



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: October 2, 2008

RE: Cathay Pigments / 127-21259-00050

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER.dot12/03/07



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Minor Source Operating Permit Renewal OFFICE OF AIR QUALITY

Cathay Pigments (USA), Inc.
4901 Evans Avenue
Valparaiso, Indiana 46383

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a MSOP under 326 IAC 2-6.1.

Operation Permit No.: M127-21259-00050	
Original signed by:	Issuance Date: October 2, 2008
Alfred C. Dumauual, Ph. D., Section Chief Permits Branch Office of Air Quality	Expiration Date: October 2, 2018

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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 and A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-5.1-3(c)][326 IAC 2-6.1-4(a)]

The Permittee owns and operates a stationary iron oxide manufacturing plant.

Source Address:	4901 Evans Avenue, Valparaiso, Indiana 46383
Mailing Address:	4901 Evans Avenue, Valparaiso, Indiana 46383
General Source Phone Number:	219-465-7059
SIC Code:	2816
County Location:	Porter
Source Location Status:	Nonattainment for 8-hour ozone standard Nonattainment for PM2.5 standard Attainment for all other criteria pollutants
Source Status:	Minor Source Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary

This stationary source consists of the following emission units and pollution control devices:

- (a) Iron Oxide powder production, maximum capacity of 8,300 tons per year:
- (1) Two (2) neutralizer tanks, two (2) clear liquor storage tanks, and one (1) hydrochloric acid storage tank, using a scrubber as control;
 - (2) Four (4) precipitator tanks;
 - (3) Twenty-two (22) storage bins all using a mix of powered dust collector and bin vents for control;
 - (4) Two (2) hammer mills each with one (1) baghouse for control;
 - (5) Two (2) natural gas-fired dryers, identified as SS-2 and SS-12, each rated at 3.6 million British thermal units (MMBtu) per hour, and each using a baghouse for control, and exhausting to a stack;
 - (6) Two (2) natural gas-fired calcination kilns, identified as SS-4 and SS-14, each rated at 6.0 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
 - (7) Two (2) natural gas-fired reduction kilns, identified as SS-6 and SS-16, each rated at 2.0 MMBtu per hour, each with a flare rated at 0.05 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
 - (8) One (1) natural gas-fired H₂ reduction kiln rated at 0.5 MMBtu per hour, identified as SS-19, using a scrubber for control;

- (9) Two (2) natural gas-fired oxidation kilns, identified as SS-8 and SS-18, each rated at 1.6 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
- (b) One (1) Bauermeister Oxide Mill, with a maximum capacity of 2,000 pounds per hour, using a baghouse as control, constructed in 2006.
- (c) One (1) Manganese Violet Line with a maximum capacity of 100 pounds per hour, using a scrubber as control, constructed in 2007.
- (d) Five (5) iron oxide powder ribbon blenders, with a total maximum capacity of 1,000 tons per year, constructed in 2008:
 - (1) One (1) ribbon blender, identified as C10, using a baghouse as control, and exhausting to a stack,
 - (2) One (1) ribbon blender, identified as C20, equipped with a lid, and venting to the indoors;
 - (3) One (1) ribbon blender, identified as C30, equipped with a lid, and venting to the indoors;
 - (4) One (1) ribbon blender, identified as C60, equipped with a lid, and venting to the indoors;
 - (5) One (1) ribbon blender, identified as C70, equipped with a lid, and venting to the indoors.
- (e) Two (2) chasing operations with one baghouse for control, and exhausting to a stack;
- (f) One (1) natural gas-fired boiler (#1), identified as SS-10, rated at 13.39 mmBtu per hour;
- (g) One (1) natural gas-fired boiler (#2), identified as SS-11, rated at 12.56 mmBtu per hour;
- (h) One (1) natural gas-fired boiler (#3), identified as SS-21, rated at 9.0 mmBtu per hour;
- (i) One (1) natural gas burner supplying process heat to the Manganese Violet Line, rated at 2.0 mmBtu/hr;
- (j) One (1) diesel emergency generator, with a power output of 700 horsepower;
- (k) One (1) diesel emergency fire pump, with a power output of 83 horsepower;
- (l) Two (2) day tanks containing diesel fuel, each with a maximum capacity of 115 gallons, and each with an annual throughput of 10,000 gallons per year;
- (m) One (1) prototype ribbon blender, identified as C50, equipped with a lid and venting to the indoors.

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-1.1-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-1.1-1) shall prevail.

B.2 Permit Term [326 IAC 2-6.1-7(a)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]

- (a) This permit, M127-21259-00050, is issued for a fixed term of ten (10) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

B.3 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

- (a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or
- (b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.5 Severability

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege

This permit does not convey any property rights of any sort or any exclusive privilege.

B.7 Duty to Provide Information

- (a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.
- (b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Certification

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an "authorized individual" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.
- (c) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

B.9 Annual Notification [326 IAC 2-6.1-5(a)(5)]

- (a) An annual notification shall be submitted by an authorized individual to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.
- (b) The annual notice shall be submitted in the format attached no later than March 1 of each year to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, IN 46204-2251
- (c) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

B.10 Preventive Maintenance Plan [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) including the following information on each facility:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.
- (b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.11 Prior Permits Superseded [326 IAC 2-1.1-9.5]

- (a) All terms and conditions of permits established prior to M127-21259-00050 and issued pursuant to permitting programs approved into the state implementation plan have been either:
 - (1) incorporated as originally stated,
 - (2) revised, or
 - (3) deleted.
- (b) All previous registrations and permits are superseded by this permit.

B.12 Termination of Right to Operate [326 IAC 2-6.1-7(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least ninety (90) days prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-6.1-7.

B.13 Permit Renewal [326 IAC 2-6.1-7]

- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-6.1-7. Such information shall be included in the application for each emission unit at this source. The renewal application does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

- (b) A timely renewal application is one that is:
 - (1) Submitted at least ninety (90) days prior to the date of the expiration of this permit; and
 - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-6.1 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.14 Permit Amendment or Revision [326 IAC 2-5.1-3(e)(3)][326 IAC 2-6.1-6]

(a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-6.1-6 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application shall be certified by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) The Permittee shall notify the OAQ within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

B.15 Source Modification Requirement

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.16 Inspection and Entry

[326 IAC 2-5.1-3(e)(4)(B)][326 IAC 2-6.1-5(a)(4)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.17 Transfer of Ownership or Operational Control [326 IAC 2-6.1-6]

(a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The application which shall be submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) The Permittee may implement notice-only changes addressed in the request for a notice-only change immediately upon submittal of the request. [326 IAC 2-6.1-6(d)(3)]

B.18 Annual Fee Payment [326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing.
- (b) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.19 Credible Evidence [326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-6.1-5(a)(1)]

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 Permit Revocation [326 IAC 2-1.1-9]

Pursuant to 326 IAC 2-1.1-9 (Revocation of Permits), this permit to operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of this article.

C.3 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.4 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.5 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

C.6 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

C.7 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted.

C.8 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
- (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
- (2) If there is a change in the following:
- (A) Asbestos removal or demolition start date;
- (B) Removal or demolition contractor; or
- (C) Waste disposal site.
- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Asbestos Section, Office of Air Quality
100 North Senate Avenue
MC 61-52 IGCN 1003
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (e) **Procedures for Asbestos Emission Control**
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.
- (f) **Demolition and Renovation**
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) **Indiana Licensed Asbestos Inspector**
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Licensed Asbestos inspector is not federally enforceable.

Testing Requirements [326 IAC 2-6.1-5(a)(2)]

C.9 Performance Testing [326 IAC 3-6]

- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.10 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-6.1-5(a)(2)]

C.11 Compliance Monitoring [326 IAC 2-1.1-11]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.12 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60, Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

C.13 Instrument Specifications [326 IAC 2-1.1-11]

- (a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.
- (b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

Corrective Actions and Response Steps

C.14 Response to Excursions or Exceedances

- (a) Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:
 - (1) initial inspection and evaluation;
 - (2) recording that operations returned to normal without operator action (such as through response by a computerized distribution control system); or
 - (3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.
- (c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:
 - (1) monitoring results;
 - (2) review of operation and maintenance procedures and records; and/or

- (3) inspection of the control device, associated capture system, and the process.
- (d) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (e) The Permittee shall maintain the following records:
 - (1) monitoring data;
 - (2) monitor performance data, if applicable; and
 - (3) corrective actions taken.

C.15 Actions Related to Noncompliance Demonstrated by a Stack Test

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Record Keeping and Reporting Requirements [326 IAC 2-6.1-5(a)(2)]

C.16 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.17 Emission Statement [326 IAC 2-6]

- (a) Pursuant to 326 IAC 2-6-3(a)(1), the Permittee shall submit an emission statement by July 1 following a calendar year when the source emits oxides of nitrogen or volatile organic compounds into the ambient air equal to or greater than twenty-five (25) tons. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

The statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
MC 61-50 IGCN 1003
Indianapolis, Indiana 46204-2251

The emission statement does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

C.18 General Record Keeping Requirements [326 IAC 2-6.1-5]

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.19 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) Reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

- (b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

- (c) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) Iron Oxide powder production, maximum capacity of 8,300 tons per year:
 - (1) Two (2) neutralizer tanks, two (2) clear liquor storage tanks, and one (1) hydrochloric acid storage tank, using a scrubber as control;
 - (2) Four (4) precipitator tanks;
 - (3) Twenty-four (24) storage bins all using filters for control;
 - (4) Two (2) hammer mills each with one (1) baghouse for control;
 - (5) Two (2) natural gas-fired dryers, identified as SS-2 and SS-12, each rated at 3.6 million British thermal units (MMBtu) per hour, and each using a baghouse for control, and exhausting to a stack;
 - (6) Two (2) natural gas-fired calcination kilns, identified as SS-4 and SS-14, each rated at 6.0 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
 - (7) Two (2) natural gas-fired reduction kilns, identified as SS-6 and SS-16, each rated at 2.0 MMBtu per hour, each with a flare rated at 0.05 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
 - (8) One (1) natural gas-fired H₂ reduction kiln rated at 0.5 MMBtu per hour, identified as SS-19, using a scrubber for control;
 - (9) Two (2) natural gas-fired oxidation kilns, identified as SS-8 and SS-18, each rated at 1.6 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
- (b) One (1) Bauermeister Oxide Mill, with a maximum capacity of 2,000 pounds per hour, using a baghouse as control, constructed in 2006.
- (c) One (1) Manganese Violet Line with a maximum capacity of 100 pounds per hour, using a scrubber as control, constructed in 2007.
- (d) Five (5) iron oxide powder ribbon blenders, with a total maximum capacity of 1,000 tons per, constructed in 2008:
 - (1) One (1) ribbon blender, identified as C10, using a baghouse as control, and exhausting to a stack,
 - (2) One (1) ribbon blender, identified as C20, equipped with a lid, and venting to the indoors;
 - (3) One (1) ribbon blender, identified as C30, equipped with a lid, and venting to the indoors;
 - (4) One (1) ribbon blender, identified as C60, equipped with a lid, and venting to the indoors;

(5) One (1) ribbon blender, identified as C70, equipped with a lid, and venting to the indoors.

(e) One (1) prototype ribbon blender, identified as C50, equipped with a lid and venting to the indoors.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(a)(1)]

D.1.1 Particulate Matter (PM) [326 IAC 6-3-2]

- (a) The particulate from the manufacture of iron oxide, the Bauermeister Oxide Mill, the Manganese Violet Line, and the five (5) ribbon blenders shall be limited by the following:

Emission Unit/Process	326 IAC 6-3-2 PM Limit (pounds of PM per hour)
Iron Oxide Manufacturing	3.95
Bauermeister Oxide Mill	4.10
Manganese Violet Line	0.551
Ribbon Blender C10	3.10
Ribbon Blender C20	2.13
Ribbon Blender C30	0.95
Ribbon Blender C60	0.95
Ribbon Blender C70	2.58

The pounds per hour limits were calculated using the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

- (b) The allowable particulate emissions from the ribbon blender identified as C50, with a process weight less than 100 pounds per hour, is 0.551 pounds of particulate per hour.

D.1.2 Preventive Maintenance Plan

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility.

Compliance Determination Requirements

D.1.3 Particulate Matter (PM)

- (a) In order to comply with D.1.1, the baghouse for particulate control shall be in operation and control emissions from the iron oxide powder production equipment and the Bauermeister oxide mill at all times that the iron oxide powder production equipment and Bauermeister oxide mill are in operation.
- (b) In order to comply with D.1.1, the scrubber for particulate control shall be in operation and control emissions from the manganese violet line at all times that the manganese violet line is in operation.

- (c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

Compliance Monitoring Requirements

D.1.4 Visible Emissions Notations

- (a) Visible emission notations of the iron oxide powder production, Bauermeister oxide mill, the manganese violet line, and the ribbon blenders stack exhaust shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.1.5 Baghouse Parametric Monitoring

- (a) The Permittee shall record the pressure drop across the baghouses used in conjunction with the iron oxide powder production, Bauermeister oxide mill, and the ribbon blenders at least once per day when the units are in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.
- (b) The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.1.6 Broken or Failed Bag Detection

- (a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

- (b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirement [326 IAC 2-6.1-5(a)(2)]

D.1.7 Record Keeping Requirements

- (a) To document compliance with D.1.4, the Permittee shall maintain records of daily visible emission notations of the baghouse stack exhausts. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).
- (b) To document compliance with D.1.5, the Permittee shall maintain daily records of pressure drop for baghouses during normal operation. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).
- (c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) One (1) natural gas-fired boiler (#1), identified as SS-10, rated at 13.39 mmBtu per hour;
- (b) One (1) natural gas-fired boiler (#2), identified as SS-11, rated at 12.56 mmBtu per hour;
- (c) One (1) natural gas-fired boiler (#3), identified as SS-21, rated at 9.0 mmBtu per hour;

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(a)(1)]

D.2.1 Particulate Matter (PM) [326 IAC 6-2-4]

The three (3) natural-gas fired boilers, identified as SS-10, SS-11 and SS-21, with a combined heat input capacity rating of 34.95 MMBtu per hour, are subject to the particulate matter limitations of 326 IAC 6-2-4. Pursuant to 326 IAC 6-2-4, particulate emissions from indirect heating facilities constructed after September 21, 1983 (SS-10, SS-11, SS-21), shall be limited by the following equation:

$$Pt = 1.09/Q^{0.26}$$

Where: Pt = maximum allowable particulate matter (PM) emitted per MMBtu heat input
Q = total source maximum operation capacity rating (MMBtu/hr)

D.2.2 Preventive Maintenance Plan

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility.

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) Two (2) day tanks containing diesel fuel, each with a maximum capacity of 275 gallons, and each with an annual throughput of 10,000 gallons per year.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(a)(1)]

D.3.1 Preventive Maintenance Plan

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities.

Record Keeping and Reporting Requirements [326 IAC 2-6.1-5(a)(2)]

D.3.2 Record Keeping and Reporting Requirements [326 IAC 8-9-6]

-
- (a) The Permittee shall maintain a record and submit a report containing the following information for each vessel:
- (1) The vessel identification number;
 - (2) The vessel dimensions;
 - (3) The vessel capacity;
- (b) The Permittee shall keep all required records for three (3) years;
- (c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY**

**MINOR SOURCE OPERATING PERMIT (MSOP)
CERTIFICATION**

Source Name: Cathay Pigments (USA), Inc.
Source Address: 4901 Evans Avenue, Valparaiso, Indiana 46383
Mailing Address: 4901 Evans Avenue, Valparaiso, Indiana 46383
MSOP Permit No.: M127-21259-00050

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

- Annual Compliance Certification Letter
- Test Result (specify)_____
- Report (specify)_____
- Notification (specify)_____
- Affidavit (specify)_____
- Other (specify)_____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH**

**MINOR SOURCE OPERATING PERMIT
ANNUAL NOTIFICATION**

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

Company Name:	Cathay Pigments (USA), Inc.
Address:	4901 Evans Avenue
City:	Valparaiso, Indiana 46383
Phone #:	219-465-7059
MSOP #:	M127-21259-00050

I hereby certify that Cathay Pigments (USA), Inc. is :

still in operation.

no longer in operation.

I hereby certify that Cathay Pigments (USA), Inc. is :

in compliance with the requirements of MSOP M127-21259-00050.

not in compliance with the requirements of MSOP M127-21259-00050.

Authorized Individual (typed):
Title:
Signature:
Date:

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

Noncompliance:

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF AIR QUALITY FAX NUMBER - 317 233-6865

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?____, 25 TONS/YEAR SULFUR DIOXIDE ?____, 25 TONS/YEAR NITROGEN OXIDES?____, 25 TONS/YEAR VOC ?____, 25 TONS/YEAR HYDROGEN SULFIDE ?____, 25 TONS/YEAR TOTAL REDUCED SULFUR ?____, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?____, 25 TONS/YEAR FLUORIDES ?____, 100 TONS/YEAR CARBON MONOXIDE ?____, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?____, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?____, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?____, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?____. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF "MALFUNCTION" AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: _____ PHONE NO. () _____
LOCATION: (CITY AND COUNTY) _____
PERMIT NO. _____ AFS PLANT ID: _____ AFS POINT ID: _____ INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: ____/____/20____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE ____/____/20____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____

INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

*SEE PAGE 2

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Minor Source Operating Permit Renewal

Source Background and Description

Source Name:	Cathay Pigments (USA), Inc. (f.k.a. ISK Magnetics, Inc.)
Source Location:	4901 Evans Ave., Valparaiso, Indiana 46383
County:	Porter
SIC Code:	2816
Permit Renewal No.:	M127-21259-00050
Permit Reviewer:	Anne-Marie C. Hart

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Cathay Pigments (USA), Inc. relating to the operation of a stationary iron oxide manufacturing plant.

History

On May 12, 2005, Cathay Pigments (USA), Inc., submitted an application to the OAQ requesting to renew its operating permit. Cathay Pigments (USA), Inc. was issued a MSOP (M127-12157-00050) on September 11, 2000.

On June 12, 2006, Cathay Pigments (USA), Inc., submitted an application to the OAQ for a Notice-Only Change (127-23212-00050) for the installation of a Bauermeister Oxide Mill. The Notice-Only Change (127-23212-00050) will be combined into this MSOP Renewal (M127-21259-00050).

On September 5, 2006, Cathay Pigments (USA), Inc., submitted a letter informing OAQ of a facility ownership transfer (127-23611-00050) from ISK Magnetics Inc. to Cathay Pigments (USA), Inc. This change of ownership is combined in this MSOP Renewal (M127-21259-00050).

On August 6, 2008, Cathay Pigments (USA), Inc., submitted a letter informing OAQ that five (5) ribbon blenders will be added to the source. The potential emissions from the new equipment is less than five (5) tons per year of PM and all criteria pollutants. The new equipment is listed under "Emission Units and Pollution Control Equipment" (d)(1) through (5) and (m).

Emission Units and Pollution Control Equipment

- (a) Iron Oxide powder production, maximum capacity of 8,300 tons per year:
 - (1) Two (2) neutralizer tanks, two (2) clear liquor storage tanks, and one (1) hydrochloric acid storage tank, using a scrubber as control;
 - (2) Four (4) precipitator tanks;
 - (3) Twenty-two (22) storage bins all using a mix of powered dust collector and bin vents for control;
 - (4) Two (2) hammer mills each with one (1) baghouse for control;
 - (5) Two (2) natural gas-fired dryers, identified as SS-2 and SS-12, each rated at 3.6 million British thermal units (MMBtu) per hour, and each using a baghouse for control, and exhausting to a stack;

- (6) Two (2) natural gas-fired calcination kilns, identified as SS-4 and SS-14, each rated at 6.0 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
 - (7) Two (2) natural gas-fired reduction kilns, identified as SS-6 and SS-16, each rated at 2.0 MMBtu per hour, each with a flare rated at 0.05 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
 - (8) One (1) natural gas-fired H₂ reduction kiln rated at 0.5 MMBtu per hour, identified as SS-19, using a scrubber for control;
 - (9) Two (2) natural gas-fired oxidation kilns, identified as SS-8 and SS-18, each rated at 1.6 MMBtu per hour, and each using a baghouse for control, and exhausting to a stack;
- (b) One (1) Bauermeister Oxide Mill, with a maximum capacity of 2,000 pounds per hour, using a baghouse as control, constructed in 2006.
 - (c) One (1) Manganese Violet Line with a maximum capacity of 100 pounds per hour, using a scrubber as control, constructed in 2007.
 - (d) Five (5) iron oxide powder ribbon blenders, with a total maximum capacity of 1,000 tons per year, constructed in 2008:
 - (1) One (1) ribbon blender, identified as C10, using a baghouse as control, and exhausting to a stack,
 - (2) One (1) ribbon blender, identified as C20, equipped with a lid, and venting to the indoors;
 - (3) One (1) ribbon blender, identified as C30, equipped with a lid, and venting to the indoors;
 - (4) One (1) ribbon blender, identified as C60, equipped with a lid, and venting to the indoors;
 - (5) One (1) ribbon blender, identified as C70, equipped with a lid, and venting to the indoors.
 - (e) Two (2) chusing operations with one baghouse for control, and exhausting to a stack;
 - (f) One (1) natural gas-fired boiler (#1), identified as SS-10, rated at 13.39 mmBtu per hour;
 - (g) One (1) natural gas-fired boiler (#2), identified as SS-11, rated at 12.56 mmBtu per hour;
 - (h) One (1) natural gas-fired boiler (#3), identified as SS-21, rated at 9.0 mmBtu per hour;
 - (i) One (1) natural gas burner supplying process heat to the Manganese Violet Line, rated at 2.0 mmBtu/hr;
 - (j) One (1) diesel emergency generator, with a power output of 700 horsepower;
 - (k) One (1) diesel emergency fire pump, with a power output of 83 horsepower;
 - (l) Two (2) day tanks containing diesel fuel, each with a maximum capacity of 115 gallons, and each with an annual throughput of 10,000 gallons per year;

- (m) One (1) prototype ribbon blender, identified as C50, equipped with a lid and venting to the indoors.

Existing Approvals

Since the issuance of the MSOP (M127-12157-00050) on September 11, 2000, the source has constructed or has been operating under the following approvals as well:

- (a) Notice-Only Change No. 127-19006-00050 issued on January 25, 2005.

All terms and conditions of previous permits issued pursuant to permitting programs approved into the state implementation plan have been either incorporated as originally stated, revised, or deleted by this permit. All previous registrations and permits are superseded by this permit.

Air Pollution Control Justification as an Integral Part of the Process

The applicant has submitted the following justification such that the cartridge filters be considered as an integral part of the Bauermiester Oxide Mill:

- (a) The process cannot operate without the control equipment. It is a material transfer device for the processed material. It is fully used as part of the normal operation.
- (b) The pollution control equipment serves a primary purpose other than pollution control. It is used for material transfer and screening after the milling operation.

IDEM, OAQ has evaluated the justifications and agreed that the cartridge filters will be considered as an integral part of the Bauermiester Oxide Mill. Therefore, the permitting level will be determined using the potential to emit after control. Operating conditions in the proposed permit will specify that the cartridge filters shall operate at all times when the Bauermiester Oxide Mill is in operation.

Enforcement Issue

There are no enforcement actions pending.

Emission Calculations

See Appendix A of this document for detailed emission calculations.

County Attainment Status

The source is located in Porter County

Pollutant	Designation
SO ₂	Cannot be classified for the area bounded on the north by Lake Michigan; on the west by the Lake County and Porter County line; on the south by I-80 and I-90; and on the east by the LaPorte County and Porter County line. The remainder of Porter County is better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Nonattainment Subpart 2 Moderate effective June 15, 2004, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.
¹ Nonattainment Severe 17 effective November 15, 1990, for the Chicago-Gary-Lake County area, including Porter County, for the 1-hour standard which was revoked effective June 15, 2005. Basic nonattainment designation effective federally April 5, 2005, for PM _{2.5} .	

(a) Ozone Standards

- (1) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.
- (2) On September 6, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Allen, Clark, Elkhart, Floyd, LaPorte, St. Joseph as attainment for the 8-hour ozone standard.
- (3) On November 9, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Boone, Clark, Elkhart, Floyd, LaPorte, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Shelby, and St. Joseph as attainment for the 8-hour ozone standard.
- (4) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone.

(i) 1-hour ozone standard

On December 22, 2006 the United States Court of Appeals, District of Columbia issued a decision which served to partially vacate and remand the U.S. EPA's final rule for implementation of the eight-hour National Ambient Air quality Standard for ozone. *South Coast Air Quality Mgmt. Dist. v. EPA*, 472 F.3d 882 (D.C. Cir., December 22, 2006), *rehearing denied* 2007 U.S. App. LEXIS 13748 (D.C. Cir., June 8, 2007). The U.S. EPA has instructed IDEM to issue permits in accordance with its interpretation of the *South Coast* decision as follows: Gary-Lake-Porter County was previously designated as a severe non-attainment area prior to revocation of the one-hour ozone standard, therefore, pursuant to the anti-backsliding provisions of the Clean Air Act, any new or existing source must be subject to the major source applicability cut-offs and offset ratios under the area's previous one-hour standard designation. This means that a source must achieve the Lowest Achievable Emission Rate (LAER) if it exceeds 25 tons per year of VOC emissions and must offset any increase in VOC emissions by a decrease of 1.3 times that amount.

On January 26, 1996 in 40 CFR 52.777(i), the U.S. EPA granted a waiver of the requirements of Section 182(f) of the CAA for Lake and Porter Counties, including the lower NO_x threshold for nonattainment new source review. Therefore, VOC emissions alone are considered when evaluating the rule applicability relating to the 1-hour ozone standards. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.

(ii) 8-hour ozone standard

VOC and NO_x emissions are considered when evaluating the rule applicability relating to the 8-hour ozone standard. Porter County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability – Entire Source section.

- (b) **PM2.5**
U.S. EPA, in the Federal Register Notice 70 FR 943 dated January 5, 2005, has designated Porter County as nonattainment for PM2.5. On March 7, 2005 the Indiana Attorney General's Office, on behalf of IDEM, filed a law suit with the Court of Appeals for the District of Columbia Circuit challenging U.S. EPA's designation of nonattainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for a violation of the Clean Air Act, the OAQ is following the U.S. EPA's New Source Review Rule for PM2.5 promulgated on May 8th, 2008, and effective on July 15th 2008. Therefore, direct PM2.5 and SO2 emissions were reviewed pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5. See the State Rule Applicability – Entire Source section.
- (c) **Other Criteria Pollutants**
Porter County has been classified as attainment or unclassifiable in Indiana for SO₂, CO, PM₁₀ and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (d) **Fugitive Emissions**
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 or 326 IAC 2-3, fugitive emissions are not counted toward the determination of PSD and Emission Offset applicability.

Unrestricted Potential Emissions

Appendix A of this TSD reflects the unrestricted potential emissions of the source.

The emissions calculations for the two (2) diesel storage tanks have been performed using EPA TANKS 4.0.9d software and determined to be negligible. These calculations have not been included in Appendix A.

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all criteria pollutants is less than 100 tons per year. The source is not subject to the provisions of 326 IAC 2-7. Therefore, the source will be issued an MSOP
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year.
- (c) Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-7, fugitive emissions are not counted toward the determination of Part 70 applicability.

Actual Emissions

The following table shows the actual emissions from the source. This information reflects the 2002 OAQ emission data.

Pollutant	Actual Emissions (tons/year)
PM	Not Reported
PM ₁₀	1
PM _{2.5}	Not Reported

Pollutant	Actual Emissions (tons/year)
SO ₂	0
VOC	0
CO	6
NO _x	8
HAP	Not Reported

Potential to Emit After Issuance

- (a) This existing stationary source is not major for Emission Offset because the emissions of the nonattainment pollutants are less than one hundred (<100) tons per year.
- (b) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 or 326 IAC 2-3, fugitive emissions are not counted toward the determination of PSD and Emission Offset applicability.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.
- (b) The requirements of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels for which Construction, Reconstruction, or Modification Commenced after July 23, 1984, 40 CFR 60, Subpart Kb, are not included in the permit for the two tanks containing diesel fuel. The maximum capacity of each tank is less than forty (40) cubic meters.
- (c) The requirements of the New Source Performance Standard for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR 60, Subpart Dc, are not included in the permit for the boiler identified as SS-21. The heat capacity of Boiler SS-21 is less than 10 MMBtu per hour.
- (d) The requirements of the New Source Performance Standard for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR 60, Subpart Dc, are not included in the permit for the boilers identified as SS-10 and SS-11. Boilers SS-10 and SS-11 were both constructed before June 9, 1989.
- (e) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in this permit renewal.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This source is not one of the twenty-eight (28) source categories and has a controlled potential to emit PM/PM₁₀ less than 250 tons per year. Therefore, this source is not a major source pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration).

326 IAC 2-3 (Emission Offset)

This source is not considered a major source because the source has a potential to emit less than 100 tons of NO_x and less than 25 tons of VOC. Therefore, this source is not subject to the provisions of 326 IAC 2-3 (Emission Offset).

326 IAC 2-1.1-5 (Nonattainment New Source Review)

This existing source is not a major stationary source, under 326 IAC 2-1.1-5 (Nonattainment New Source Review), because the potential to emit particulate matter with a diameter less than ten 2.5 micrometers (PM_{2.5}), is less than 100 tons per year. Therefore, pursuant to 326 IAC 2-1.1-5, the Nonattainment New Source Review requirements do not apply.

326 IAC 2-6 (Emission Reporting)

This source is located in Porter County and the potential to emit of each criteria pollutant is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in the permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability – Individual Facilities

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of the natural gas combustion units will emit less than 10 tons per year of a single HAP and less than 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 6-2-4 (Particulate Emissions for Sources of Indirect Heating)

The three (3) natural-gas fired boilers, identified as SS-10, SS-11 and SS-21, with a combined heat input capacity rating of 34.95 MMBtu per hour, are subject to the particulate matter limitations of 326 IAC 6-2-4. Pursuant to this rule, particulate emissions from indirect heating facilities constructed after September 21, 1983, shall be limited by the following equation:

$$Pt = 1.09/Q^{0.26}$$

Where: Pt = maximum allowable particulate matter (PM) emitted per MMBtu heat input
Q = total source maximum operation capacity rating (MMBtu/hr)

$$Pt = 1.09/34.95^{0.26}$$

$$Pt = 0.433 \text{ pound of PM per MMBtu}$$

Boiler SS-10, with a heat input capacity of 13.39 MMBtu per hour, has the potential to emit 0.0019 pound of PM per MMBtu. Boiler SS-10 is able to comply with this limit.

Boiler SS-11, with a heat input capacity of 12.56 MMBtu per hour, has the potential to emit 0.0019 pound of PM per MMBtu. Boiler SS-11 is able to comply with this limit.

Boiler SS-21, with a heat input capacity of 9.0 MMBtu per hour, has the potential to emit 0.0019 pound of PM per MMBtu. Boiler SS-21 is able to comply with this limit.

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

The particulate from the manufacture of iron oxide, the Bauermeister Oxide Mill, the Manganese Violet Line and the Ribbon Blenders shall be limited by the following:

Emission Unit/Process	326 IAC 6-3-2 PM Limit (pounds of PM per hour)
Iron Oxide Manufacturing	3.95
Bauermeister Oxide Mill	4.10
Manganese Violet Line	0.551
Ribbon Blender C10	3.10
Ribbon Blender C20	2.13
Ribbon Blender C30	0.95
Ribbon Blender C60	0.95
Ribbon Blender C70	2.58
Ribbon Blender C50	0.551

The pounds per hour limits were calculated using the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

The potential to emit PM from the manufacture of iron oxide is 6.37 pounds of PM per hour. The baghouse shall be in operation at all times the iron oxide manufacturing process is in operation, in order to comply with this limit.

The potential to emit PM from the Bauermeister Oxide Mill is 8.08 pounds of PM per hour. The baghouse shall be in operation at all times the Bauermeister Oxide Mill is in operation, in order to comply with this limit.

The potential to emit PM from the Manganese Violet Line is 1 pound of PM per hour. The scrubber shall be in operation at all times the Manganese Violet Line is in operation, in order to comply with this limit.

The potential to emit PM from all the Ribbon Blenders is 0.92 pound of PM per hour. The ribbon blenders are able to comply with this limit.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)

The two (2) 275 gallon fuel storage tanks are located in Porter County. Pursuant to 326 IAC 8-9-1(b), the two 275 gallon fuel storage tanks are subject to the reporting and record keeping provisions of 326 IAC 8-9-6(a) and 326 IAC 8-9-6(b).

Recommendation

The staff recommends to the Commissioner that the MSOP Renewal be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on May 12, 2005.

Conclusion

The operation of this stationary iron oxide manufacturing plant shall be subject to the conditions of the attached MSOP Renewal No. 127-21259-00050.

**Appendix A: Emissions Calculations
Emissions Summary**

Company Name: Cathay Pigments (USA) Inc.
Address City IN Zip: 4901 Evans Ave., Valparaiso, Indiana 46383
Permit Number: M127-21259-00050

Reviewer: Anne-Marie C. Hart

Date: July 7, 2008

Process	tons/year							
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	HAP
Oxide Powder Production								
Kilns	27.88	25.27	25.27	0.00	0.00	0.00	0.00	0.00
Hammermills (Uncontrolled)	33.62	28.21	10.07	0.00	0.00	0.00	0.00	0.00
Hammermills (Controlled)	0.17	0.14	0.05	0.00	0.00	0.00	0.00	0.00
Oxide Mill (Uncontrolled)	35.39	29.69	10.60	0.00	0.00	0.00	0.00	0.00
Oxide Mill (Controlled)*	0.18	0.15	0.05	0.00	0.00	0.00	0.00	0.00
Manganese Violet (Uncontrolled)	4.38	4.38	4.37	0.00	0.00	0.00	0.00	0.00
Manganese Violet (Controlled)	0.44	0.44	0.44	0.00	0.00	0.00	0.00	0.00
Ribbon Blenders (Uncontrolled)	4.04	3.39	1.21	0.00	0.00	0.00	0.00	0.00
Ribbon Blenders (Controlled)	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
Natural Gas Combustion	0.53	2.13	2.13	0.17	28.01	1.54	23.53	0.53
Emergency Units	0.43	0.43	0.43	0.40	6.07	0.49	1.31	0.00
Total	71.06	63.96	43.53	0.57	34.08	2.03	24.84	0.53

Total Emissions (tons/year) = Oxide Powder Production + Controlled Oxide Mill + Uncontrolled Manganese Violet + Natural Gas Combustion + Emergency Units

*The control device associated with the Oxide Mill has been determined integral to the process. Therefore, emissions from the Oxide Mill are counted after the use of the control device.

NA indicates that Emission Factors are not available

**Appendix A: Emissions Calculations
Oxide Powder Production**

Company Name: Cathay Pigments (USA) Inc.
Address City IN Zip: 4901 Evans Ave., Valparaiso, Indiana 46383
Permit Number: M127-21259-00050

Reviewer: Anne-Marie C. Hart
Date: July 7, 2008

Annual Throughput (tons/year) 8300

Process	lb/ton		tons/year	
	PM Emissions Factor	PM10 Emissions Factor	PM	PM10
Calcination Kilns*	0.96	0.87	7.968	7.221
Reduction Kilns*	0.96	0.87	7.968	7.221
H2 Reduction Kiln	0.96	0.87	3.984	3.6105
Oxidation Kilns*	0.96	0.87	7.968	7.221
Total			27.888	25.2735

Emissions Factors (lb/ton) from AP-42, Fifth Edition, Volume 1, Chapter 11.3 Bricks and Related Clay Products, Table 11.3-2

* Indicates calculations from two kilns

No emission factors available for PM2.5

Hammermill Emissions

Throughput	0.95	ton/hr
Control Efficiency	99.50%	AP-42, Fifth Edition, Volume 1, Chapter 11.19.2 - Crushed Stone Processing and Pulverized Mineral Processing

lb/ton (After Controls)			tons/year (After Controls)			tons/year (Before Controls)		
PM Emission Factor	PM10 Emission Factor	PM2.5 Emission Factor	PM Emissions	PM10 Emissions	PM2.5 Emissions	PM Emissions	PM10 Emissions	PM2.5 Emissions
0.0404	0.0339	0.0121	0.17	0.14	0.05	33.62	28.21	10.07

Methodology

PM Emissions from * (tons/year) = Annual Throughput (tons/year) x PM Emissions Factor (lb/ton) x 1 ton/2000 lbs x 2 kilns
 PM10 Emissions from * (tons/year) = Annual Throughput (tons/year) x PM10 Emissions Factor (lb/ton) x 1 ton/2000 lbs x 2 kilns
 H2 Reduction Kiln PM Emissions (tons/year) = Annual Throughput (tons/year) x PM Emissions Factor (lb/ton) x 1 ton/2000 lbs
 H2 Reduction Kiln PM10 Emissions (tons/year) = Annual Throughput (tons/year) x PM10 Emissions Factor (lb/ton) x 1 ton/2000 lbs
 Hammermill emissions After Controls (tons/year) = Throughput (ton/hr) x Emission Factor (lb/ton) x 8760 (hours/year) x 1 ton/2000 pounds
 Hammermill emissions Before Controls (tons/year) = After Controls Emissions (tons/year) / (1-Control Efficiency)

Appendix A: Emissions Calculations
Oxide Mill, Manganese Violet Line and Ribbon Blenders

Company Name: Cathay Pigments (USA) Inc.
Address City IN Zip: 4901 Evans Ave., Valparaiso, Indiana 46383
Permit Number: M127-21259-00050

Reviewer: Anne-Marie C. Hart
Date: July 7, 2008

Bauermeister Oxide Mill

Throughput	1	ton/hr
Control Efficiency	99.50%	AP-42, Fifth Edition, Volume 1, Chapter 11.19.2 - Crushed Stone Processing and Pulverized Mineral Processing

lb/ton (After Controls)			tons/year (After Controls)			tons/year (Before Controls)		
PM Emission Factor	PM10 Emission Factor	PM2.5 Emission Factor	PM Emissions	PM10 Emissions	PM2.5 Emissions	PM Emissions	PM10 Emissions	PM2.5 Emissions
0.0404	0.0339	0.0121	0.18	0.15	0.05	35.39	29.70	10.60

The control device has been determined integral to the process.

Manganese Violet Line

Throughput	100	lb/hr
Control Efficiency	90%	Particulate Control

Pollutant	Controlled Emissions Rate (lb/hr)	Control Efficiency	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)
PM/PM10	0.1	90%	0.1	0.44	1.00	4.38

Controlled Emissions Rate (lb/hr) provided by source

Manganese Violet Line includes a 2 mmBtu/hr natural gas burner. These emissions calculations are included with the calculations for the other natural gas-fired units at the source.

Ribbon Blenders

Throughput	1000	ton/yr
Control Efficiency	99.50%	AP-42, Fifth Edition, Volume 1, Chapter 11.19.2 - Crushed Stone Processing and Pulverized Mineral Processing

lb/ton (After Controls)			tons/year (After Controls)			tons/year (Before Controls)		
PM Emission Factor	PM10 Emission Factor	PM2.5 Emission Factor	PM Emissions	PM10 Emissions	PM2.5 Emissions	PM Emissions	PM10 Emissions	PM2.5 Emissions
0.0404	0.0339	0.0121	0.02	0.02	0.01	4.04	3.39	1.21

Methodology

Bauermeister Oxide Mill emissions After Controls (tons/year) = Throughput (ton/hr) x Emission Factor (lb/ton) x 8760 (hours/year) x 1 ton/2000 pounds

Bauermeister Oxide Mill emissions Before Controls (tons/year) = After Controls Emissions (tons/year) / (1-Control Efficiency)

Manganese Violet Line controlled PM/PM10 emissions (tons/year) = Controlled Emissions Rate (lb/hr) x 8760 (hours/year) x 1 ton/2000 pounds

Manganese Violet Line uncontrolled PM/PM10 emissions (lb/hour) = Controlled Emissions (lb/hr) / (1-Controll Efficiency)

Manganese Violet Line uncontrolled PM/PM10 emmissions (tons/year) = Uncontrolled Emissions (lb/hr) x 8760 (hours/year) / 1 ton/2000 pounds

Ribbon Blenders emissions After Controls (tons/year) = Throughput (ton/yr) x Emission Factor (lb/ton) x 1 ton/2000 pounds

Ribbon Blenders emissions Before Controls (tons/year) = After Controls Emissions (tons/year) / (1-Control Efficiency)

**Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100**

**Company Name: Cathay Pigments (USA) Inc.
Address City IN Zip: 4901 Evans Ave., Valparaiso, Indiana 46383
Permit Number: M127-21259-00050**

**Reviewer: Anne-Marie C. Hart
Date: July 7, 2008**

Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr
7.20	Two dryers (SS-2 and SS-3), each rated at 3.6 MMBtu/hr	63.07
12.00	Two Calcination kilns (SS-4 and SS-14), each rated at 6.0 MMBtu/hr	105.12
4.00	Two Reduction kilns (SS-6 and SS-16), each rated at 2 MMBtu/hr	35.04
0.10	Two flares (associated with Reduction kilns SS-6 and SS-16), each rated at 0.05 MMBtu/hr	0.88
0.50	One H2 Reduction kiln (SS-19), rated at 0.5 MMBtu/hr	4.38
3.20	Two Oxidation kilns (SS-8 and SS-18), each rated at 1.6 MMBtu/hr	28.03
13.39	One small industrial boiler (SS-10), rated at 13.39 MMBtu/hr	117.30
12.56	One small industrial boiler (SS-11), rated at 12.56 MMBtu/hr	110.03
9.00	One small industrial boiler (SS-21), rated at 9.0 MMBtu/hr	78.84
2.00	One natural gas burner supplying heat to the Manganese Violet Line	17.52
63.95		560.20

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
				**see below		
Potential Emission in tons/yr	0.53	2.13	0.17	28.01	1.54	23.53

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

(SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See following page for HAPs emissions calculations.

**Appendix A: Emissions Calculations
 Natural Gas Combustion Only
 MM BTU/HR <100
 HAPs Emissions**

Company Name: Cathay Pigments (USA) Inc.
Address City IN Zip: 4901 Evans Ave., Valparaiso, Indiana 46383
Permit Number: M127-21259-00050
Pit ID:
Reviewer: Anne-Marie C. Hart
Date: July 7, 2008

HAPs - Organics					
Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	5.882E-04	3.361E-04	2.101E-02	5.042E-01	9.523E-04

HAPs - Metals					
Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	1.401E-04	3.081E-04	3.921E-04	1.064E-04	5.882E-04
				Total HAP	5.29E-01

Methodology is the same as previous page.

The five highest organic and metal HAPs emission factors are provided above.
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.

