Construction Permits have been issued to Silgan from the Air Pollution Control Program. This installation is currently considered a major source of VOCs. However, the potential to emit of the installation has not been recalculated since the addition of control devices. Review of Silgan's Emission Inventory Questionnaires (EIQs) have shown that actual levels of VOCs have not exceeded major source levels since 2000. In order to remove the major status for VOCs, Silgan will need to submit potential emissions for the entire installation.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0885-007A	Construction of an aluminum can manufacturing line.
1189-002	Modification of the 2-piece D&I line.
0890-007	Removal of six end press lines and installation of one new press line.
0192-010	Installation of a conversion press for modification of existing lid end line.
0890-007A	Company did not remove the six end press lines. Re-permitted for a lower production level on the press line.
082000-012	Revision to permit 1189-002.
062000-015	New can manufacturing line.
092002-023	Installation of a Permanent Total Enclosure (PTE) for the two existing Sheet Coating and Lithography lines, a recuperative thermal oxidizer, a side feeder for Sheet Coating Line number 2, and conventional inks on line number 2.
122003-009	Modification of Permit Number 062000-015
062004-015	Installation of various de minimis projects.
122008-001	Construction of a new sheet coating and lithography line with a new regenerative thermal oxidizer.

PROJECT DESCRIPTION

Silgan is requesting the removal of limitation placed on butyl cellosolve acetate and ethylene glycol monoethyl ether acetate in Permit No. 092002-023. Due to customer requirements that Silgan implement Bisphenol A (BPA) non-intended coatings in food cans, usages of these two HAP have become necessary for future production at the St. Joseph facility.

The sheet coating and lithography lines are the sources of butyl cellosolve acetate and ethylene glycol monoethyl ether acetate. Silgan has a total of 3 such lines that are identical in size and function. The maximum hourly design rate (MHDR) of each line is 6,000 sheets per hour. (Note that in Permit No. 122008-001 the MHDR was erroneously stated as 1,000 sheets per hour although calculations were done correctly at 6,000 sheets per hour.) The sheets are individually fed into one of the coating lines where they are lithographed and/or surface coated. The part of the process that applies the new BPA non-intended coatings is the sheet coating portion. After the lithography presses, the sheets proceed to the sheet coat applicators. An interior and/or exterior organic protective coating is applied. The coating batch used is mixed up according to the individual customers' product specifications and will consist of a resin, pigment, various additives, a carrier solvent and thinning solvents. The maximum application rate can vary from 18.4 to 65.1 gallons per hour depending on the required film thickness of a specific coating.

The coatings as well as the lithographic inks are cured in a curing oven. Approximately 85% of the emissions from Lines No. 1 and No. 2 are emitted through the curing ovens to a recuperative thermal oxidizer, EP-330A. The remaining 15% of the emissions are captured by the permanent total enclosure. Emissions from the enclosure as well as all of the emissions from Line No. 3 are directed to a regenerative thermal oxidizer (RTO), EP-330B

In 2001, Silgan conducted a refined modeling analysis for emissions from the St. Joseph facility. At the time of the analysis two of the HAPs emitted, butyl cellosolve acetate and ethylene glycol monoethyl ether acetate did not have individual Risk Assessment Levels (RALs). Since these two HAPs are considered glycol ethers, the RAL for glycol ethers of $2.0 \mu\text{g}/\text{m}^3$ on an annual bases was used for compliance demonstration. Unable to demonstrate compliance with this concentration, Silgan chose to accept a special condition in Permit No. 092002-023 which disallowed the use of materials containing these two HAPs.

In 2009, Silgan requested that Missouri Department of Natural Resources develop individual RALs for butyl cellosolve acetate and ethylene glycol monoethyl ether acetate. On March 4, 2009, the Department issued the following individual RALs:

- ♦ Butyl Cellosolve Acetate – $790 \mu\text{g}/\text{m}^3$ (24-hour averaging)
 $79 \mu\text{g}/\text{m}^3$ (Annual averaging)
- ♦ Ethylene Glycol Monoethyl Ether Acetate $300 \mu\text{g}/\text{m}^3$ (24-hour averaging)
 $300 \mu\text{g}/\text{m}^3$ (Annual averaging)

In order to remove the limitation and emit at levels above the Screening Model Action Levels of 5 tons per year for glycol ethers, the modeled concentrations of these HAPs at maximum emissions levels needed to be below their respective RALs. Silgan conducted a refined modeling analysis which showed the maximum concentrations of each of these HAP are below their respective RALs for each averaging period; thus, this allowed for the removal of the limitation.

EMISSIONS/CONTROLS EVALUATION

A description of the emission factors sources and calculation methods for consideration of the new coatings are described as follows.

- Potential emissions for the new coatings used in the three coating and lithography lines were estimated using a mass balance approach and information obtained from the Material Safety Data Sheets (MSDS).
- 100% of the VOC and HAP content of the coating mixtures are assumed to be emitted, captured, and routed to either the recuperative thermal oxidizer (EP-330A) or the regenerative thermal oxidizer (EP-330B).
- The recuperative thermal oxidizer was tested August 10, 2009 and has a minimum VOC destruction efficiency of 99.8%. The regenerative thermal oxidizer was also tested August 10, 2009 and has a minimum VOC destruction efficiency of 98.6%.
- The potential emissions for total VOCs, combined HAPs and individual HAPs for each new coating were then used to determine the worst case potential emissions for each pollutant.
- PM₁₀ emissions for the application of the materials by roller were considered negligible. According to AP-42, Section 4.2.2.10, *Metal Coil Surface Coating*, transfer efficiency is considered to approach 100%.

The following table provides an emissions summary for this project. The existing potential emissions listed in Permit No. 122008-001 are not believed to be accurate. The listed existing potential emissions for VOCs exceed 4,000 tons per year. According to Silgan, these numbers do not account for the addition of control devices, nor do they account for performance testing of the control devices which have shown higher demonstrated control efficiencies. Potential emissions of VOC are believed to be below major source levels; however, Silgan will need to recalculate the VOC potential emissions in order to confirm this. The existing actual emissions were taken from Silgan's 2009 EIQ submittal. Potential emissions of the application represent the potential emissions of the new coatings being used on all three sheet coating and lithography lines, assuming continuous operation (8760 hours per year). The total VOC, total HAP and individual HAP emissions for the new coatings were compared to potential to emit calculations for all other coatings reviewed in Permit No. 122008-001. The only potential emission increases on the three lines are for butyl cellosolve acetate and ethylene glycol monoethyl ether acetate. All other pollutant categories on a per line basis are less than the emissions calculated for Permit No. 122008-001.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels ¹	Existing Potential Emissions	Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Application	Installation Conditioned Potential
PM _{2.5}	10.0	Minor	0.52	N/A	N/A
PM ₁₀	15.0	Minor	0.52	N/A	N/A
SOx	40.0	Minor	0.04	N/A	N/A
NOx	40.0	Minor	6.80	N/A	N/A
VOC	40.0	Major	17.08	22.06	N/A
CO	100.0	Minor	5.71	N/A	N/A
HAPs	10.0/25.0	<10.0 individual, <25.0 combined	N/D	7.91	<10.0/25.0
Ethylene Glycol Monoethyl Ether Acetate	5.0	N/D	N/D	7.91	N/A
2-Butoxyethyl Acetate	5.0	N/D	N/D	6.25	N/A

N/A = Not Applicable; N/D = Not Determined

¹The regulatory levels listed for the individual HAPs represent the Screening Model Action Levels (SMALS).

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Silgan Containers Manufacturing Corporation shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110

The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of a hardcopy Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions. Alternatively, submission of an electronic copy via MoEIS is required May 1.

- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of butyl cellosolve acetate and ethylene glycol monoethyl ether acetate. For further details on the modeling, please refer to the memorandum titled "Ambient Air Quality Impact Analysis (AAQIA) for Silgan Containers Corporation dated April 22, 2011. The ambient air quality impact analyses indicate that the removal of limitations on these two HAPs will not cause ambient air concentrations above acceptable levels.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Susan Heckenkamp
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated February 24, 2011, received March 16, 2011, designating Silgan Containers Manufacturing Corporation as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated March 30, 2011.

Attachment A: Installation Emission Sources

Silgan Containers Manufacturing Corporation

Buchanan County, S25, R36W, T57N

Project Number: 2011-03-047

Installation ID Number: 021-0064

Permit Number:

Source ID	Emission Point	Process Description	Source Description	Control Device
ES-2000	EP-201B	D&I Can Manufacturing	Cleanup for D&I Line	
ES-2010	EP-201A EP-201B EP-202B	D&I Can Manufacturing	Washcoat Applicator	CD-2
ES-2020	EP-202A	D&I Can Manufacturing	Smith Thermal Oxidizer No. 2	CD-2
ES-2021	EP202A	D&I Can Manufacturing	Inside Bake Oven	CD-2
ES-2022	EP-202A	D&I Can Manufacturing	Inside Spray Machines (3 ea.)	CD-2
ES-2023	EP-202A	D&I Can Manufacturing	Washcoat Oven	CD-2
ES-2100	EP-201B	D&I Can Manufacturing	D&I Videojet Ink Printer	
ES-2200	EP-201B	D&I Can Manufacturing	D&I Ink Dot Printer	
ES-3040	EP-304A EP-310A	End Press Department	Steel End Line No. 2	
ES-3100	EP-310A	End Press Department	Cleanup for End Lines	
ES-3110	EP-304A EP-310A	End Press Department	End Line Mister Spray Applicators	
ES-3200	EP-310A	DRD Can Manufacturing	DRD Videojet Printer	
ES-3300	EP-330A	Sheet Coating / Lithography	Anguil Thermal Oxidizer No. 1	CD-1
ES-3310	EP-330A EP-330B	Sheet Coating / Lithography	Sheet Coating Line No. 1	CD-1 CD-3
ES-3320	EP-330A EP-330B	Sheet Coating / Lithography	Sheet Coating Line No. 2	CD-1 CD-3
ES-3330	EP-330B	Sheet Coating / Lithography	Cleanup for Coating Lines	
ES-3340	EP-330A EP-330B	Sheet Coating / Lithography	Sheet Coating Line No. 3	CD-1 CD-3
ES-3350	EP-330B	Sheet Coating / Lithography	Anguil Thermal Oxidizer No. 3	CD-3

Mr. D. Michael Huff
Environmental Engineer
Silgan Containers Manufacturing Corporation
P.O. Box 40
Paris, TX 75461

RE: New Source Review Permit - Project Number: 2011-03-047

Dear Mr. Huff:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Susan Heckenkamp, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:shl

Enclosures

c: Kansas City Regional Office
PAMS File: 2011-03-047

Permit Number: