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3745-21-09 **Control of emissions of volatile organic compounds from stationary sources and perchloroethylene from dry cleaning facilities.**

(O) Solvent metal cleaning.

(2) Each owner or operator of a cold cleaner shall:

- (e) Notwithstanding the exemption specified in paragraph (O)(6)(b) of this rule, for each cold cleaner located in Butler, Clark, Clermont, Greene, Hamilton, Miami, Montgomery and Warren counties, comply with the following requirements:
- (i) The solvent material employed in the cold cleaner shall have a vapor pressure that does not exceed 1.0 mm Hg (0.019 psi) measured at twenty degrees Celsius (sixty-eight degrees Fahrenheit).
 - (ii) The owner or operator of each cold cleaner shall maintain records

for a minimum of five years that include the following information for each solvent purchase:

- (a) the date of the purchase;
 - (b) the name, company identification, and chemical composition of the solvent; and
 - (c) the vapor pressure of the solvent measured in mm Hg at twenty degrees Celsius (sixty-eight degrees Fahrenheit), as determined by ASTM D2879-97, "Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope."
- (iii) The cleaning of electronic components as defined in paragraph (G)(3) of rule 3745-21-01 of the Administrative Code are exempt from the requirements of paragraph (O)(2)(e) of this rule.
- (iv) The cleaning of paint gun parts, through the use of cold cleaners as defined in paragraph (G)(1) of rule 3745-21-01 of the Administrative Code, for the removal of paint and coatings, is exempt from the requirements of paragraph (O)(2)(e) of this rule.

(6) Exemptions:

- (b) After June 15, 1999, except as provided in paragraph (O)(2)(e), paragraphs (O)(2) through (O)(5) of this rule shall not apply to any solvent metal cleaning operation which is subject to ~~subpart T~~ of 40 CFR ~~part~~ Part 63, subpart T, provided the requirements of that subpart T are specified in the terms and conditions of a

permit to operate issued pursuant to rule 3745-35-02 of the Administrative Code, a permit to install issued pursuant to rule 3745-31-05 of the Administrative Code, or a title V permit issued pursuant to rule 3745-77-08 of the Administrative Code.

(T) Leaks from petroleum refinery equipment.

- (4) The director may accept an alternative monitoring, recordkeeping and reporting program for that required by paragraph (T)(1) of this rule if the owner or operator of a petroleum refinery can demonstrate to the satisfaction of the director that the alternative program is at least as effective in identifying, documenting and reporting leaks from petroleum refinery equipment as the program outlined in paragraph (T)(1) of this rule. For purposes of this paragraph, any proposed alternative program which the director finds comparable to the requirements of paragraph (DD)(12) or (DD)(13) of this rule shall be acceptable to the director.
- (a) Pursuant to this paragraph, the alternative monitoring, recordkeeping and reporting program entitled "Premcor Lima Refinery, LDAR Plan" and dated November 19, 2002 is approved by the director as an acceptable alternative program for the Premcor Lima Refinery (premise number 0302020012).

- (Y) Flexographic, packaging rotogravure and publication rotogravure printing lines.
 - (1) Except where exempted under paragraph (Y)(2) of this rule, no owner or operator of a flexographic printing line, packaging rotogravure printing line or publication rotogravure printing line may cause, allow or permit the discharge into the ambient air of any volatile organic compounds from such printing line after the date specified in paragraph (C)(32) of rule 3745-21-04 of the Administrative Code unless the requirements of either paragraph (Y)(1)(a) or (Y)(1)(b) of this rule are satisfied.
 - (a) The volatile organic compound content of the coatings and inks employed in said printing line, as determined under paragraph (B)

of rule 3745-21-10 of the Administrative Code, does not exceed the following limitation:

- (i) Forty per cent VOC by volume of the coating and ink, excluding water and exempt solvents; or
 - (ii) Twenty-five per cent VOC by volume of the volatile matter in the coating and ink.
- (b) Said printing line is equipped with a capture system and associated control system which are designed and operated to achieve the following efficiencies for volatile organic compounds, as determined under paragraph (C) of rule 3745-21-10 of the Administrative Code:
- (i) A capture efficiency which is:
 - (a) At least sixty-five per cent by weight, for a flexographic printing line;
 - (b) At least seventy per cent by weight, for a packaging rotogravure printing line; or
 - (c) At least eighty per cent by weight, for a publication rotogravure printing line.
 - (ii) A control efficiency which is at least ninety per cent by weight.
- (2) The requirements of paragraph (Y)(1) of this rule shall not apply to the following printing lines:
- (a) Any printing line that is subject to and in compliance with the emission limitations in paragraph (H) of this rule, which pertains to vinyl coating;
 - (b) Any printing line which is located at a facility in which the total maximum usage of coatings and inks in all flexographic, packaging rotogravure and publication rotogravure printing lines

is less than or equal to one hundred forty-eight tons per year; and
except as otherwise provided under paragraph (Y)(3) of this rule;

(c) Any printing line which is used solely to check the quality of the image formation of newly engraved or etched cylinders: and,

(d) Any printing line which is located at a facility in which the total maximum usage of VOC in all coatings and inks employed in all flexographic, packaging rotogravure and publication rotogravure printing lines within the facility is less than or equal to one hundred tons per year, except as other wise provided under paragraph (Y)(3) of this rule.

(3) Once the requirements of paragraph (Y)(1) of this rule apply to a facility or a flexographic, packaging rotogravure and publication rotogravure printing line within in the facility, the facility is not eligible for an exemption under paragraphs (Y)(2)(b) and (Y)(2)(d) of this rule.

- (HH) ~~Reserved On and after March 31, 1993, "The Goodyear Tire and Rubber Company" or any subsequent owner or operator of "The Goodyear Tire and Rubber Company" facility located at 1210 Massillon road, Akron, Ohio shall not cause, allow or permit the discharge into the ambient air of any VOC from the polyvinyl chloride film casting lines and associated solvent storage and mix tanks and any other equipment which contains or processes tetrahydrofuran unless the casting lines, tanks and other equipment are equipped with a solvent recovery system which is designed and operated to achieve an overall recovery efficiency of at least 98.0 per cent by weight for the solvent used in the lines during any calendar day, as a fifteen-day rolling average and as determined by "Goodyear procedure CFO-003 (November 15, 1987)." An alternative method and/or procedure to that in "Goodyear procedure CFO-003" may be used to demonstrate compliance with the above limitation provided that such method or procedure is in accordance with good engineering practice, authorized in writing by the director, and approved by the U.S. environmental protection agency as a revision to the state implementation plan. The owner or operator shall on a daily basis determine the amount of solvent used in the lines and the amount of solvent recovered and calculate the overall recovery efficiency. The overall recovery efficiency shall be calculated each day as the ratio of the total recovered solvent for that day and the prior fourteen days to the total solvent usage for the same fifteen-day period used for the recovered solvent. The ratio shall be expressed as a percentage. The ratio shall be calculated within~~

~~seventy-two hours following each twenty-four hour period, and the owner or operator shall maintain records of the calculations at the facility for a period of three years. The owner or operator shall notify the director of any fifteen-day rolling average overall recovery efficiency that is less than 98.0 per cent, by weight. A copy of the record showing the noncomplying fifteen-day rolling average overall recovery efficiency shall be submitted to the director within forty-five days of the occurrence.~~

(RR) On and after the effective date of this rule, “Sherwin-Williams Diversified Brands, Incorporated” or any subsequent owner or operator of the “Sherwin-Williams Diversified Brands, Incorporated” facility located at 26300 Fargo Avenue, Bedford Heights, Ohio shall comply with the requirements of paragraphs (RR)(1) through (RR)(8) of this rule.

- (1) For the liquid mixing tanks, can liquid filling operations, gasser (gashouse) operations (can propellant filling operations and propellant line purging operations), can brushing operations (manual can cleaning operations), and can piercing operations at this facility, the total VOC emissions in any rolling 12-month period shall not exceed 0.75 pound of VOC per one thousand aerosol cans produced.
- (2) When a gashouse production line is in VOC operation, all VOC emissions from the gashouse production line, except during a safety diversion or emergency described under paragraph (RR)(8) of this rule, shall be vented to a thermal incinerator that is designed and operated with a destruction efficiency greater than or equal to ninety percent by weight for VOC. A gashouse production line is in VOC operation when either the propellant being used to fill the aerosol cans contains VOC or the propellant being purged from the propellant line contains VOC. The VOC propellant being purged shall be recovered and stored in a fuel tank of the thermal incinerator."
- (3) The average combustion temperature within the thermal incinerator, for any 3-hour block of time when the gashouse is vented to the thermal

incinerator, shall not be more than fifty degrees Fahrenheit below the average combustion temperature during the most recent emissions test of the thermal incinerator that demonstrated compliance with the VOC destruction efficiency specified in paragraph (RR)(2) of this rule.

(4) Monitoring and Recordkeeping.

(a) Continuous monitoring devices

- (i) The owner or operator shall install, operate, and maintain a continuous temperature monitor and recorder that measures and records the combustion temperature within the thermal incinerator. The temperature monitor shall have a minimum accuracy of +/- one percent of the temperature being monitored expressed in degrees Fahrenheit or +/- one degree Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the owner or operator.
- (ii) The owner or operator shall install, operate, and maintain a lower explosive limit (LEL) monitoring system that continuously measures and records the concentration of VOC and percent LEL within each gashouse line and the inlet vent to the thermal incinerator. The LEL detectors shall have a minimum accuracy of +/- 2 percent. The LEL detectors shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations. The owner or operator shall calibrate the LEL detectors once per month following the manufacturer's protocol and shall record the date and results of each calibration.
- (iii) The owner or operator shall install, operate, and maintain mass flow meter that continuously measures and records the flow rate within each gashouse line. The mass flow meters shall have a minimum accuracy of +/- 1.5 percent. The mass flow meters shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations. The owner or operator shall check the mass flow meters once every six months for accuracy using a pilot tube and shall record the date and results

of each accuracy check.

(b) The owner or operator shall collect and record the following information for each day of gashouse operation:

(i) A log of operating time for each of the following: gashouse production line ventilation to the thermal incinerator, gashouse production line ventilation directly to ambient air, thermal incinerator operation, temperature monitoring equipment operation, gashouse production line in VOC operation, and gashouse production line not in VOC operation.

(ii) A log of all 3-hour blocks of time during which the average combustion temperature within the thermal incinerator, when the gashouse was vented to the thermal incinerator, was more than fifty degrees Fahrenheit below the average combustion temperature during the most recent emissions test of the thermal incinerator that demonstrated compliance with the VOC destruction efficiency requirement specified in paragraph (RR)(2) of this rule.

(iii) A log of the dates and times of the bypass venting of gashouse emissions to ambient air and any downtime for the thermal incinerator and temperature monitoring equipment, when any gashouse production line is in VOC operation. Additional records on bypass venting due to safety diversions are specified under paragraph (RR)(4)(h) of this rule.

(c) The owner or operator shall collect and record for each aerosol can production line at this facility the following production information each month:

(i) Number of aerosol cans produced.

(ii) Name and amount (pounds) of each VOC liquid charged to the mixing tanks and filled into aerosol cans.

(iii) Number of aerosol cans filled with a VOC propellant by name of propellant, type of propellant filler (under-the-cup fill, needle fill,

or Sepro fill), and type of emissions venting (vented to thermal incinerator or not vented to thermal incinerator).

or (iv) Number of VOC propellant line purges by name of propellant, type of recovery (recovered for fuel tank of thermal incinerator not recovered), and type of emissions venting (vented to thermal incinerator or not vented to thermal incinerator).

(v) Name and amount (pounds) of each VOC liquid (solvent) used in the manual aerosol can cleaning operation (can brushing operation).

(vi) Number of safety diversion events and number of emergency events, as described in paragraph (RR)(8)(a) of this rule.

(d) The owner or operator shall collect and record the following chemical and physical properties for the VOC liquids and VOC propellants used in the aerosol can production lines of this facility:

and (i) For any VOC liquid used in liquid mixing and liquid filling of aerosol cans, the liquid name, the liquid density (pounds/gallon), and the vapor pressure (mm Hg) at seventy degrees Fahrenheit eighty degrees Fahrenheit.

(ii) For any VOC liquid used in manual aerosol can cleaning, the liquid name and the liquid density (pounds/gallon).

(iii) For any VOC propellant, the liquid density (pounds/gallon) under usual propellant storage temperature and pressure, the vapor density (pounds/cc) at propellant filler temperature, the fraction VOC by weight, the molecular weight, and the lower explosive limit (LEL) concentration (ppmv).

(e) The owner or operator shall calculate and record for each aerosol can production line at this facility the following information each month:

(i) Monthly amount of VOC emissions (pounds) from the liquid mixing operations, as determined in accordance with paragraph (RR)(6)(a) of this rule.

- (ii) Monthly amount of VOC emissions (pounds) from the can liquid filling operations, as determined in accordance with paragraph (RR)(6)(b) of this rule.
- (iii) Monthly amount of VOC emissions (pounds) from the gashouse operations (propellant filling, propellant line purging, and safety diversions), as determined in accordance with paragraph (RR)(6)(c) of this rule.
- (iv) Monthly amount of VOC emissions (pounds) from the manual aerosol can cleaning operations (can brushing operations), as determined in accordance with paragraph (RR)(6)(d) of this rule.
- (v) Monthly amount of VOC emissions (pounds) from the aerosol can production line, which is the sum of data recorded under paragraphs (RR)(4)(e)(i) through (RR)(4)(e)(iv) of this rule.
- (f) The owner or operator shall collect and record for each can piercing operation at this facility the following information each month:

 - (i) The monthly number of aerosol cans pierced, categorized by type of product/propellant and size.
 - (ii) For each category of aerosol can identified under paragraph (RR)(4)(f)(i) of this rule, the name and amount (pounds/can) of VOC liquid (solvent) and VOC propellant contained within the aerosol can.
 - (iii) For each VOC liquid, the vapor pressure (mm Hg) at eighty degrees Fahrenheit and the molecular weight (pounds/pound mole).
 - (iv) The monthly amount of VOC emissions (pounds) from can piercing operations, as determined in accordance with paragraph (RR)(6)(e) of this rule.
- (g) The owner or operator shall record for all aerosol can production lines

and can piercing operations combined at this facility the following information each month:

- (i) The monthly amount of VOC emissions (pounds), which is a sum of the monthly VOC emissions recorded under paragraphs (RR)(4)(e)(v) and (RR)(4)(f)(iv) of this rule for each aerosol can production line and each can piercing operation, respectively.
 - (ii) The monthly number of aerosol cans produced, which is a sum of the monthly aerosol can production recorded under paragraph (RR)(4)(c)(i) of this rule for each aerosol can production line.
 - (iii) The amount of VOC emissions (pounds) during the rolling 12-month period, which is the sum of the values recorded under paragraph (RR)(4)(g)(i) of this rule for this month and the previous eleven consecutive months.
 - (iv) The number of aerosol cans produced during the rolling 12-month period, which is the sum of the values recorded under paragraph (RR)(4)(g)(ii) of this rule for this month and the previous eleven consecutive months.
 - (v) The VOC emissions rate during the rolling 12-month period in pound per one thousand cans, which is one thousand times the value from paragraph (RR)(4)(g)(iii) of this rule divided by the value from paragraph (RR)(4)(g)(iv) of this rule, and rounded to two decimal places.
- (h) The owner or operator shall collect and record for each aerosol can production line at this facility, the following information for each safety diversion event, as described in paragraph (RR)(8) of this rule:
- (i) Twenty per cent LEL stamp, which indicates that a concentration between twenty per cent and forty per cent of the LEL occurred;
 - (ii) date and time of the twenty per cent LEL stamp;
 - (iii) event length (seconds);
 - (iv) type of VOC propellant being employed in the gashouse;

(v) average concentration of LEL detectors in gashouse line (ppmv);

(vi) average flow rate (cfm); and

(vii) amount of VOC emissions (pounds).

(i) The records required by paragraphs (RR)(4)(a) through (RR)(4)(h) of this rule shall be maintained for a minimum of five years and shall be available for review by the director or any authorized representative of the director during normal business hours.

(5) Reporting.

(a) The owner or operator shall submit quarterly compliance status reports:

(i) that identify any emission rate violation in which the emission rate recorded under paragraph (RR)(4)(g)(v) of this rule exceeds the VOC emission limitation specified in paragraph (RR)(1) of this rule;

(ii) that identify any deviations of the requirements specified in paragraphs (RR)(2) and (RR)(3) of this rule, as recorded under paragraphs (RR)(4)(b)(iii) and (RR)(4)(b)(ii) of this rule, respectively; and

(iii) that provide summaries of the records specified under paragraphs (RR)(4)(a) through (RR)(4)(h) of this rule.

(b) The owner or operator shall submit to the appropriate Ohio EPA district office or local air agency the quarterly compliance status reports specified in paragraph (RR)(5)(a) of this rule. These quarterly compliance status reports shall be submitted by April 30, July 31, October 31, and January 31 and shall cover the records for the previous calendar quarters.

(6) Determination of VOC Emissions.

(a) VOC emissions from liquid mixing operations.

(i) For liquid mixing operations, the monthly VOC emissions (pounds), E(mixing), shall be calculated as follows:

$$\underline{E(\text{mixing}) = E(\text{loading}) + E(\text{venting})}$$

where:

E(loading) = monthly VOC emissions from loading VOC liquids into mixing tanks

E(venting) = monthly VOC emissions from venting VOC liquids during mixing

(ii) For loading VOC liquid into a mixing tank, the monthly VOC emissions shall be calculated, based on the Ideal Gas Law and displacement of saturated vapors at seventy degrees Fahrenheit (twenty-one degrees Celsius), as follows:

E(loading) = monthly sum of E_i(loading) for all VOC liquid "i" loaded into mixing tanks

$$\underline{E_i(\text{loading}) = P_i * X_i * V_i * MW_i / (R * T)}$$

where:

E_i(loading) = pounds of VOC emissions during the month from loading VOC liquid "i" into mixing tanks

P_i = vapor pressure of VOC liquid "i" at seventy degrees Fahrenheit, in mmHg

X_i = mole fraction of VOC liquid "i" in liquid mix (value of 1 is used for this emissions estimate)

V_i = volume of VOC liquid "i" charged to mixing tanks during the month in cubic feet (equals monthly gallons of liquid "i" divided by 7.48 gallon/cubic foot)

R = 999 mmHg-cubic feet/pound mole-degrees Kelvin

T = temperature in degrees Kelvin (equals two hundred seventy-three plus twenty-one degrees Celsius)

MW_i = molecular weight of VOC liquid "i", in pounds/pound mole

(iii) For venting of VOC liquids during mixing, the monthly VOC emissions shall be calculated, based on the Ideal Gas Law and venting of saturated vapors at eighty degrees Fahrenheit (twenty-seven degrees Celsius), as follows:

E(venting) = monthly sum of E_i(venting) for all VOC liquid "i" loaded into mixing tanks

E_i(venting) = P_i * X_i * V_{i,v} * MW_i / (R * T)

where:

E_i(venting) = pounds of VOC emissions during the month for venting a VOC liquid "i" during mixing

P_i = vapor pressure of VOC liquid "i" at eighty degrees Fahrenheit, in mmHg

X_i = mole fraction of VOC liquid "i" in liquid mix (value of 1 is used for this emissions estimate)

V_{i,v} = volume (cu ft) of saturated vapors removed by the ventilation system during mixing of VOC liquid "i" (equals monthly gallons of VOC liquid "i" times 5*30/350 based on five per cent of the total ventilation flow rate or five cu ft/min, an average mixing time of thirty minutes per batch, and a typical batch size of three hundred and fifty gallons)

R = 999 mmHg-cubic feet/pound mole-degrees Kelvin

T = temperature in degrees Kelvin (equals two hundred seventy-three plus twenty-seven degrees Celsius)

MW_i = molecular weight of VOC liquid "i", in pounds/pound mole

(iv) Alternative method.

An alternative method for calculating the monthly emissions rate for liquid mixing operations shall be as follows:

$$E(\text{mixing}) = EFM * V(\text{mixing})$$

where:

EFM = emission factor of 0.00131 pound VOC/pound VOC liquid throughput (This emission factor is based on the highest annual average emission factor for mixing operations during 1997 to 2000.)

V(mixing) = monthly throughput of VOC liquid employed for mixing, in pounds

(v) If for any month in which the use of the alternative method described in paragraph (RR)(6)(a)(iv) of this rule shows noncompliance with the VOC emissions limit, the method described in paragraphs (RR)(6)(a)(i) through (RR)(6)(a)(iii) of this rule shall be used to calculate monthly emissions for liquid mixing operations. The compliance determination will then be based on these more detailed calculations.

(b) VOC emissions from liquid filling of aerosol cans.

(i) For the liquid filling of aerosol cans, the monthly VOC emissions (pounds) shall be calculated, based on the Ideal Gas Law and displacement of saturated vapors at seventy degrees Fahrenheit (twenty-one degrees Celsius) as follows:

$$E(\text{filling}) = \text{monthly sum of } E_i(\text{filling}) \text{ for all VOC liquid "i"}$$

filling of aerosol cans

$$E_i(\text{filling}) = P_i * X_i * V_i * MW_i / (R * T)$$

where:

$E_i(\text{filling})$ = pounds of VOC emissions during the month for VOC liquid "i" filling of aerosol cans

P_i = vapor pressure of VOC liquid "i" at seventy degrees Fahrenheit, in mmHg

X_i = mole fraction of VOC liquid "i" in liquid fill (value of 1 is used for this emissions estimate)

V_i = volume of VOC liquid "i" filled into aerosol cans during the month in cubic feet (equals monthly gallons of VOC liquid "i" divided by 7.48 gallons/cubic foot)

R = 999 mmHg-cubic feet/pound mole-degrees Kelvin

T = temperature in degrees Kelvin (equals two hundred seventy-three plus twenty-one degrees Celsius)

MW_i = molecular weight of VOC liquid "i", in pounds/pound mole

(ii) Alternative method.

An alternative method for calculating the monthly emissions for liquid can filling operations shall be as follows:

$$E(\text{filling}) = EFF * V(\text{filling})$$

where:

EFF = emission factor of 0.00026 pound VOC/pound VOC liquid throughput (This emission factor is based on the highest annual average emission factor for liquid can filling operations)

during 1997 to 2000.)

V(filling) = monthly throughput of VOC liquid employed for can filling, in pounds

(iii) If for any month in which the use of the alternative method described in paragraph (RR)(6)(b)(ii) of this rule shows noncompliance with the VOC emissions limit, the method described in paragraph (RR)(6)(b)(i) of this rule shall be used to calculate monthly emissions for liquid filling of aerosol cans. The compliance determination will then be based on these more detailed calculations.

(c) VOC emissions from gasser (gashouse) operations.

(i) For the gasser operations, the monthly VOC emissions in pounds, EG(total), shall be calculated as follows:

EG(total) = EG(filling) + EG(purging) + EG(safety diversions)

where:

EG(filling) = monthly VOC emissions from filling aerosol cans with VOC propellant

EP(purging) = monthly VOC emissions from purging of lines containing VOC propellant

EG(safety diversions) = monthly VOC emissions from safety diversions of VOC control equipment

(ii) For the filling of aerosol cans with VOC propellant and the purging of lines containing VOC propellant, the monthly VOC emissions for filling and line purging shall be calculated as follows:

EG(filling) = monthly sum of (NC_{p,f,v}) x (EF_{p,f}) x (K_p) x (1 - CE_{p,v}/100) x (VOC_p)

EP(purging) = monthly sum of (NP_{p,v}) x (V_p) x (LD_p) x (1-R_p) x (1 - CE_{p,v}/100) x (VOC_p)

where:

CE_{p,v} = control efficiency for propellant "p" VOC emissions and type of venting "v" for those emissions, based on venting of VOC propellant emissions to thermal incinerator or not and the overall control efficiency of the thermal incinerator for VOC

CE_{p,v} = zero per cent if propellant "p" VOC emissions are not vented to the thermal incinerator

CE_{p,v} = overall VOC control efficiency from most recent compliance test of the thermal incinerator, if propellant "p" VOC emissions are vented to the thermal incinerator

EF_{p,f} = emission factor for VOC propellant gas loss when filling cans with VOC propellant "p", based on propellant filler type "f" (under-the-cup fill, needle fill, or Sepro fill)

EF_{p,f} = 0.2 cc/can for needle filling of VOC propellant "p"

EF_{p,f} = 1.0 cc/can for Sepro filling of VOC propellant "p"

EF_{p,f} = 1.75 cc/can for under-the-cup filling of VOC propellant "p"

K_p = conversion factor for gaseous VOC propellant "p" expressed in pounds/cc at standard conditions

LD_p = liquid density of VOC propellant "p" at storage

temperature and pressure, in pounds/gallon

venting
thermal

NC_{p,f,v} = number of cans produced with VOC propellant "p" and filling type "f" during the month by type of "v" (vented to thermal incinerator or not vented to incinerator)

NP_{p,v} = number of propellant line purges during the month for VOC propellant "p" by type of venting "v" (vented to thermal incinerator or not vented to thermal incinerator)

R_p = fraction by weight of purged VOC propellant "p" which is recovered and stored in a pressure tank

V_p = volume of propellant line purged for VOC propellant "p", in gallons

VOC_p = fraction VOC by weight for VOC propellant "p"

(usually one for a VOC containing propellant)

(iii) Alternative method for filling and line purging.

which

For gasser operations equipped with a thermal incinerator in the VOC emissions from the filling of aerosol cans with VOC propellant are vented to the thermal incinerator and the line purging of VOC propellant is recovered for use as a fuel in the thermal incinerator, the monthly VOC emissions for filling and line purging shall be calculated as follows:

$$\underline{EG \text{ (filling)} + EG \text{ (purging)} = EF * NC / 1000}$$

where:

EF = VOC emissions factor from most recent compliance test

of the thermal incinerator, expressed in pounds VOC per thousand aerosol cans produced (Based on the September 24, 2002 compliance test, EF equals 0.16 pound VOC per thousand aerosol cans.)

NC = number of aerosol cans produced with VOC propellant during the month

(iv) EG(safety diversions) is the sum of the VOC emissions for each safety diversion event during the month, as determined in accordance with paragraph (RR)(8) of this rule. The amount of VOC emissions in pounds for a safety diversion event EG(event) shall be calculated as follows:

$$\text{EG(event)} = C_{\text{avg}} * \text{MW} * \text{Flow} * \text{Time} * 4.256 \times 10^{-11}$$

where:

C_{avg} = average concentration of VOC propellant in gas stream being vented to ambient air during safety diversion event, in parts per million by volume

MW = molecular weight of VOC propellant being employed in gashouse at time of safety diversion event, in pounds per pound-mole

Flow = average flow rate of gas stream being vented to ambient air during safety diversion event, in cubic feet per minute

Time = length of safety diversion event, in seconds

4.256 x 10⁻¹¹ = constant value based on various unit conversions and division by the Universal Gas Constant at standard conditions

(d) VOC emissions from manual aerosol can cleaning operations.

For the manual aerosol can cleaning operations (can brushing operations), VOC emissions shall be equal to the mass of VOC

solvent consumed in the operation. The monthly VOC emissions from can brushing shall be calculated as the sum of VOC emissions for all solvents consumed during that month. The VOC emissions from each VOC solvent consumed is calculated as the number of VOC solvent gallons consumed during the month times the VOC solvent density (pounds/gallon).

(e) VOC emissions from can piercing operations.

(i) For the can piecing operations, monthly VOC emissions shall be the total VOC emissions from propellants plus the total VOC emissions from liquid recovery.

(ii) The total VOC emissions (pounds) from propellants is the sum of the amount of VOC propellant within all cans pierced during that month. For a grouping of pierced cans by type and size, the monthly amount of VOC propellant is calculated as the amount of propellant VOC per can (pounds VOC/can), which is based on the type and size category, times the number of cans pierced during the month for that type and size category.

(iii) The total VOC emissions (pounds) from liquid recovery for all cans pierced during a month is the sum of VOC emissions from the liquids (solvents) within all cans pierced during that month. The VOC emissions from the liquids shall be calculated, based on the Ideal Gas Law and displacement of saturated vapors at eighty degrees Fahrenheit (twenty-seven degrees Celsius) for liquid flowing into a recovery drum or vessel, using the following formulas:

$E(\text{piercing}) = \text{sum of } E_i(\text{piercing}) \text{ for all VOC liquid "i" within the cans pierced in the month}$

$E_i(\text{piercing}) = P_i * X_i * V_i * MW_i / (R * T)$

$V_i = W_i / (7.48 * D_i)$

$W_i = \text{sum of } (W_{i,c} * N_c) \text{ for VOC liquid "i" for all cans pierced (by can type and size category "c") during the month}$

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where:

Di = density of VOC liquid "i", in pounds/gallon

E(piercing) = total VOC emissions from liquid recovery for all cans pierced in the month, in pounds

Ei(piercing) = pounds of VOC emissions from VOC liquid "i" recovered from cans pierced in the month

MWi = molecular weight of VOC liquid "i", in pounds/pound

Nc = number of cans pierced during the month for can type and size category "c"

Pi = vapor pressure of VOC liquid "i" at eighty degrees Fahrenheit, in mmHg

R = 999 mmHg-cubic feet/pound mole-degrees Kelvin

T = temperature in degrees Kelvin (equals two hundred seventy-three plus twenty-seven degrees

Celsius)

Xi = mole fraction of VOC liquid "i" in liquid of pierced cans (value of one is used for this emissions estimate)

Vi = volume of VOC liquid "i" within the pierced cans for the month, in cubic feet

Wi = amount of VOC liquid "i" within the pierced cans for the month, in pounds

Wi,c = amount of VOC liquid "i" for can type and size category "c", in pounds/can

7.48 = conversion factor in gallons per cubic foot

(7) VOC emissions testing.

The owner or operator shall conduct, or have conducted, emissions testing for the thermal incinerator to demonstrate the thermal incinerator's mass emission rate, destruction efficiency, and overall control efficiency for VOC emissions from this facility's gashouse operations in accordance with the following requirements:

- (a) The emissions testing shall be conducted within six months after the effective date of this rule, unless emissions testing had been conducted within three years prior to the effective date of this rule and the emissions testing demonstrated compliance with the paragraph (RR)(2) of this rule.
- (b) For the emissions testing, the owner or operator shall meet the general provisions of paragraph (A) of rule 3745-21-10 of the Administrative Code.
- (c) The emissions testing shall be conducted in accordance with the test methods in paragraph (C) of rule 3745-21-10 of the administrative Code with the concentration of VOC in the thermal incinerator's inlet and outlet gas streams determined by means of USEPA method 25 or USEPA method 25A.
- (d) The emissions testing to determine the VOC capture efficiency of the vapor collection system used to transport VOC emissions from the facility's gashouse operations (propellant filling of aerosol cans and propellant line purging) to the thermal incinerator shall be conducted by means of the test methods specified in paragraph (C)(3)(c) of rule 3745-21-10 of the Administrative Code.
- (e) The emissions testing shall be conducted while the facility's gashouse is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA Office or local air agency.
- (f) The overall control efficiency of the thermal incinerator for VOC shall be the destruction efficiency times the capture efficiency divided by one hundred.

- (g) The mass emissions rate of the thermal incinerator, expressed in pounds VOC per thousand aerosol cans produced, shall be the hourly mass emissions rate (pounds VOC/hour) divided by the hourly production rate (one thousand cans/hour).
- (h) Additional testing of the gashouse and the thermal incinerator may be required by the director to ensure continued compliance with the applicable requirements.
- (8) Safety diversion events and emergency events for gasser operations being vented to a thermal incinerator.
- (a) A safety diversion is the venting of gasser operations directly to ambient air, instead of being vented to the thermal incinerator, in order to meet requirements of NFPA 30B: Code for the Manufacturing and Storage of Aerosol Products, 2002 Edition. A safety diversion occurs when any of the (LEL) detectors in the gashouse detects a concentration between twenty per cent and forty per cent of the LEL. Under a safety diversion, as described in NFPA 30B 5.4.2(E), the ventilation rate of the affected gashouse line is quickly increased, the gashouse line is vented immediately to ambient air (i.e. thermal incinerator is bypassed), and production activities usually continue. Safety diversion events are less than five minutes and shall be included in the determination of compliance with the monthly VOC emission limitation of 0.75 pound VOC per thousand aerosol cans produced. A safety diversion event is not be a malfunction under paragraph (B) of rule 3745-15-06 of the Administrative Code.
- (b) An emergency event is a condition that shuts down the line, releases propellant in the gasser to atmosphere and vents the gashouse directly to ambient air, instead of being vented to the thermal incinerator as required by NFPA 30B 5.12. Emergency events include safety diversions greater than five minutes, detected LEL concentrations greater than forty per cent, low flow alarms, power loss, fire alarms, explosion suppression systems discharge, gashouse and thermal oxidizer safety system monitoring device fault and emergency stops (E-Stops). An E-Stop occurs when a gashouse operator shuts down the line due to an observed safety issue caused by the gashouse operation such as employee injury, damage to equipment, or operation problems

such as shredding of cans. The owner or operator shall maintain a record of the emergency events."

- (c) The VOC emissions for a safety diversion event shall be calculated based on the average concentration of the lower explosive limit (LEL) detectors associated with the gashouse line, the flow rate of the gashouse line (measured with a mass flow meter), the propellant being filled, and the length of the event (seconds).
- (d) The owner or operator shall calibrate the LEL detectors once per month following the manufacturer's protocol and shall check the flow meters once every six months for accuracy using a pilot tube.

(VV) ~~"Ashland Petroleum Company"~~ "Marathon Petroleum Company LLC" or any subsequent owner or operator of the ~~"Ashland Petroleum Company"~~ "Marathon Petroleum Company LLC" facility located at 2408 Gambinus Road, S.W., Canton, Ohio shall comply with the following requirements for VOC emissions:

(1) ~~Reserved~~ ~~On and after March 31, 1993,~~ the fluid catalytic cracking unit regenerator shall be operated in accordance with the following requirements:

(a) ~~The regenerator shall be operated in a total burn mode.~~

(b) ~~The catalyst cooler shall be employed when the regenerator is in operation.~~

~~(c) The regenerator shall be operated at a temperature of not less than thirteen hundred degrees Fahrenheit, measured at the point the flue gas exits the regenerator.~~

~~(d) The regenerator shall be operated such that the oxygen content in the flue gas stream is maintained at a level of 0.50 per cent, by volume, or greater.~~

~~(e) The oxygen content and temperature of the regenerator flue gas shall be continuously monitored and recorded. The continuous oxygen monitoring and recording shall be performed in accordance with 40 CFR 60.13. Pursuant to 40 CFR 60.13, the average per cent oxygen level shall be monitored, calculated and recorded for each hour of operation of the FCC unit. These oxygen levels shall be compared to 0.50 per cent oxygen for the purpose of determining compliance with paragraph (VV)(1)(d) of this rule. The continuous temperature monitoring system shall be used to calculate and record the rolling, three-hour average temperature of the flue gas at the point the flue gas exits the regenerator, for each hour of operation of the FCC unit. These temperature values shall be compared to thirteen hundred degrees Fahrenheit for the purpose of determining compliance with~~

~~paragraph (VV)(1)(c) of this rule. All recorded monitoring data for oxygen and temperature shall be retained at the facility for a period of not less than three years. The owner or operator shall notify the director of any oxygen content of less than 0.50 per cent, by volume, and any temperature of less than thirteen hundred degrees Fahrenheit. A copy of the record showing the noncomplying oxygen content or temperature shall be submitted to the director within forty-five days of the occurrence.~~

- (2) On and after March 31, 1993, all VOC emissions from the asphalt oxidizer shall be vented to an enclosed combustion device that is operated to reduce the VOC emissions by at least ninety-five per cent, by weight, as determined under paragraph (C) of rule 3745-21-10 of the Administrative Code.

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CERTIFIED ELECTRONICALLY

Certification

03/02/2006

Date

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