State of Ohio Environmental Protection Agency

RE: FINAL PERMIT TO INSTALL **CERTIFIED MAIL**
CUYAHOGA COUNTY

Street Address: 122 S. Front Street
Lazarus Gov. Center **TELE:** (614) 644-3020 **FAX:** (614) 644-2329
Mailing Address: Lazarus Gov. Center P.O. Box 1049

Application No: 13-04586
Fac ID: 1318002813
DATE: 11/30/2006

Tremco, Incorporated - Mameco Internat.
Glenn Strasshofer
3735 Green Road
Beechwood, OH 44122

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00 which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, OH 43215

Sincerely,

Michael W. Ahern

Michael W. Ahern, Manager
Permit Issuance and Data Management Section
Division of Air Pollution Control

CC: USEPA **CLAA**

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

Permit To Install	**Issue Date: 11/30/2006**
Terms and Conditions	**Effective Date: 11/30/2006**

FINAL PERMIT TO INSTALL 13-04586

Application Number:	13-04586
Facility ID:	1318002813
Permit Fee:	**$600**
Name of Facility:	Tremco, Incorporated - Mameco Internat.
Person to Contact:	Glenn Strasshofer
Address:	3735 Green Road Beechwood, OH 44122

Location of proposed air contaminant source(s) [emissions unit(s)]:
4475 East 175th Street
Cleveland, **Ohio**

Description of proposed emissions unit(s):
Two blending and storage vessels - P012 and P013.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Joseph P. Koncelik

Director

Part I - GENERAL TERMS AND CONDITIONS

A. Permit to Install General Terms and Conditions

1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

2. Reporting Requirements

The permittee shall submit required reports in the following manner:

a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.

b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon

the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

6. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

7. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

8. Termination of Permit to Install

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

9. Construction of New Sources(s)

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

10. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

11. Applicability

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

12. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

13. Source Operation and Operating Permit Requirements After Completion of Construction

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this

permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the emissions unit(s) covered by this permit.

14. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

15. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

B. Permit to Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

Pollutant	Tons Per Year
VOC	1.28
PE	4.53
Single HAP	9.5
Combined HAPs	24.5

Emissions Unit ID: **P012**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	OAC rule 3745-21-07(G)(2)
P012 - Kettle 20: 1100 gallon, blending and storage vessel with powder dryer venting to a dust collector and an uncontrolled stack	OAC rule 3745-31-05(A)(3)	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and MACT
	OAC rule 3745-17-07(A)	
	OAC rule 3745-17-11(B)	

Applicable Emissions
Limitations/Control Measures

Volatile organic compound (VOC) emissions shall not exceed 3.50 lbs/batch and 1.28 tons/year.

Particulate emissions (PE) shall not exceed 2.15 lbs/batch and 0.78 tons/year.

The requirements of this rule also include compliance with the requirements of OAC rules 3745-21-07(G)(2) and 3745-31-05(C).

See Additional Terms and Conditions A.2.a and A.2.b below.

Visible particulate emissions from any stack shall not exceed 20% opacity as a six-minute average, except as provided by rule.

The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

Exempt; See Additional Terms and Condition A.2.c below.

See Additional Terms and Condition A.2.d below.

2. Additional Terms and Conditions

2.a This emissions unit operates using a batch cycle. The minimum batch size for this emissions unit is 400 gallons. The minimum amount of time for one batch cycle is 12 hours, with a maximum number of batches produced per year of 730.

2.b The short-term (lbs/batch) and annual (tons/year) emissions limitations for PE from this emissions unit were established based on potential to emit. Therefore, no record keeping or reporting requirements are necessary for these limitations.

2.c This emissions unit is exempt from the requirements of OAC rule 3745-21-07(G)(2) based on the fact that there is no chemical reaction taking place; there is only mixing occurring in this process.

2.d The total allowable emissions of Hazardous Air Pollutants (HAPs), as identified in Section 112(b) of Title III of the Clean Air Act, from all emissions units at this facility, (listed in section A.2.e below) shall not exceed 9.5 tons/year for any individual HAP or 24.5 tons/year for a combination of HAPs. Compliance with the above limitations shall be based upon a rolling, 12-month summation of emissions for this emissions unit plus the annual HAP contribution from all other emissions units at this facility (listed in section A.2.e below).

2.e The current emissions units located at this facility are P002, P004, P006, P008, P009, P010, P011, P012, P013 T017, T019, T020, T021, T023, T024, T025, T026, T027, T028, T029, T030, T031, T032, T033, T034, T035, T036, T037, T038, T039, T040, T041, T042, B001, B002, and B003.

B. Operational Restrictions

None.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall properly install, operate, and maintain equipment to continuously monitor and record the pressure drop, in inches of water, across the dust collector during operation of this emissions unit, including periods of startup and shutdown. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the the pressure drop, in inches of water, across the dust collector on a daily basis.

2. Whenever the monitored value for the pressure drop deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation: the date and time the deviation began and the magnitude of the deviation at that time, the date(s) the investigation was conducted, the names of the personnel who conducted the investigation, and the findings and recommendations.

3. In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken: a description of the corrective action, the date it was completed, the date and time the deviation ended, the total period of time (in minutes) during which there was a deviation, the pressure drop readings immediately after the corrective action, and the names of the personnel who performed the work. Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

4. The acceptable range for the pressure drop across the dust collector shall be based upon the manufacturer's specifications until such time as any required emissions testing is conducted.
5. This range is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Cleveland Division of Air Quality (Cleveland DAQ). The permittee may request revisions to the range based upon information obtained during future particulate emission tests that demonstrate compliance with the allowable particulate emission rate for this emissions unit. In addition, approved revisions to the range will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

6. The permittee shall collect and record the following information each day for emissions unit P012:

   a. the company identification of each final product produced;

   b. the vapor pressure of the loaded material for each batch (according to MSDS of each material), in psia;

c. the volume of the each material loaded, in gallons for each step of the batch;

d. the molecular weight of each material loaded, in lb/lb mole;

e. the final vapor pressure of the material, if heated, in psia;

f. the flow rate of the purge into the vessel, in ft^3/min;

g. the temperature of the exhaust gas (conservatively determined by measuring the temperature of the final product);

h. the total emissions for each batch produced (calculated as shown by the equations and methodologies in section E.1.a), in pounds; and

i. the annual summation of the VOC emissions [sum of (h)], in tons.

7. The permittee shall collect and record the following information each month for the entire facility (list of emissions units identified in section A.2.e):

a. the name and identification number of each HAP containing material employed;

b. the individual HAP content contained in the final product for each HAP, in percent weight;

c. the total of each individual HAP emissions from the emissions unit in pounds or tons per month. [The individual HAP emissions will be determined by applying the equations* found in section E.1.a for each individual HAP species or by multiplying the VOC emissions rate, as determined by the equations* found in E.1.a below for all blending vessels (P002, P004, P006, P008, P009, P010, P011, P012, and P013), and the latest version of U.S. EPA's TANKS or U.S. EPA reference document AP-42, Fifth Edition or the most recent edition of AP-42, Compilation of Air Pollution Emission Factors, Section 7.1, Organic Liquid Storage Tanks (9/97) for all storage tanks (T017, T019, T020, T021, T023, T024, T025, T026, T027, T028, T029, T030, T031, T032, T033, T034, T035, T036, T037, T038, T039, T040, T041, and T042) by the individual HAP content of each solvent contained in the final product for each HAP, in percent weight. In order to determine individual HAP emissions from boilers B001, B002, and B003, U.S. EPA reference document AP-42, Fifth Edition or the most recent edition of AP-42, External Combustion Sources, Section 1.4, Natural Gas Combustion (7/98) will be used. Any emission factors shall be updated based on the results of any new emissions data or stack testing data obtained.

*These equations are the calculation methodologies found in the STAPPA/ALAPCO-EPA document, "Emission Inventory Improvement Program (EIIP), Methods for Estimating Air from Paint, Ink, and Other Coating Manufacturing Facilities, Volume II: Chapter 8"];

d. the total combined HAP emissions from the emissions unit in pounds or tons per month [the sum of (c) for all individual HAPs];

e. the updated rolling, 12-month summation of emissions for each individual HAP, in pounds or tons. This shall include the information for the current month and the preceding eleven calendar months. For the first twelve months following the issuance of this permit, this shall be a cumulative total for all months since the issuance of the PTI; and

f. the updated rolling, 12-month summation of emissions for total combined HAPs, in pounds or tons. This shall include the information for the current month and the preceding eleven calendar months. For the first twelve months following the issuance of this permit, this shall be a cumulative total for all months since the issuance of the PTI.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Cleveland DAQ contact. This information does not have to be kept on an individual emission unit basis.

8. The permit to install for this emissions unit, P012, was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied to this emissions unit for each toxic pollutant, using data from the permit to install application, and modeling was performed for the toxic pollutant(s) emitted at over a ton per year using the SCREEN 3.0 model or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the use of the SCREEN 3.0 (or other approved) model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as required in Engineering Guide #70. The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: Xylene
TLV (mg/m3): 434.19
Maximum Hourly Emission Rate (lbs/hr): 3.50 lbs/hr
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 4776

MAGLC (ug/m3): 10338

9. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

    a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emissions of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)", than the lowest TLV value previously modeled;

    b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

    c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

10. If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

11. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emission unit will still satisfy the "Air Toxic Policy."

    a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly reports that identify the following information concerning the operation of the control equipment during the operation of this emissions unit:

   a. each period of time when the pressure drop across the baghouse was outside of the range specified by the manufacturer;

   b. an identification of each incident of deviation described in (a) where a prompt investigation was not conducted;

   c. an identification of each incident of deviation described in (a) where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and

   d. an identification of each incident of deviation described in (a) where proper records were not maintained for the investigation and/or the corrective action.

   These quarterly reports shall be submitted (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year; and each report shall cover the previous calendar quarter.

2. The permittee shall submit deviation (excursion) reports which identify all exceedances of the short-term (lbs/batch) and annual emission limitations for VOC. These reports shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, section A of this permit.

3. The permittee shall submit quarterly deviation (excursion) reports, in accordance with Part I of the General Terms and Conditions, section A of this permit, of the following information:

   a. an identification of each month during which the rolling, 12-month individual HAP

emissions rate (from the list of emissions units referenced in section A.2.e) exceeded 9.5 tons, and the actual rolling, 12-month summation of each individual HAP emissions rate (from the list of emissions units referenced in section A.2.e) for each such month; and

b. an identification of each month during which the rolling, 12-month combination of all HAP emissions rates (from the list of emissions units referenced in section A.2.e) exceeded 24.5 tons, and the actual rolling, 12-month summation of the combination of all HAP emissions rates (from the list of emissions units referenced in section A.2.e) for each such month.

E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation

VOC emissions shall not exceed 3.50 lbs/batch.

Applicable Compliance Method

Compliance shall be based off of the record keeping found in section C.6 and the following equations taken from the STAPPA/ALAPCO-EPA document, "Emission Inventory Improvement Program (EIIP), Methods for Estimating Air from Paint, Ink, and Other Coating Manufacturing Facilities, Volume II: Chapter 8."

Loading Loss Equation, EIIP Equation 8.4-1
Evoc = (12.46)(S)(P)(M)(Q)/(T)

Where:
12.46 = Universal gas constant
S = Saturation factor
P = System vapor pressure, (psia)
M = Vapor molecular weight, (lb/lb mole)

Q = Volume of material loaded, (1000 gal)
T = Temperature of liquid loaded, (R)

Gas Sweep or Purge Equation, EIIP Equation 8.4-23

E_{XP} = ((Px)(F)(Mx)(60)(OH)/(R)(T)) * (PT)/(PT – sumPx)

Where:
E_{XP} = Emission of VOC species x, (lbs)
Px = Partial pressure of VOC species x, (psia)
F = Flow rate into vessel, (ft3/min)
Mx = Molecular weight of VOC species x, (lb/lb-mole)
60 = Minutes per hour
OH = Hours of purge, (hr)
R = 10.73 gas constant
T = Temperature of exhaust gas, (R)
PT = Total system pressure, (psia)

Heatup Loss Equation, EIIP Equation 8.4-10

Evoc = ((((sum(Px)T1 /14.7-sum(Px)T1) + (sum(Px)T2 /14.7-sum(Px)T2))/2))*(n)(Ma)

Where:
Evoc = VOC emissions from heat up, (lbs)
(Px)T1 = Initial partial pressure of VOC species x at T1, (psia)
(Px)T2 = Final partial pressure of VOC species x at T2, (psia)
Ma = Vapor molecular weight, (lb/lb-mole)
n = Number of pound-moles of gas displaced, (lb-mole)

n = [(V/R) * (Pa1/T1 – Pa2/T2)]

Where:
V = vessel fee volume, ft^3
R = 10.73 gas constant
Pa1 = 14.7 - (Px)T1
Pa2 = 14.7 - (Px)T2

T1 = R (F + 460)
T2 = R (F + 460)

The batch cycle steps for initial kettle inerting, kettle washing, loading raws, and packaging shall use the loading loss EIIP equation 8.4-1. The batch cycle steps for purging from powder loading and nitrogen line purging shall use the gas sweep or purge EIIP Equation 8.4-23. The batch cycle steps for blending heatup shall use the heatup loss EIIP Equation 8.4-10. Any contributing fugitive emissions shall be calculated using SOCMI emission factors found in "Protocol for Equipment Leak Emission Estimates" EPA453/R-95-017, November 1995. Any additional batch cycle steps shall be calculated using the equations contained in the STAPPA/ALAPCO-EPA documents, "Emission Inventory Improvement Program (EIIP), Methods for Estimating Air from Paint, Ink, and Other Coating Manufacturing Facilities, Volume II: Chapter 8 and/or Methods for Estimating Air emissions from Chemical Manufacturing Facilities, Volume II: Chapter 16." The short-term (lb/batch) emissions shall be determined by summing the values calculated from all batch steps and adding any contributing fugitive emissions calculated.

If required by the Ohio EPA or the Cleveland DAQ, compliance with the VOC emission limitation shall be determined through emission testing conducted in accordance with U.S. EPA Method 25 or 25A of 40 CFR Part 60, Appendix A, or any Ohio EPA approved alternative testing method.

b. Emission Limitation

VOC emissions shall not exceed 1.28 tons/year

Applicable Compliance Method

Compliance shall be based of off the record keeping found in section C.6 including the equations and methodologies found in E.1.a.

c. Emission Limitation

PE shall not exceed 2.15 lbs/batch.

Applicable Compliance Method

Compliance with the mass emissions limitation shall be determined by using the following one-time calculation for potential to emit:

(4300 lbs PE/batch) X (1 - 0.95) X (1 - 0.99) = 2.15 lbs PE/batch

Where:
4300 lbs = maximum process feed rate
0.95 = conservative assumption of the amount of solids captured by solvent
0.99 = conservative control efficiency of dust collector

If required by Ohio EPA of the Cleveland DAQ, compliance with the PE limitation shall be determined through emission testing conducted in accordance with U.S. EPA Methods 1 through 5 of 40 CFR Part 60, Appendix A, or any Ohio EPA approved alternative testing method.

d. Emission Limitation

PE shall not exceed 0.78 ton/year.

Applicable Compliance Method

The annual limitation was developed by multiplying the lbs/batch limitation by the maximum annual production rate of 730 batches/year, and dividing by 2,000 lbs/ton. Therefore, provided compliance is shown with the lbs/batch limitation, compliance will also be shown with the annual limitation.

e. Emission Limitation

Visible particulate emissions from any stack shall not exceed 20% opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using methods and procedures specified in U.S. EPA Reference Method 9.

Emissions Unit ID: **P012**

f. Emission Limitation

9.5 tons individual HAPs/year for the list of emissions units in section A.2.e, as a 12-month, rolling summation.

Applicable Compliance Method

Compliance shall be determined based upon the record keeping specified in section C.7.

g. Emission Limitation

24.5 tons combined HAPs/year for the list of emissions units in section A.2.e, as a 12-month, rolling summation.

Applicable Compliance Method

Compliance shall be determined based upon the record keeping specified in section C.7.

F. Miscellaneous Requirements

None.

Emissions Unit ID: **P013**

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P013 - Kettle 22: 1100 gallon, blending and storage vessel with powder dryer venting to a dust collector and an uncontrolled stack	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack shall not exceed 20% opacity as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)	Particulate emissions (PE) shall not exceed 6.85 lbs/hour.
	OAC rule 3745-21-07(G)(2)	Exempt; See Additional Terms and Condition A.2.b below.
	OAC rule 3745-31-05(C) Synthetic Minor to avoid Title V and MACT	See Additional Terms and Condition A.2.c below.
	ORC 3704.03(T)(4)	See Additional Terms and Conditions A.2.f and A.2.e below.

2. Additional Terms and Conditions

2.a This emissions unit operates using a batch cycle. The minimum batch size for this emissions unit is 400 gallons. The minimum amount of time for one batch cycle is 8 hours, with a maximum number of batches produced per year of 1095.

2.b This emissions unit is exempt from the requirements of OAC rule

3745-21-07(G)(2) based on the fact that there is no chemical reaction taking place; there is only mixing occurring in this process.

2.c The total allowable emissions of Hazardous Air Pollutants (HAPs), as identified in Section 112(b) of Title III of the Clean Air Act, from all emissions units at this facility, (listed in section A.2.d below) shall not exceed 9.5 tons/year for any individual HAP or 24.5 tons/year for a combination of HAPs. Compliance with the above limitations shall be based upon a rolling, 12-month summation of emissions for this emissions unit plus the annual HAP contribution from all other emissions units at this facility (listed in section A.2.d below).

2.d The current emissions units located at this facility are P002, P004, P006, P008, P009, P010, P011, P012, P013 T017, T019, T020, T021, T023, T024, T025, T026, T027, T028, T029, T030, T031, T032, T033, T034, T035, T036, T037, T038, T039, T040, T041, T042, B001, B002, and B003.

2.e The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the volatile organic compound (VOC) emissions from this air contaminant source since the uncontrolled potential to emit for VOC emissions are less than 10 tons/year.

2.f The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the particulate emissions from this air contaminant source since the calculated annual emission rate for PE is less than 10 tons/year taking into account the federally enforceable rule limit of 6.85 lbs/hour under OAC rule 3745-17-11(B). The calculated annual emissions rate was determined by multiplying the federally enforceable rule limit (6.85 lbs/hour) by the maximum annual number of hours solids are loaded (1095 hours) and dividing by 2000 lbs/ton.

B. Operational Restrictions

None.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall properly install, operate, and maintain equipment to continuously monitor and record the pressure drop, in inches of water, across the dust

collector during operation of this emissions unit, including periods of startup and shutdown. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the the pressure drop, in inches of water, across the dust collector on a daily basis.

2. Whenever the monitored value for the pressure drop deviates from the range specified below, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation: the date and time the deviation began and the magnitude of the deviation at that time, the date(s) the investigation was conducted, the names of the personnel who conducted the investigation, and the findings and recommendations.

3. In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified below, unless the permittee determines that a corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken: a description of the corrective action, the date it was completed, the date and time the deviation ended, the total period of time (in minutes) during which there was a deviation, the pressure drop readings immediately after the corrective action, and the names of the personnel who performed the work. Investigation and records required by this paragraph does not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

4. The acceptable range for the pressure drop across the dust collector shall be based upon the manufacturer's specifications until such time as any required emissions testing is conducted.
5. This range is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Cleveland Division of Air Quality (Cleveland DAQ). The permittee may request revisions to the range based upon information obtained during future particulate emission tests that demonstrate compliance with the allowable particulate emission rate for this emissions unit. In addition, approved revisions to the range will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

6. The permittee shall collect and record the following information each month for the

entire facility (list of emissions units identified in section A.2.d):

a. the name and identification number of each HAP containing material employed;

b. the individual HAP content contained in the final product for each HAP, in percent weight;

c. the total of each individual HAP emissions from the emissions unit in pounds or tons per month. [The individual HAP emissions will be determined by applying the equations* found in section E.1.a for each individual HAP species or by multiplying the VOC emissions rate, as determined by the equations* found in E.1.a below for all blending vessels (P002, P004, P006, P008, P009, P010, P011, P012, and P013), and the latest version of U.S. EPA's TANKS or U.S. EPA reference document AP-42, Fifth Edition or the most recent edition of AP-42, Compilation of Air Pollution Emission Factors, Section 7.1, Organic Liquid Storage Tanks (9/97) for all storage tanks (T017, T019, T020, T021, T023, T024, T025, T026, T027, T028, T029, T030, T031, T032, T033, T034, T035, T036, T037, T038, T039, T040, T041, and T042) by the individual HAP content of each solvent contained in the final product for each HAP, in percent weight. In order to determine individual HAP emissions from boilers B001, B002, and B003, U.S. EPA reference document AP-42, Fifth Edition or the most recent edition of AP-42, External Combustion Sources, Section 1.4, Natural Gas Combustion (7/98) will be used. Any emission factors shall be updated based on the results of any new emissions data or stack testing data obtained.

   *These equations are the calculation methodologies found in the STAPPA/ALAPCO-EPA document, "Emission Inventory Improvement Program (EIIP), Methods for Estimating Air from Paint, Ink, and Other Coating Manufacturing Facilities, Volume II: Chapter 8"];

d. the total combined HAP emissions from the emissions unit in pounds or tons per month [the sum of (c) for all individual HAPs];

e. the updated rolling, 12-month summation of emissions for each individual HAP, in pounds or tons. This shall include the information for the current month and the preceding eleven calendar months. For the first twelve months following the issuance of this permit, this shall be a cumulative total for all months since the issuance of the PTI; and

f. the updated rolling, 12-month summation of emissions for total combined HAPs, in pounds or tons. This shall include the information for the current month and the preceding eleven calendar months. For the first twelve months following the issuance of this permit, this shall be a cumulative total for all months since the issuance of the PTI.

* A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Cleveland DAQ contact. This information does not have to be kept on an individual emission unit basis.

7. The permit to install for this emissions unit, P013, was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied to this emissions unit for each toxic pollutant, using data from the permit to install application, and modeling was performed for the toxic pollutant(s) emitted at over a ton per year using the SCREEN 3.0 model or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the use of the SCREEN 3.0 (or other approved) model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as required in Engineering Guide #70. The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: Xylene
TLV (mg/m3): 434.19
Maximum Hourly Emission Rate (lbs/hr): 4.00 lbs/hr
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 954.6
MAGLC (ug/m3): 10338

8. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emissions of a compound with a lower Threshold Limit Value (TLV), as indicated

in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)", than the lowest TLV value previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

9. If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to the emissions of any type of toxic air contaminant not previously emitted, and a modification of the existing permit to install will not be required, even if the toxic air contaminant emissions are greater than the de minimis level in OAC rule 3745-15-05. If the change(s) is (are) defined as a modification under other provisions of the modification definition, then the permittee shall obtain a final permit to install prior to the change.

10. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emission unit will still satisfy the "Air Toxic Policy."

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

D. Reporting Requirements

1. The permittee shall submit quarterly reports that identify the following information concerning the operation of the control equipment during the operation of this emissions unit:

   a. each period of time when the pressure drop across the baghouse was outside of the range specified by the manufacturer;

   b. an identification of each incident of deviation described in (a) where a prompt investigation was not conducted;

   c. an identification of each incident of deviation described in (a) where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and

   d. an identification of each incident of deviation described in (a) where proper records were not maintained for the investigation and/or the corrective action.

   These quarterly reports shall be submitted (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year; and each report shall cover the previous calendar quarter.

2. The permittee shall submit quarterly deviation (excursion) reports, in accordance with Part I of the General Terms and Conditions, Section A. of this permit, of the following information:

   a. an identification of each month during which the rolling, 12-month individual HAP emissions rate (from the list of emissions units referenced in section A.2.d) exceeded 9.5 tons, and the actual rolling, 12-month summation of each individual HAP emissions rate (from the list of emissions units referenced in section A.2.d) for each such month; and

   b. an identification of each month during which the rolling, 12-month combination of all HAP emissions rates (from the list of emissions units referenced in section A.2.d) exceeded 24.5 tons, and the actual rolling, 12-month summation of the combination of all HAP emissions rates (from the list of emissions units referenced in section A.2.d) for each such month.

E. Testing Requirements

1. Compliance with the emission limitations in section A.1 of these terms and conditions shall be determined in accordance with the following methods:

   a. Emission Limitation

      PE shall not exceed 6.85 lbs/hour.

      Applicable Compliance Method

      Compliance with the PE limitation shall be determined through emission testing conducted in accordance with U.S. EPA Methods 1 through 5 of 40 CFR Part 60, Appendix A, or any Ohio EPA approved alternative testing method.

   b. Emission Limitation

      Visible particulate emissions from any stack shall not exceed 20% opacity as a six-minute average, except as provided by rule.

      Applicable Compliance Method

      Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using methods and procedures specified in U.S. EPA Reference Method 9.

c. Emission Limitation

9.5 tons individual HAPs/year for the list of emissions units in section A.2.d, as a 12-month, rolling summation.

Applicable Compliance Method

Compliance shall be determined based upon the record keeping specified in section C.6.

d. Emission Limitation

24.5 tons combined HAPs/year for the list of emissions units in section A.2.d, as a 12-month, rolling summation.

Applicable Compliance Method

Compliance shall be determined based upon the record keeping specified in section C.6.

F. Miscellaneous Requirements

1. The uncontrolled potential to emit for VOC emissions for this emissions unit was determined as follows:

Step 1) Initial kettle inerting
Step 2) Kettle wash (loading loss)
Step 3) Loading raws (loading loss)
Step 4) Purge from powder loading (purge loss)
Step 5) Blending heat-up (heat-up loss)
Step 6) Nitrogen line purging (purge loss)
Step 7) Packaging (loading loss)
Step 8) Fugitive

Calculation of Steps:

Step 1)
Evoc = (12.46)(S)(P)(M)(Q)/(T) = (12.46)(1.0)(0.172)(106.17)(0.825)/(540) = 0.348 lbs

Where:
12.46 = Universal gas constant
S = Saturation factor = 1.0
P = System vapor pressure, (psia) = 0.172
M = Vapor molecular weight, (lb/lb mole) = 106.17
Q = Volume of material loaded, (1000 gal) = 1.125 (assumes that 75% of volume is displaced with N2)
T = Temperature of liquid loaded, (R) = 540 (460 + 80)

Step 2)
Evoc = (12.46)(S)(P)(M)(Q)/(T) = (12.46)(1.45)(0.172)(106.17)(0.12)/(540) = 0.073 lbs
Where:
12.46 = Universal gas constant
S = Saturation factor = 1.45
P = System vapor pressure, (psia) aka VP of material = 0.172
M = Vapor molecular weight, (lb/lb mole) = 106.17
Q = Volume of material loaded, (1000 gal) = 0.12 (120 gallons loaded)
T = Temperature of liquid loaded, (R) = 540 (460 + 80)

Step 3)
Evoc = (12.46)(S)(P)(M)(Q)/(T) = (12.46)(1.45)(0.172)(106.17)(1.5)/(540) = 0.916 lbs

Where:
12.46 = Universal gas constant
S = Saturation factor = 1.45
P = System vapor pressure, (psia) aka VP of material = 0.172
M = Vapor molecular weight, (lb/lb mole) = 106.17
Q = Volume of material loaded, (1000 gal) = 1.5 (1500 gallons loaded)
T = Temperature of liquid loaded, (R) = 540 (460 + 80)

Step 4)
Exp = ((Px)(F)(Mx)(60)(OH)/(R)(T)) * (PT)/(PT – sumPx)

Exp = ((0.172)(10)(106.17)(60)(0.25)/(10.73)(540)) * (14.7)/(14.7 – 0.172) = 0.478 lbs

Where:
Exp = Emission of VOC species x, (lbs)
Px = Partial pressure of VOC species x, (psia) = 0.172
F = Flow rate into vessel, (ft3/min) = 10
Mx = Molecular weight of VOC species x, (lb/lb-mole) = 106.17
60 = Minutes per hour
OH = Hours of purge, (hr) = 0.25
R = 10.73 gas constant
T = Temperature of exhaust gas, (R) = 540 (460 + 80)
PT = Total system pressure, (psia) = 14.7

Step 5)
Evoc = ((((sum(Px)T1 /14.7-sum(Px)T1) + (sum(Px)T2 /14.7-sum(Px)T2))/2))*(n)(Ma)

Evoc = ((((0.172)/(14.7 – 0.172) + (2.32)/(14.7 – 2.32))/2))*(0.00)(106.17) = 0.00 lbs

n = [(147.05/10.73) * ((14.7-0.172)/540) – (14.7 – 2.32)/640))] = 0.00

Where:
Evoc = VOC emissions from heat up, (lbs)
(Px)T1 = Initial partial pressure of VOC species x at T1, (psia) = 0.172
(Px)T2 = Final partial pressure of VOC species x at T2, (psia) = 2.32
n = Number of pound-moles of gas displaced, (lb-mole)

n = [(V/R) * (Pa1/T1 – Pa2/T2)]
where:
V = vessel fee volume, ft3 = (1500 – 1500) = 0 gallons * 0.13368 cubic ft = 0.00
R = 10.73 gas constant
Pa1 = 14.7 - (Px)T1
Pa2 = 14.7 - (Px)T2
T1 = 540 (460 + 80)
T2 = 640 (460 + 180)

Ma = Vapor molecular weight, (lb/lb-mole) = 106.17

Step 6)
Exp = ((Px)(F)(Mx)(60)(OH)/(R)(T)) * (PT)/(PT – sumPx)

Exp = ((0.323)(5)(106.17)(60)(0.1667)/(10.73)(560) * (14.7)/(14.7 – 0.323) = 0.29 lbs

Where:
Exp = Emission of VOC species x, (lbs)
Px = Partial pressure of VOC species x, (psia) = 0.323
F = Flow rate into vessel, (ft3/min) = 5
Mx = Molecular weight of VOC species x, (lb/lb-mole) 106.17
60 = Minutes per hour
OH = Hours of purge, (hr) = 0.1667
R = 10.73 gas constant
T = Temperature of exhaust gas, (R) = 560 (460 + 100)
PT = Total system pressure, (psia) 14.7

Step 7)
Evoc = (12.46)(S)(P)(M)(Q)/(T) = (12.46)(1.0)(0.445)(106.17)(1.5)/(570) = 1.549 lbs

Where:
12.46 = Universal gas constant
S = Saturation factor = 1.0
P = System vapor pressure, (psia) = 0.445
M = Vapor molecular weight, (lb/lb mole) = 106.17
Q = Volume of material loaded, (1000 gal) = 1.5 (1500 gallons)
T = Temperature of liquid loaded, (R) = 570 (460 + 110)

Step 8)
SOCMI fugitive emission factors (e.f.) were taken from EPA453/R-95-017 "Protocol for Equipment Leak Emission Estimates"

Pumps =1 (e.f. = 0.0041 kg/hr); Valves, gas = 9 (e.f. = 0.00261 kg/hr); Valves, liquid = 7

(e.f. = 0.00252 kg/hr); Flanges, gas = 13 (e.f. = 0.00234 kg/hr); Flanges, liquid = 6 (e.f. = 0.00108 kg/hr); Open Ended Lines = 2 (e.f. = 0.0034 kg/hr)

[(1 Pump)(0.0041 kg/hr)(9 Valves, gas)(0.00261 kg/hr)(7 Valves, liquid)(0.00252 kg/hr)(13 Flanges, gas)(0.00234 kg/hr)(6 Flanges, liquid)(0.00108 kg/hr)(2 Open Ended Lines)(0.0034 kg/hr)](0.5) = 0.008025 Kg/hr

To convert to lbs/hr:
(0.008025 Kg/hr)(2.2046) = 0.0177 lb/hr fugitives

Fugitives = (0.0177 lb/hr)(8 hrs/batch) = 0.1416 lb/batch

TOTALS FROM ABOVE

Emissions Unit ID: **P013**

Emissions (lbs) = Step 1 + Step 2 + Step 3 + Step 4 + Step 5 + Step 6 + Step 7 + Step 8

= 0.35 + 0.07 + 0.92 + 0.48 + 0.00 + 0.29 + 1.55 + 0.14

= 3.80 lbs/batch

(3.80 lbs/batch)*(1095 batches/yr)*(1 ton/2000 lbs) = 2.08 tons/yr