RULE 223 METAL CONTAINER COATING

Adopted 04-21-81
(Amended 09-25-90, 10-19-93, 10-06-94)

CONTENTS

400 ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE
402 OPERATION AND MAINTENANCE PLAN

500 MONITORING AND RECORDS

501 RECORDKEEPING
502 CONTROL EQUIPMENT RECORDS
503 DURATION OF RECORDS
504 TEST METHODS FOR VOC CONTENT
505 TEST METHOD FOR VAPOR PRESSURE
506 TEST METHODS FOR CAPTURE AND CONTROL EFFICIENCY

100 GENERAL

101 APPLICABILITY: The provisions of this rule shall apply to all metal container coating operations that use volatile organic compounds.

200 DEFINITIONS

201 COATING APPLICATOR: An apparatus used to apply a surface coating.

202 COATING LINE: An operation or process for applying, drying, baking, and/or curing surface coatings, together with associated equipment including a coating applicator, flash-off area and oven.

203 CAN COATING: Any coating containing organic materials and applied or intended for application by spray, roller, or other means onto the interior and/or exterior of metal cans, drums, pails, or lids.

204 CLOSURE: Any component that is sued to close or seal a container

205 COIL: Any flat metal sheet or strip that is rolled or wound in concentric rings.

206 COIL COATING: Any coating applied to metal sheets or strips which are then rolled into coils for further industrial or commercial use.

207 CONTAINER: Any three-piece can, two-piece can, drum, pail or tube.

208 DRUM: Any cylindrical metal shipping container larger than 12 gallons capacity but not larger than 110 gallons capacity.

209 ENCLOSED GUN WASHER: A washing system that has an enclosed solvent container, and uses non-atomized solvent flow to flush the spray equipment and collects and returns discharged solvent to the enclosed container.

210 END SEALING COMPOUND: A compound which is coated onto can ends and which functions as a gasket when the end is assembled onto the can.

211 EXEMPT COMPOUNDS: For the purposes of this rule, exempt compounds are the following:

211.1 Methane
211.2 Carbon dioxide
211.3 Carbon monoxide
211.4 Carbonic acid
211.5 Metallic carbides or carbonates
211.6 Ammonium carbonate
211.7 1,1,1-trichloroethane
211.8 Methylene chloride
211.9 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123)
211.10 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124)
211.11 Trichlorofluoromethane (CFC-11)
211.12 Dichlorodifluoromethane (CFC-12)
211.13 1,1,1-trichloro-2,2,2-trifluoroethane (CFC-113)
211.14 1-chloro-1,1-difluoro-2-chloro-2,2-difluoroethane (CFC-114)
211.15 Chloropentafluoroethane (CFC-115)
211.16 Pentafluoroethane (HFC-125)
211.17 1,1,2,2-tetrafluoroethane (HFC-134)
211.18 Tetrafluoroethane (HFC-134a)

211.19 1,1-dichloro-1-fluoroethane (HCFC-141b)
211.20 1-chloro-1,1-difluoroethane (HCFC-142b)
211.21 1,1,1-trifluoroethane (HFC-143a)
211.22 Chlorodifluoromethane (HCFC-22)
211.23 Trifluoromethane (HFC-23)
211.24 Difluoroethane (HFC-152a)
211.25 The following four classes of perfluorocarbon compounds:

a. Cyclic, branched, or linear, completely fluorinated alkanes.
b. Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations.
c. Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations.
d. Sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

Perfluorocarbon compounds will be assumed to be absent from a product or process unless a manufacturer or facility operator identifies the specific individual compounds (from the broad classes of perfluorocarbon compounds) and the amounts present in the product or process and provides a validated test method which can be used to quantify the specific compounds.

212 EXTERIOR BASE COATING: A coating applied to the exterior of a container body to provide protection to the metal or to provide background for any lithographic or printing operation.

213 EXTERIOR BODY SPRAY: A coating sprayed on the exterior of a container body to provide a decorative or protective finish.

214 FOOD/BEVERAGE CAN: A metal container in which food or beverages intended for human consumption are packaged.

215 GRAMS OF VOC PER LITER OF COATING (AS APPLIED EXCLUDING WATER AND EXCLUDING EXEMPT COMPOUNDS): The weight of VOC per combined volume of VOC and coating solids. This can be calculated by the following equation:

$$G_{voc} = (W_v - W_w - W_{ec}) / (V_m - V_w - V_{ec})$$

where:

G_{voc} = Gams VOC per liter of coating less water and exempt compounds
W_v = Weight of all volatile compounds in grams
W_w = Weight of water in grams
W_{ec} = Weight of exempt compounds in grams
V_m = Volume of coating material in liters
V_w = Volume of water in liters
V_{ec} = Volume of exempt compounds in liters

216 GRAMS OF VOC PER LITER OF MATERIAL: The weight of VOC per combined volume of material. This can be calculated by the following equation:

$$G_{voc} = (W_v - W_w - W_{ec}) / V_m$$

where:
G_{voc} = Grams VOC per liter of material
W_v = Weight of all volatile compounds in grams
W_w = Weight of water in grams
W_{ec} = Weight of exempt compounds in grams
V_m = Volume of material in liters

217 HIGH-VOLUME LOW-PRESSURE (HVLP): A coating application system that is operated on a delivered air pressure between 0.1 and 10 psig air pressure.

218 INK: Any coating used in any operation that imparts color, design, alphabet, or numerals on an exterior surface of a metal container or closure.

219 INTERIOR BASE COATING: A coating applied to the interior of a container body to provide a protective lining between the product and the can.

220 INTERIOR BODY SPRAY: A coating sprayed on the interior of the container body to provide a protective film between the product and the can.

221 LUBRICANT APPLICATOR: An apparatus used to apply a surface lubricant to beverage container lid tabs.

222 NECKER LUBRICANT: Any fluid or solid applied to a can forming tool to reduce friction while reducing the can diameter to form a neck.

223 OVERVARNISH: A coating applied directly over a design coating to reduce the coefficient of friction, to provide gloss and to protect the finish against abrasion and corrosion.

224 PAIL: Any metal container from 1 gallon to 12 gallon capacity and constructed of 29 gauge or heavier material.

225 RECONDITIONED DRUMS, PAILS, OR LIDS: Any drum, pail, or lid which is reused, recycled or remanufactured.

226 TAB PRESS LUBRICATION: The process that uses a lubricated mechanical press to create beverage container lid tabs from flat aluminum metal stock.

227 THREE-PIECE CAN SIDE-SEAM SPRAY: A coating sprayed on the interior and/or exterior of a welded, cemented or soldered seam to protect the exposed metal.

228 TWO-PIECE CAN EXTERIOR END COATING: A coating applied to the exterior end of a can to provide protection to the metal.

229 VOLATILE ORGANIC COMPOUND (VOC): Any compound that contains at least one atom of carbon, except exempt compounds.

300 STANDARDS

301 VOC LIMITATIONS: Except as provided in Section 302, a person shall not use or apply any coating on any coating line of the type designated below that contains volatile organic compounds in excess of the following limits:

	Coating Category	**Grams of VOC/liter of coating as applied, excluding water and exempt compounds.**
301.1	Sheet basecoat (interior and exterior) and over-varnish	225
301.2	Two piece can exterior basecoat and over-varnish	250
301.3	Coil Coating	200

301.4	Interior body spray	
	Two piece can	420
	Three piece can	360
301.5	Three piece can side seam spray	660
301.6	End sealing compound:	
	food / beverage	440
	non-food / non-beverage	0
301.7	Exterior body spray	420
301.8	Reconditioned drums, pails and lids coatings:	
	Interior	510
	Exterior	420
301.9	New drums, pails and lids coatings:	
	Exterior, Air Dried	340
	Exterior, Baked	340
	Interior	420
301.10	Inks	225
301.11	Tab Press Lubricant	690
301.12	Necker Lubricants	100

302 EMISSION CONTROL SYSTEM: Alternatively, a person may comply with the provisions of Section 301 by using an emission control system, provided that the overall efficiency of the system (capture efficiency multiplied by control efficiency) shall not be less than 85 percent by weight in reducing emissions of organic compounds. The total VOC emissions from operations under this section, considering capture and control efficiencies, shall be equivalent to or less than the VOC emissions level that would be achieved by complying with Section 301. The emission control system shall be approved in writing by the Air Pollution Control Officer in accordance with Rule 501, GENERAL PERMIT REQUIREMENTS.

303 APPLICATION METHODS: Except for can interior and automatic triggered sideseam sprays, a person shall not apply coatings that contain volatile organic compounds unless the coating is applied with one of the following methods:

303.1 Electrostatic application operated in accordance with the manufacturer's recommendations.

303.2 Flow coat.

303.3 Roll coat.

303.4 Dip coat.

303.5 Squeegee pad.

303.6 High-volume low-pressure (HVLP) operated in accordance with the manufacturer's recommendations.

304 PROHIBITION OF SPECIFICATION: A person shall not solicit nor require for use nor specify the application of a coating to any metal container or closure if such use or application results in a violation of the provisions of this rule. The prohibition applies to all written or oral contracts under the terms of which any coating that is subject to the provisions of this rule is to be applied to any metal container or closure at any physical location within the District.

305 SURFACE PREPARATION AND CLEAN-UP SOLVENT: The requirements of this section shall apply to any person using VOC-containing materials for surface preparation and clean-up:

305.1 A person shall not use materials that have a VOC content in excess of 200 grams per liter of material for surface preparation.

305.2 A person shall use closed, nonabsorbent containers for the storage or disposal of cloth or paper used for clean-up.

305.3 A person shall not use volatile organic compounds for the clean-up of spray equipment, including paint lines, unless an enclosed gun washer or other low-emission washing system approved in writing by the Air Pollution Control Officer is used.

305.4 A person shall not use organic compounds with a composite vapor pressure equal to or greater than 45 mm Hg measured at 20 C (68 F) in a gun washing system.

400 ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE:

401.1 VOC Limitations: The VOC limitations described in Section 301, or alternatively Section 302, of this rule shall be achieved on or before October 6, 1995, with the exception of facilities subject to the Tab Press Lubricant limitation of Subsection 301.10, for which compliance is required no later than May 31, 1995.

401.2 Application Methods: The application methods described in Section 303 of this rule shall be in use on or before October 6, 1995, with the exception of facilities subject to the Tab Press Lubricant limitation of Subsection 301.10, for which compliance is required no later than May 31, 1995.

401.3 Surface Preparation and Clean-Up Solvents: The surface preparation and clean-up solvents and gun washing system described in Sections 305.1, 305.3, and 305.4 shall be in use on or before October 6, 1995, with the exception of facilities subject to the Tab Press Lubricant limitation of Subsection 301.10, for which compliance is required no later than May 31, 1995.

401.4 Compliance with all other requirements of this rule shall become effective upon adoption.

402 OPERATION AND MAINTENANCE PLAN: A person using an emission control device as a means of complying with this rule, as provided in Section 302, shall submit an Operation and Maintenance Plan with the application for Authority to Construct for the emission control device.

402.1 The Operation and Maintenance Plan shall specify:

a. Operation and maintenance procedures that will demonstrate continuous operation of the emission control device during emission-producing operations;

b. Records that must be kept to document the operation and maintenance procedures.

402.2 The records must comply with Sections 502 and 503; and

402.3 The Operation and Maintenance Plan shall be implemented upon approval by the Air Pollution Control Officer.

402.4 After completing the construction of the emission control device, the Operation and Maintenance Plan shall be resubmitted annually for approval.

500 MONITORING AND RECORDS

501 RECORDKEEPING:

501.1 A person who is subject to the limitations of this regulation shall comply with all applicable recordkeeping requirements as specified in Rule 410, RECORDKEEPING FOR VOLATILE ORGANIC COMPOUND EMISSIONS.

502 CONTROL SYSTEM RECORDS:

502.1 A person using an emission control device pursuant to Section 302 as a means of complying with this rule shall maintain records as required by the Operation and Maintenance Plan specified in Section 402 on a daily basis.

502.2 Compliance with the standards of Section 302 shall be demonstrated by conducting annual source testing of any emission control equipment as specified in Section 505 and by analyzing coating VOC content as specified in Section 504.

503 DURATION OF RECORDS: All records maintained pursuant to this rule shall be retained for at least two years from date of entry, with the exception that sources subject to the requirements of Rule 507, FEDERAL OPERATING PERMIT PROGRAM, shall retain records at least five years. Records shall be made available for inspection by the Air Pollution Control Officer upon request.

504 TEST METHODS FOR VOC CONTENT:

504.1 The VOC content of coatings subject to the provisions of this rule shall be analyzed using U.S. EPA Reference Method 24 as found in 40 CFR 60, Appendix A.

505 TEST METHOD FOR VAPOR PRESSURE: Composite vapor pressure of an organic solvent used in a gun washing system shall be determined in accordance with ASTM D2879-83 and the following equation:

$$VP_c = \sum_{i=1}^{n} \frac{(W_i / MW_i)\, P_i^{sat}}{(W_w / MW_w) + (W_e / MW_e) + \sum_{i=1}^{n} (W_i / MW_i)}$$

Where:

VP_c	=	Composite vapor pressure of an organic solvent, in mm Hg
W_i	=	Weight of ith compound, in grams
Wm_i	=	Molecular weight of ith compound, in grams per gram-mole
P_i^{sat}	=	Saturate vapor pressure of ith compound, in mm Hg
W_w	=	Weight of water, in grams
W_e	=	Weight of exempt compounds, in grams
MW_w	=	Molecular weight of water, in grams per mole
MW_e	=	Molecular weight of exempt compounds, in grams per mole

506 TEST METHODS FOR CAPTURE AND CONTROL EFFICIENCY:

506.1 Capture efficiency of the emission control system as specified in Section 302 shall be determined in accordance with the U.S. EPA protocols referenced in 40 CFR 52.741(a)(4)(iii).

506.2 Control efficiency as specified in Section 302 shall be determined by U.S. EPA Reference Methods 25 and 25A as found in 40 CFR Part 60, Appendix A, or ARB Method 100.

This Page Intentionally Left Blank