



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL CERTIFIED MAIL
FRANKLIN 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: 01-08402

DATE: 6/26/2001

Franklin International Inc
Michael Desgranges
2020 Bruck St
Columbus, OH 43207

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 by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 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. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
236 East Town Street, Room 300
Columbus, Ohio 43215

Very truly yours,

Thomas G. Rigo, Manager
Field Operations and Permit Section
Division of Air Pollution Control

cc: USEPA

CDO



Permit To Install

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

FINAL PERMIT TO INSTALL 01-08402

Application Number: 01-08402
APS Premise Number: 0125040070
Permit Fee: **\$200**
Name of Facility: Franklin International Inc
Person to Contact: Michael Desgranges
Address: 2020 Bruck St
Columbus, OH 43207

Location of proposed air contaminant source(s) [emissions unit(s)]:
2020 Bruck St
Columbus, Ohio

Description of proposed emissions unit(s):
One reactor.

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



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 Related to Monitoring and Recordkeeping 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 quarterly, i.e., 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 application must be made to the Director for the installation or modification of any other emissions unit(s).

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 thirty (30) days after commencing operation of the emissions unit(s) covered by this permit.

Franklin International Inc
 PTI Application: 01-08402
 Issued: 6/26/2001

Facility ID: 0125040070

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

<u>Pollutant</u>	<u>Tons Per Year</u>
OC	5.9

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

P115 - Reactor 7 System with OAC rule 3745-31-05(A)(3)
condenser

OAC rule 3745-17-08(B)

OAC rule 3745-21-07(G)(1)

OAC rule 3745-17-07(B)(1)

Applicable Emissions
Limitations/Control Measures

The requirements established pursuant to this rule are equivalent to the requirements of OAC rule 3745-21-07(G)(1); or

organic compound (OC) emissions shall not exceed 5.9 tons OC/yr, and shall not exceed 7.3 lbs OC/hr and 32.3 lbs/day, if emissions have been reduced by at least 85%; see Section A.2.a.

There shall be no visible emissions from any stack or outside vent associated with this emission unit or from the room containing the unit, during the addition of solids to the pre-emulsion tank.

The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-08(B).

Organic compound (OC) emissions shall not exceed 3 lbs/hr and 15 lbs/day unless said discharge has been reduced by at least 85 percent.

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

Reasonable available control

measures that are sufficient to minimize or eliminate visible emissions of fugitive dust.

2. Additional Terms and Conditions

- 2.a The reactor and its pre-emulsion tank shall not be operated without the condensers being maintained as required in this permit. If emissions are to exceed the limit from OAC 3745-21-07(G)(1), the condensers shall reduce organic compound emissions by at least 85%.

B. Operational Restrictions

1. The peak temperature of the exhaust gases from the condenser serving the reactor shall not exceed 42 degrees Celsius during any hour in which the average temperature is 35 degrees Celsius or above; the temperature shall be measured with a continuous temperature monitor and recorder.
2. The peak temperature of the chilled water entering the condenser serving the pre-emulsion tank shall not exceed 17 degrees Celsius. This temperature may be monitored at the point the chilled water enters the building containing the reactor, and shall be measured with a continuous temperature monitor and recorder.
3. The pressure setting of the conservation vents shall be maintained at 2 inches of water, and the permittee shall perform annual inspections to ensure that the vents are clean and unobstructed.
4. The permittee shall not allow any volatile or hazardous material to be stored in open containers and/or handled in a manner that would result in any unnecessary evaporation of the materials.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature of the exhaust gases from the condenser serving the reactor, when the emissions unit is in operation. Units shall be in degrees Celsius. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within + or - 1 percent of the temperature being measured or + or - 2.8 degrees Celsius, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

The permittee shall collect and maintain the following information each day:

- a. the computer record of the continuous temperature monitor, which shall document that the peak temperature of the exhaust gases from the condenser serving the reactor did not exceed 42 degrees Celsius in any hour in which the average temperature was 35 degrees Celsius or above; and

- b. the permittee shall maintain a log or record (batch sheet or equivalent) of the operating time for the condenser, its temperature control device, monitoring equipment, and the reactor, for each product batch.
2. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature of the chilled water entering the condenser serving the pre-emulsion tank when the emissions unit is in operation. Units shall be in degrees Celsius. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within + or - 1 percent of the temperature being measured or + or - 2.8 degrees Celsius, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals, and may be monitored at the point the chilled water enters the building containing the reactor.

The permittee shall collect and maintain the following information each day:

- a. the computer record of the continuous temperature monitor, which shall document that the peak temperature of the chilled water entering the condenser serving the pre-emulsion tank did not exceed 17 degrees Celsius; and
- b. the permittee shall maintain a log or record (batch sheet or equivalent) of the operating time for the condenser, its temperature control device, monitoring equipment, and the pre-emulsion tank, for each product batch*.

* If the pre-emulsion tank has operated in association with the reactor in the production of any batch, and during the same period of time, the log for the reactor may so indicate this, to alleviate the second record for the pre-emulsion tank.

3. The permittee shall document the following information each day:
 - a. the total number of batches of each adhesive product produced;
 - b. the calculated daily and average hourly organic compound emission rate, in pounds per day and pounds per hour, summed for all the liquid/volatile components, by applying the following equations, unless the batch mix or chemical in the mix exceeds its boiling point, then calculations shall follow the requirements in the following section (3.c):

Equations 3-7 from US EPA Guideline Series "Control of Volatile Organic Compound Emissions from Batch Processes", used to calculate the mass emission rate from the displaced gas:

$$E_r = (Y_i)(V_r)(P_t)(M_W) / (R)(T)$$

Equation 3-9 from US EPA Guideline Series "Control of Volatile Organic Compound

Emissions from Batch Processes" or Raoult's Law, used to calculate the mole fraction of a component in the vapor:

$$Y_i = P_i / P_t = X_i P_i^* / P_t$$

Substituting for Y_i from Raoult's Law in Equation 3-7, emissions shall be calculated and summed for each liquid/volatile component as follows:

$$E_r = (X_i)(V_r)(P_i^*)(MW) / (R)(T)$$

Equation 3-15 from US EPA Guideline Series "Control of Volatile Organic Compound Emissions from Batch Processes", to calculate the moles of gas displaced; and this multiplied by the molecular weight and the mole fraction of each liquid/volatile component in the mix, to get pounds of each compound in the gas displaced in each batch:

$$E_r = [V \{P_{a1}/T_1 - P_{a2}/T_2\} (Y_i)(MW)] / R$$

where:

E_r = mass emission rate (lbs/batch)

Y_i = mole fraction of component i in vapor

X_i = mole fraction of component i in liquid

V_r = volumetric gas displacement rate (ft³/batch)

V = volume of vapor in head space (ft³/batch)

R = ideal gas law constant (10.73 ft³ psia/lbmole deg R)

T = operating temperature (deg R)

T_1 = initial temperature in vessel (deg R)

T_2 = final temperature in vessel (deg R)

P_i = partial pressure of component i (psia)

P_i^* = vapor pressure of component i at temperature T (psia)

P_t = total pressure in the vessel vapor space (psia)

P_{a1} = initial gas pressure in vessel (psia)

P_{a2} = final gas pressure in vessel (psia)

MW = molecular weight (lb/lbmole)

Antoine's Equation or Equation 3-8 from US EPA Guideline Series "Control of Volatile Organic Compound Emissions from Batch Processes", with the constants (A, B, & C) found in "Lange's Handbook of Chemistry", to calculate the vapor pressure of each liquid/volatile component:

Franklin International Inc
PTI Application: 01 08403
Issued

Facility ID: 0125040070

Emissions Unit ID: **P115**

$$\ln P_i = A - B/(C+T)$$

where:

P_i = vapor pressure of component i (mmHg)

A,B,C = component specific constants

T = temperature of liquid (deg K)

Vapor pressure may also be derived from a reliable source of vapor pressure/temperature tables; and

The control efficiency calculated as per Part II, Section E.2, using vapor pressures calculated at the condenser vapor inlet and outlet temperatures of record; and

- c. if the reactor contents are heated up to and above the boiling point of the mix or chemical in the mix, the ideal gas laws no longer apply to the mix. In this case, emissions shall be calculated using an emission factor of 1.27 pounds of OC per hour, derived from the stack test conducted on 5/12/94, for Reactor 9 (P107), in which the mix exceeded this temperature. This emission factor shall be multiplied by the time (hours) the mix or chemical was above its boiling point to calculate the pounds of the lower boiling point chemical emitted during this time period. To calculate emissions for chemicals with equal or higher boiling points than the mix temperature, the emissions calculated above shall be multiplied by the ratio of the mole fraction times the vapor pressure of each higher boiling point chemical, to the mole fraction times the vapor pressure of the lower boiling point chemical in the mix, using the vapor pressures calculated at the lower boiling point chemical's boiling point. These emissions, calculated from the chemical(s) above the mix's boiling point, shall be added to the emissions calculated for the lower boiling point chemical, to document the total OC emissions from the reactor during the period the batch was above boiling point of the lower boiling point chemical.
- d. Daily recordkeeping of the calculated daily and average hourly OC emissions rates shall not be required if documentation is maintained of calculations, performed as required in (b), demonstrate worst-case OC emissions* could not exceed 3 pounds of OC per hour and 15 pounds of OC per day, or documentation that worst-case OC emissions* have been reduced by 85% and could not exceed 7.3 pounds of OC per hour and 32.3 pounds of OC per day, after this reduction. The condenser efficiency shall be calculated as required in Section A.V.2, unless temperatures exceed the boiling point of the mix or chemical in the reactor mix.

* Worst-case OC emissions (lbs/hr) shall be calculated using temperatures that would produce the highest emissions (for the time of year of the record) and product having the highest or higher vapor pressure than the adhesive product of record; and daily emissions calculated using the maximum number of batches that could be run in any such day, at the

worst-case emissions rate.

4. The permittee shall collect and record the following information on an annual basis for the reactor and the associated pre-emulsion tank, for the purpose of documenting and reporting annual emissions:
 - a. the total number of batches of each adhesive product or product group produced in this emissions unit; and
 - b. the organic compound emissions, in pounds or tons per year, calculated as in Section C.3 above*.

* Products may be grouped by similar product types for the calculations of annual emissions, for compliance demonstration and emissions reports. If the condensers are used to demonstrate compliance, the control efficiency shall be calculated as required in Part II, Section E.2, and shall be dependent on the average vapor inlet and outlet temperatures of the condenser. Products may be grouped by the seasons of the year in order to segregate and lessen the effects of average annual temperatures; and the highest vapor pressure, representative of the product group, shall be used in the calculations of annual emissions.

5. The permit to install for this emissions unit (Reactor 07 System) 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 for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutants:

Pollutant: vinyl acetate

TLV: 35 mg/m³

Maximum Hourly Emission Rate: 7.3 lbs/hr

Predicted 1-Hour Maximum Ground-Level Concentration: 1,153 ug/m³

MAGLC: 1,167 ug/m³, adjusted for maximum hours of operation

Pollutant: N-Butyl Acrylate

TLV: 10.5 mg/m³

Maximum Hourly Emission Rate: 1.05 lbs/hr

Predicted 1-Hour Maximum Ground-Level Concentration: 165.8 ug/m³

MAGLC: 250 ug/m³

Pollutant: Acrylic Acid

TLV: 5.9 mg/m³

Maximum Hourly Emission Rate: 0.24 lbs/hr

Predicted 1-Hour Maximum Ground-Level Concentration: 37.92 ug/m³

MAGLC: 140.5 ug/m³

6. 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 still be still satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not 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 emission 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.).

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(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

7. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions 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 deviation (excursion) reports which include the following information:
 - a. an identification of each day during which the calculated average hourly organic compound emissions exceeded 7.3 pounds per hour, after reducing emissions by 85%, and the actual organic compound emissions for each such hour;
 - b. an identification of each day during which the organic compound emissions exceeded 32.3 pounds per day, after reducing emissions by 85%, and the actual organic compound emissions for each such day; and/or
 - c. an identification of any day during which OC emissions exceeded 3 pounds per hour and/or 15 pounds per day, without reducing emissions by 85%, and the actual organic compound emissions for each such hour and day.

The control efficiency shall be demonstrated as required in Part II, Section E.2; and these reports shall be submitted as required in Part I, Section A.2.b.

2. The permittee shall submit quarterly temperature deviation (excursion) reports that identify any time during which the peak temperature of the exhaust gases from the condenser serving the reactor exceeded 42 degrees Celsius during any hour in which the average temperature was 35 degrees Celsius or above. These reports shall be submitted as required in Part I, Section A.2.b.
3. The permittee shall submit quarterly temperature deviation (excursion) reports that identify any period of time during which the peak temperature of the chilled water entering the condenser serving the pre-emulsion tanks exceeded 17 degrees Celsius. These reports shall be submitted as required in Part I, Section A.2.b.
4. The permittee shall submit annual reports which specify the total organic compound emissions

Franklin International Inc
PTI Application: 01-08402
Issued

Facility ID: 0125040070

Emissions Unit ID: **P115**

from this emissions unit for the previous calendar year. This reporting requirement may be satisfied by including and identifying the specific emissions data for this emissions unit in the annual Fee Emission Report.

E. Testing Requirements

Compliance with the emission limitations in Part II, Section A.1 of the terms and conditions of this permit shall be determined in accordance with the following methods:

1. Emission Limitation:

Organic compound (OC) emissions shall not exceed 3 lbs/hr and 15 lbs/day, unless said discharge has been reduced by at least eighty-five percent.

Applicable Compliance Method:

Compliance shall be demonstrated through the calculations and recordkeeping found in Part II, Section C.3. The emission unit shall not be operated without the condenser control system; and the permittee may demonstrate compliance with OAC rule 3745-21-07(G)(1) through the use of the condenser control by applying the estimated efficiency, calculated as required in Part II, Section E.2.

If required, the permittee shall demonstrate compliance with the above organic compound emission limitation in accordance with the procedures and methods specified in Method 25 or 25A.

2. Emission Limitation:

Organic compound emissions shall not exceed 7.3 lbs/hr, after emissions are reduced by 85%

Applicable Compliance Method:

Compliance shall be demonstrated through the calculations and recordkeeping found in Part II, Section C.3. The emission unit shall not be operated without the condenser control system; and the permittee shall demonstrate compliance with the 85% control by the condensers, by using the following equation, which represents the mass balance around the condensers and calculates the mole fraction of VOC in the feed and in the vapor leaving the condensers. If records of these calculations are maintained in the facility records, they need only be performed once for each variation in the condensers inlet and outlet water temperatures for each product or worst-case product. If reactor temperatures exceed the boiling point of the mix or chemical in the mix, emissions shall be calculated as required in Part II, Section C.3.c.

Mass balance assumptions:

F = liquid/gas feed to the condenser, lbmol

D = gas leaving the condenser, lbmol

W = liquid leaving the condenser, lbmol

z = mole fraction of OC in feed

20

Frank

PTI A

Issued: 6/26/2001

Emissions Unit ID: **P115**

y = mole fraction of OC in vapor leaving the condenser

x = mole fraction of OC in liquid leaving the condenser

$x = 1$ (assumes that all the liquid condensed is OC)

$F = 100$ lbmol (arbitrarily set to calculate the pound moles of D and W)

$F = D + W$; and therefore $W = F - D$; and substituting for value of "F":

$$W = 100 - D$$

substituting for W in $F(z) = D(y) + W(x)$:

$$100z = Dy + (100 - D)x$$

$$100z = Dy + 100x - Dx$$

$$100z - 100x = Dy - Dx$$

$$100(z - x) = D(y - x)$$

$$D = 100(z - x) / (y - x)$$

The vapor pressures shall be determined using Antoine's equation or chemical vapor pressure tables, at the appropriate condenser inlet and outlet vapor temperatures.

If the liquid is assumed to be 100% OC (condensed), then the mole fractions of OC in the inlet (z) and outlet (y) vapor may be calculated using Raoult's Law, and the efficiency determined for compliance as follows:

efficiency (EF) = in - out / in, or:

$$EF = Fz - Dy / Fz, \text{ or:}$$

$$EF = 100z - [100(z - x) / (y - x)]y / 100z$$

$$z = P1 / 760$$

$$y = P2 / 760$$

P1 = vapor pressure of OC, at vapor inlet temperature of condenser

P2 = vapor pressure of OC, at vapor outlet temperature of the condenser

If required, the permittee shall demonstrate compliance with the above organic compound emission limitation in accordance with the procedures and methods specified in Method 25 or 25A.

3 Emission Limitation:

Organic compound emissions shall not exceed 32.3 lbs/day, after emissions are reduced by 85%

Applicable Compliance Method:

Compliance shall be demonstrated through the calculations and recordkeeping found in Part II, Section C.3. The emission unit shall not be operated without the condenser control system; and the permittee shall demonstrate compliance with the 85% control of the condensers as required in Part II, Section E.2, above.

If required, the permittee shall demonstrate compliance with the above organic compound emission limitation in accordance with the procedures and methods specified in Method 25 or 25A.

4. Emission Limitation:

Organic compound emissions shall not exceed 5.9 tons/yr

Applicable Compliance Method:

Compliance shall be demonstrated through the calculations and recordkeeping found in Part II, Section C.4. The emission unit shall not be operated without the condenser control system; and the permittee may demonstrate compliance through the use of the condenser control by applying the estimated efficiency, calculated as required in Part II, Section E.2.

5. Emission Limitation:

There shall be no visible emissions from any stack or outside vent associated with this emission unit or from the room containing the unit, during the addition of solids to the pre-emulsion tank.

Applicable Compliance Method:

If required, compliance shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

F. Miscellaneous Requirements

None

NEW SOURCE REVIEW FORM B

PTI Number: 01-08402 Facility ID: 0125040070

FACILITY NAME Franklin International Inc

FACILITY DESCRIPTION adhesive production. CITY/TWP Columbus

SIC CODE 2891 SCC CODE 3-01-167-02 EMISSIONS UNIT ID P115

EMISSIONS UNIT DESCRIPTION Reactor R07 System

DATE INSTALLED 6/78

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter					
PM ₁₀					
Sulfur Dioxide					
Organic Compounds	Attainment	3.0 or 7.3 if 85% control	5.9	3.0 or 7.3 if 85% control	5.9
Nitrogen Oxides					
Carbon Monoxide					
Lead					
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?

Enter Determination

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? yes

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? \$

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? X YES NOIDENTIFY THE AIR CONTAMINANTS: vinyl acetate, n-butyl acrylate, styrene, methyl methacrylate, methacrylic acid, acrylic acid

NEW SOURCE REVIEW FORM B

PTI Number: 01-08402 Facility ID: 0125040070

FACILITY NAME Franklin International Inc

FACILITY DESCRIPTION adhesive production. CITY/TWP Columbus

Ohio EPA Permit to Install Information Form Please describe below any documentation which is being submitted with this recommendation (must be sent the same day). Electronic items should be submitted with the e-mail transmitting the PTI terms, and in software that CO can utilize. If mailing any hard copy, this section must be printed as a cover page. All items must be clearly labeled indicating the PTI name and number. Submit **hard copy items to Pam McGraner**, AQM&P, DAPC, Central Office, and electronic files to **airpti@epa.state.oh.us**

Please fill out the following. If the checkbox does not work, replace it with an 'X'

	<u>Electronic</u>	<u>Additional information File Name Convention (your PTI # plus this letter)</u>	<u>Hard Copy</u>	<u>None</u>
<u>Calculations (required)</u>	<input type="checkbox"/>	0000000c.wpd	<input checked="" type="checkbox"/>	
<u>Modeling form/results</u>	<input type="checkbox"/>	0000000s.wpd	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>PTI Application (complete or partial)*</u>	<input type="checkbox"/>	0000000a.wpd	<input type="checkbox"/>	<input type="checkbox"/>
<u>BAT Study</u>	<input type="checkbox"/>	0000000b.wpd	<input type="checkbox"/>	<input type="checkbox"/>
<u>Other/misc.</u>	<input type="checkbox"/>	0000000t.wpd	<input type="checkbox"/>	<input type="checkbox"/>

* Mandatory for netting, PSD, nonattainment NSR, 112(g), 21-07(G)(9)(g) and 21-09(U)(2)(f) - 2 complete copies.

Please complete (see comment bubble to the left for additional instructions):

NSR Discussion

This PTI application was requested from the facility for an emission unit that was installed after 1/1974, without a PTI. This emissions unit was issued a PTO, and the missing PTI was discovered with the development of the Title V. The date of installation was considered in the **BAT determination**.

Please complete for these type permits (For PSD/NSR Permit, place mouse over this text):

Synthetic Minor Determination and/or Netting Determination
Permit To Install ENTER PTI NUMBER HERE

- A. Source Description
- B. Facility Emissions and Attainment Status
- C. Source Emissions
- D. Conclusion

PLEASE PROVIDE ADDITIONAL NOTES OR COMMENTS AS NECESSARY:

NONE

Please complete:

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

<u>Pollutant</u>	<u>Tons Per Year</u>
OC	5.9

NEW SOURCE REVIEW FORM B

PTI Number: 01-08402 Facility ID: 0125040070

FACILITY NAME Franklin International Inc

FACILITY DESCRIPTION adhesive production. CITY/TWP Columbus

NEW SOURCE REVIEW FORM B

PTI Number: 01-08402

Facility ID: 0125040070

FACILITY NAME Franklin International Inc

FACILITY DESCRIPTION adhesive production.

CITY/TWP

Columbus