

BAT Support Document for Group 1LL Subcategory – Metal Can Coating

General Overview – Can Coating

The basis for the recommended BAT rules for the various SCC activities associated with metal can coating came from the following regulatory sources:

- OhioEPA STARS2 database search, PTI issuance and BAT Determinations by SCC;
- OhioEPA STARS2 database search, NAICS 332431 Facility Report;
- California Bay Area Air Quality Management District (AQMD) Regulation 8, Rule 11, last amended on November 19, 1997 and Bay Area AQMD BACT Guideline 112.1 for Metal Container (Can) Coating Operations, dated 11/1/1991;
- California South Coast Air Quality Management District Rule 1125, last amended on January 13, 1995;
- California Sacramento Metropolitan Air Quality Management District Rule 452 Can Coating, last amended on September 25, 2008;
- Texas Commission on Environmental Quality (TCEQ) Current BACT Guidelines for Coating Sources, last updated September, 2007;
- US EPA CTG Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks, EPA-450/2-77-008;
- New Source Performance Standard (NSPS) for Beverage Can Surface Coating, Subpart WW, last amended on October 17, 2000;
- Metal Can Surface Coating NSEHAP, Subpart KKKK, promulgated November 13, 2003;
- Ohio Administrative Code Rules 3745-21-09(D); and
- US EPA RACT/BACT/LAER Clearinghouse Determinations, 1970s through present.

The STARS2 database yielded 111 can coating category emission units with issued Permits-to-Install (PTIs) since 1974. These 111 emission units are located at 13 operating can coating facilities identified by the STARS2 NAICS search. Of the 13 operating can coating facilities in Ohio, 8 are Title V facilities, 5 are synthetic minor facilities for VOC, and 10 are synthetic minor for HAP emissions to avoid MACT Subpart KKKK. Only 12 of the 111 PTI sources found are subject to the NSPS Subpart WW for beverage can surface coating. It should be noted that the NSPS is applicable to only beverage can surface coating operations, which is a small percentage of the can coating operations in Ohio. It should also be noted that US EPA Region V, which includes Ohio, has the largest number of can coating facilities in the US.

Most regulatory schemes and guidance documents for can coating separate the emission standards for two-piece can lines, three-piece can lines, end seal compounds, and side seam coatings due to the distinct differences in can manufacture and coating requirements. Our BAT recommendations follow these established differences in can manufacturing and coatings. California rules go a step farther and separate emission standards for some can coatings into food cans, non-food cans, and beverage cans. Our BAT recommendation does not go to this degree of separation of food versus non-food, but does identify specific BAT emission standards for beverage can lines, which are subject to more stringent NSPS rules. Furthermore, it would not be appropriate to recommend BAT for all can lines to be equivalent to the NSPS standards for beverage cans since coatings and manufacturing processes are typically specific to the product to be contained within each can.

The proposed BAT rules are broken down into metal can coating sources with facility-wide VOC emissions between 10 TPY and 80 TPY, and those with facility-wide VOC emissions equal to or greater than 80 TPY. For facilities with VOC emissions less than the 80 TPY threshold, there are compliance options proposed as BAT. The 80 TPY threshold was determined to be the threshold where installation and use of capture and control equipment would be technically feasible and cost effective at larger sources, based on the BACT guidelines from both TCEQ and the Bay Area AQMD. Specifically, the TCEQ has already established this 80 TPY VOC threshold in its current BACT for coating sources.

SCC 4-02-017-35, 4-02-017-21, 4-02-017-22, 4-02-017-23, 4-02-017-24, 4-02-017-27, 4-02-017-28, 4-02-017-29, 4-02-017-38: Two-Piece Can Coating Lines (includes Lithography, Overvarnish, Interior Spray, Interior/Exterior Basecoat, and Exterior End Coating)

The above-listed SCCs were obtained from the available SCC Level 4 Descriptions listed in STARS2. Some of the above SCCs only identify the coating type, i.e. "4-02-017-28 Overvarnish", which could be applicable to either a two-piece can line or a three-piece can line. Therefore, some SCCs are listed in both the two-piece can and three-piece can BAT recommendations.

Beverage can surface coating lines fall into the two-piece can coating category, however, they are the only type of can line subject to a NSPS rule (Subpart WW). A small percentage of can coating lines in Ohio are beverage can lines. The BAT recommendation for two-piece can lines does identify standards specific to beverage cans only which are equivalent to the NSPS.

For non-beverage two-piece can coating lines, the BAT recommendation identifies use of compliant coatings or use of capture and control equipment for sources >10 TPY VOC and <80 TPY VOC. Based on the 30 PTIs reviewed for two-piece can coating lines in Ohio, the majority use control equipment to reduce emissions and have allowable emissions less than 50 TPY. The control equipment specified in the PTIs have BAT control efficiencies (CE) between 81% and 95% overall CE, with destruction efficiencies (DE) between 90% and 95%. A 90% overall CE is the recommended BAT for sources < 80 TPY using control equipment based on review of the PTIs and the BACT guidance from the Bay Area AQMD and TCEQ. This is more stringent than the existing OAC rule 3745-21-09(B)(6) which requires 81% overall control efficiency. The BAT recommendations for non-beverage two-piece can coating lines using compliant coatings were based on the various California AQMDs (Bay Area, South Coast, Sacramento) for basecoats, overvarnish, and exterior end coating at 2.1 lbs VOC/gallon of coating. This is more stringent than the existing OAC rule 3745-21-09(D) at 2.8 lbs VOC/gallon. For interior body spray coatings, the California AQMDs rules varied between 3.5 lbs VOC/gallon and 3.7 lbs VOC/gallon of coating. The US EPA RACT/BACT/LAER Clearinghouse had a New York 1987 PSD permit determination of 3.6 lbs VOC/gallon for interior body spray coatings as BACT; therefore this BACT limit is the recommended BAT limitation for interior body spray coatings. This is more stringent than the existing OAC rule 3745-21-09(D) at 4.2 lbs VOC/gallon. Sources > 80 TPY are required in this BAT recommendation to use capture and control devices with an overall CE of 95% based on the most stringent Ohio PTIs and BACT guidance documents from the listed California AQMDs, the TCEQ, and a Pennsylvania 1988 PSD permit BACT determination in the US EPA RACT/BACT/LAER Clearinghouse. In addition, all these regulatory sources were compared to the US EPA CTG issued in 1977 for this source category to ensure the proposed BAT is at least as stringent as the guidance in the CTG document.

SCC 4-02-017-39, 4-02-017-22, 4-02-017-23, 4-02-017-24, 4-02-017-27, 4-02-017-28, 4-02-017-31, 4-02-017-32, 4-02-017-34: Three-Piece Can Coating Lines (includes Lithography, Overvarnish, Interior Spray, Interior/Exterior Basecoat)

The above-listed SCCs were obtained from the available SCC Level 4 Descriptions listed in STARS2. Some of the above SCCs only identify the coating type, i.e. "4-02-017-28 Overvarnish", which could be applicable to either a two-piece can line or a three-piece can line. Therefore, some SCCs are listed in both the two-piece can and three-piece can BAT recommendations.

There are no beverage can surface coating lines in the three-piece can category (beverage cans are two-piece cans), therefore no NSPS rule is applicable to three-piece can coating lines.

For three-piece can coating lines, the BAT recommendation identifies use of compliant coatings or use of capture and control equipment for sources >10 TPY VOC and <80 TPY VOC. Based on the 7 PTIs

reviewed for three-piece can coating lines in Ohio, all sources >10 TPY utilize control equipment. The control equipment specified in the PTIs have BAT control efficiencies (CE) between 81% and 95% overall CE. A 90% overall CE is the recommended BAT for sources < 80 TPY using control equipment based on review of the PTIs and the BACT guidance from the Bay Area AQMD and TCEQ. The BAT recommendations for three-piece can coating lines using compliant coatings were based on the various California AQMDs (Bay Area, South Coast, Sacramento) for basecoats and overvarnish at 1.9 lbs VOC/gallon of coating. For interior body spray coatings, the California AQMDs rules varied between 3.0 lbs VOC/gallon and 4.2 lbs VOC/gallon of coating. The US EPA RACT/BACT/LAER Clearinghouse had a New York 1987 PSD permit determination of 3.6 lbs VOC/gallon for interior body spray coatings as BACT; therefore this BACT limit is the recommended BAT limitation for interior body spray coatings. Sources > 80 TPY are required in this BAT recommendation to use capture and control devices with an overall CE of 95% based on the most stringent Ohio PTIs and BACT guidance documents from the listed California AQMDs, the TCEQ, and a Pennsylvania 1988 PSD permit BACT determination in the US EPA RACT/BACT/LAER Clearinghouse. In addition, all these regulatory sources were compared to the US EPA CTG issued in 1977 for this source category to ensure the proposed BAT is at least as stringent as the guidance in the CTG document.

SCC 4-02-017-26, 4-02-017-36, 4-02-017-37: End Sealing Compound Coating

End sealing compound coatings can be used in two-piece and three-piece can manufacturing. The above-listed SCCs were obtained from the available SCC Level 4 Descriptions listed in STARS2.

The beverage can surface coating NSPS does not include end sealing compound coatings; therefore no NSPS rules are applicable to this SCC.

The BAT recommendation for this SCC identifies three options for sources >10 TPY VOC and <80 TPY VOC: 1) use of compliant coatings, 2) use of compliant coatings with a control device, or 3) use of capture and control equipment with 90% overall CE. Based on the 29 PTIs reviewed for end sealing compound coating lines in Ohio, the majority have BAT equivalent to the OAC rules in 3745-21-09(D)(1)(e) and (D)(2)(e). All of the 29 PTI sources had allowable emissions less than 80 TPY, almost half had emissions less than 10 TPY. Our agency found 9 of the 29 PTI sources use control equipment and have BAT control efficiencies (CE) between 54% and 81% overall CE. A 90% overall CE is the recommended BAT for sources < 80 TPY using control equipment based on the BACT guidance from the Bay Area AQMD and TCEQ. The BAT recommendations when using compliant coatings were based on the US EPA RACT/BACT/LAER Clearinghouse where PSD permits in Minnesota (1995, 1997) and Ohio (1988) established BACT as 3.7 lbs VOC/gallon of coating for end sealing coatings. This is equivalent to the existing OAC rules in 3745-21-09(D) for end seal compound coatings. It should be noted some California AQMDs have more stringent VOC emission standards for food and non-food can end sealing compounds ranging from 0.0 lb VOC/gallon to 0.1 lbs VOC/gallon of coating. The food can and non-food can distinctions unique to California were not included in this BAT recommendation. While it is unlikely that sources in this SCC will exceed potential emissions of 80 TPY, sources > 80 TPY are required in this BAT recommendation to use capture and control devices with an overall CE of 95% based on the BACT guidance documents from the listed California AQMDs and the TCEQ. In addition, all these regulatory sources were compared to the US EPA CTG issued in 1977 for this source category to ensure the proposed BAT is at least as stringent as the guidance in the CTG document.

SCC 4-02-017-25, 4-02-017-33: Side Seam Coating

Side seam coatings are only used in three-piece can manufacturing. The above-listed SCCs were obtained from the available SCC Level 4 Descriptions listed in STARS2.

There are no beverage can surface coating lines in the three-piece can category (beverage cans are two-piece cans), therefore, no NSPS rule is applicable to three-piece can side seam coating lines.

Based on review of 18 PTIs for side seam coating operations in Ohio, these operations are uncontrolled and generally have VOC emissions less than 10 TPY. All 18 PTI sources have BAT equivalent to the OAC rule 3745-21-09(D)(2)(d) for side seam coating of 5.5 lbs VOC/gallon of coating. No other states, including the California AQMDs, had side seam compliant coating rules more stringent than the existing OAC rule. Based on this review, it does not appear necessary to establish a BAT rule for this SCC subcategory of metal can coating since emissions from side seam coating will likely be less than 10 TPY and no more stringent regulations were found than the existing OAC rules.

SCC 4-02-017-02: Metal Can Coating, Cleaning and Pretreatment

No sources were found in STARS2 with permits in this SCC code. In addition, no emission standards were found in the beverage can coating NSPS or metal can coating MACT for these specific operations. Typically, cleaning and pretreatment operations utilize inorganic/aqueous-based chemicals. Based on this review, it does not appear necessary to establish a BAT rule for this SCC subcategory of metal can coating.

SCC 4-02-017-03: Metal Can Coating, Coating Mixing

No sources were found in STARS2 with permits in this SCC code. In addition, no emission standards were found in the beverage can coating NSPS or metal can coating MACT for these specific operations. No emission standards were found in metal can coating rules in other states. It is expected that these sources would be similar to mixing sources under the Metal Coil Coating subcategory and is likely that emissions would be less than 10 TPY for these sources. Based on this review, it does not appear necessary to establish a BAT rule for this SCC subcategory of metal can coating.

SCC 4-02-017-99: Other Not Classified (Conversion Press Tab and Lube, Rust Inhibitor, and Post-Repair Coating Operations)

The above-listed SCC was found in STARS2 assigned to 27 PTIs for ancillary can manufacturing sources in Ohio such as conversion press tab and lube processes, application of rust inhibitors, and post-repair spray coating operations. Based on review of the 27 PTIs, the tab lube and rust inhibitor coating operations are uncontrolled and less than 10 TPY and would not be subject to BAT. The majority of post-repair spray operations have emissions less than 10 TPY. For the tab lube, rust inhibitor, and post-repair spray coatings, the PTIs list BAT as equivalent to the OAC rules in 3745-21-09(U) for miscellaneous metal parts coating. Many of the 27 PTI sources comply with the alternative 3 gallons per day of coating usage restriction. Based on this review, it does not appear necessary to establish a BAT rule for this SCC subcategory of metal can coating.