



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: April 14, 2009

RE: General Chemical, LLC / 097-25731-00543

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

Notice of Decision – Approval

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 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires 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 from 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-AM.dot12/3/07



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

Mr. John Carr
General Chemical, LLC - Indianapolis
1598 South Senate Avenue
Indianapolis, IN 46225

April 14, 2009

Re: Exempt Construction and Operation Status,
097-25731-00543

Dear Mr. Carr:

The application from General Chemical, LLC - Indianapolis, received on December 19, 2007, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following stationary batch liquid Alum and bleach manufacturing plant located at 1598 South Senate Avenue, Indianapolis, IN 46225 is classified as exempt from air pollution permit requirements:

- (a) One (1) Hydrate Alum Reactor, identified as E-1, constructed in 1997, with a maximum capacity of 3.33 tons per hour, using no control equipment, exhausting to stack S-1. Exempted under CP-097-5070-01 issued by Indianapolis Office of Environmental Services.
- (b) One (1) Bauxite Alum Reactor, identified as E-2, constructed in 2008, with a maximum capacity of 4.16 tons per hour, using no control equipment, exhausting to stack S-2.
- (c) One (1) Bleach Plant, identified as E-3, constructed in 2000, with a maximum capacity of 20.12 tons hour, using no control equipment, exhausting internally.

The following conditions shall be applicable:

1. Pursuant to 326 IAC 5-12 (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 registration:
 - (a) Opacity shall not exceed an average of thirty percent (30%) 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.
2. Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate for the emission units listed in the table below:

Emission Unit	Process Weight Rate (tons/hr)	Allowable PM Emissions (lbs/hr)
Hydrate Alum Reactor	3.33	9.12
Bauxite Alum Reactor	4.16	10.66
Bleach Plant	20.12	30.63

The pounds per hour limitation was calculated with the following equation:

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

$$E = 4.10 P^{0.67}$$

Where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

This exemption is the second air approval issued to this source. A copy of the Exemption is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source. If you have any questions on this matter, please contact Bruce Farrar, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, at 317-234-5401 or at 1-800-451-6027 (ext 4-5401).

Sincerely,



Iryn Calitung, Section Chief
Permits Branch
Office of Air Quality

IC/bf

cc: File - Marion County
Marion County Health Department
Compliance and Enforcement Branch, Office of Air Quality
Permits Administrative and Support Section

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Description and Location

Source Name: General Chemical, LLC - Indianapolis
Source Location: 1598 South Senate Avenue, Indianapolis, IN 46225
County: Marion
SIC Code: 2819
Registration No.: 097-25731-00543
Permit Reviewer: Bruce Farrar

On December 19, 2007, the Office of Air Quality (OAQ) received an application from General Chemical, LLC - Indianapolis related to construction and operation of new emission units and the continued operation of an existing stationary batch liquid and solid Alum and bleach manufacturing plant.

Existing Approvals

The source has been operating under Exemption No.CP-097-5070-01, issued on February 19, 1997. This permit adds additional emission units General Chemical submitted in December 2007.

County Attainment Status

The source is located in Marion County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Attainment effective February 18, 2000, for the part of the city of Indianapolis bounded by 11 th Street on the north; Capitol Avenue on the west; Georgia Street on the south; and Delaware Street on the east. Unclassifiable or attainment effective November 15, 1990, for the remainder of Indianapolis and Marion County.
O ₃	Attainment effective November 8, 2007, 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	Attainment effective July 10, 2000, for the part of Franklin Township bounded by Thompson Road on the south; Emerson Avenue on the west; Five Points Road on the east; and Troy Avenue on the north. Attainment effective July 10, 2000, for the part of Wayne Township bounded by Rockville Road on the north; Girls School Road on the east; Washington Street on the south; and Bridgeport Road on the west. The remainder of the county is not designated.
¹ Attainment effective October 18, 2000, for the 1-hour ozone standard for the Indianapolis area, including Marion County, and is a maintenance area for the 1-hour ozone National Ambient Air Quality Standards (NAAQS) for purposes of 40 CFR 51, Subpart X*. The 1-hour designation was revoked effective June 15, 2005. Basic nonattainment designation effective federally April 5, 2005, for PM2.5.	

(a) Ozone Standards

Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. Marion County has been designated as

attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) **PM2.5**

Marion County has been classified as nonattainment for PM2.5 in 70 FR 943 dated January 5, 2005. On May 8th, 2008, U.S. EPA promulgated specific New Source Review rules for PM2.5 emissions, and the effective date of these rules was 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**

Marion County has been classified as attainment or unclassifiable in Indiana for all other pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

The fugitive emissions of criteria pollutants and hazardous air pollutants are counted toward the determination of 326 IAC 2-1.1-3 (Exemptions) applicability.

Background and Description of Emission Units and Pollution Control Equipment

The Office of Air Quality (OAQ) has reviewed an application, submitted by General Chemical, LLC - Indianapolis on December 19, 2007, relating to a stationary batch liquid and solid Alum and bleach manufacturing plant. Indianapolis Office of Environmental Services (OES) issued the source an exemption (CP-097-5070-01) on February 19, 1997 for the Hydrate Alum Reactor. On December 19, 2007, General Chemical submitted an application to OES for additional emission units. Because the contract between OES and IDEM for writing permits ended in February 2009, IDEM has inherited OES's non-issued permits.

The source consists of the following existing emission unit(s):

- (a) One (1) Hydrate Alum Reactor, identified as E-1, constructed in 1997, with a maximum capacity of 3.33 tons per hour, using no control equipment, exhausting to stack S-1. Exempted under CP-097-5070-01 issued by Indianapolis Office of Environmental Services.

The following is a list of the new emission units:

- (a) One (1) Bauxite Alum Reactor, identified as E-2, constructed in 2008, with a maximum capacity of 4.16 tons per hour, using no control equipment, exhausting to stack S-2.
- (b) One (1) Bleach Plant, identified as E-3, constructed in 2000, with a maximum capacity of 20.12 tons hour, using no control equipment , exhausting internally.

Enforcement Issues

There are no pending enforcement actions related to this source.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – Exemption

The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/ Emission Unit	Potential To Emit of the Entire Source (tons/year)								
	PM	PM10 *	PM2.5	SO ₂	NO _x	VOC	CO	Total HAPs	Worst Single HAP
Hydrate Alum/E-1	0.39	0.39	0.39	-	-	-	-	0.45	Sulfuric Acid Mist 0.45
Bauxite Alum/E-2	4.6	4.6	4.6	5.8	-	-	-	0.33	Sulfuric Acid Mist 0.32
Bleach Plant/E-3	-	-	-	-	-	-	-	0.21	Chlorine 0.21
Total PTE of Entire Source	4.99	4.99	4.99	5.8				0.99	0.45
Exemptions Levels	5	5	5	10	10	5 or 10	25	25	10
Registration Levels	25	25	25	25	25	25	100	25	10
negl. = negligible * Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant".									

- (a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of all regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3 (Exemptions).
- (b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-7.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

- (a) The requirements of the New Source Performance Standard for Standards of Performance for Sulfuric Acid Plants, 40 CFR 60, Subpart H and Cd (326 IAC 12), are not included in the permit, since this facility does not produce sulfuric acid.
- (b) There are no other New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (c) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry, 40 CFR 63, Subpart F (326 IAC 20-11), are not included in the permit, since this source does not produce any HAPs identified in the NESHAP and not a major source for any HAPs.

- (d) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater, 40 CFR 63, Subpart G, are not included in the permit, since this source is not subject to 40 CFR 63, Subpart F.
- (e) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, 40 CFR 63, Subpart H (326 IAC 20-12), are not included in the permit, since this source is not subject to any NESHAP identified in Subpart H.
- (f) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

Compliance Assurance Monitoring (CAM)

- (g) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the unlimited potential to emit of the source is less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

State Rule Applicability Determination

The following state rules are applicable to the source:

- (a) 326 IAC 2-1.1-3 (Exemptions)
Exemption applicability is discussed under the Permit Level Determination – Exemption section above.
- (b) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-4.1.
- (c) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.
- (d) 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 Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:
 - (1) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (2) 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.
- (e) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)
Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate for the emission units listed in the table below:

Emission Unit	Process Weight Rate (tons/hr)	Allowable PM Emissions (lbs/hr)
Hydrate Alum Reactor	3.33	9.12
Bauxite Alum Reactor	4.16	10.66
Bleach Plant	20.12	30.63

The pounds per hour limitation was calculated with 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:

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

Based on calculations, the source is able to comply with this limit without the use of controls.

- (f) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
 Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source 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.
- (g) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
 The source is not subject to the requirements of 326 IAC 6-5, because the source does not have potential fugitive particulate emissions greater than 25 tons per year. Therefore, 326 IAC 6-5 does not apply.
- (h) 326 IAC 6.5-1-2 (Particulate Matter Emissions Limitations Except Lake County)
 The source is not subject to the requirements of 326 IAC 6.5-1-2, because the potential to emit particulate is less than one hundred (100) tons per year, the actual emissions are less than of ten (10) tons and the source is not specifically listed in 326 IAC 6.5-6-1.
- (i) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
 Each of the emission units at this source is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each emission unit is less than twenty-five (25) tons per year.

Conclusion and Recommendation

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 December 19, 2007.

The operation of this source shall be subject to the conditions of the attached proposed Exemption No. 097-25731-00543. The staff recommends to the Commissioner that this Exemption be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Bruce Farrar at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-

5401 or toll free at 1-800-451-6027 extension 4-5401.

- (b) A copy of the findings is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>
- (c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

**Appendix A: Emissions Calculations
Alum Manufacturing (Hydrate)**

**Company Name: General Chemical, LLC - Indianapolis
Address City IN Zip: 1598 South Senate Avenue, Indianapolis, IN 46225
Permit Number: 097-25731-00543
Plant ID: 097-00543
Reviewer: Bruce Farrar
Date: March 10, 2008**

Stack Information

Stack diameter, d 2.5 ft
 Stack area, A = $\pi d^2/4$ 4.90 ft²
 Flow rate, V 2 acfm
 Velocity, v = V/A 0 ft/min
 0 ft/sec

Process Information	Potential to Emit	Actual Emissions	
Batch size, alum (hydrate)	20	20	ton/batch
Batch rate	4	2	batches/day
Production year	365	365	days/year
Annual production	29200	14600	tons/year

Estimated Emissions				
	Potential to Emit		Actual Emissions	
	Emission Factor	Potential to Emit	emissions	Emission factor
Pollutant	lb/ton	ton/yr	ton/yr	lb/ton
Particulate	0.027	0.39	0.2	0.027
Sulfuric Acid Mist	0.031	0.45	0.2	0.031

Emission factors derived from multiple tests for Batch Liquid Aluminum Sulfate manufacturing, Section 3.4.3 (Reverse Mix Bauxite Uncontrolled), as prepared by Parsons, August 2007. Test reports available upon request to General Chemical.

Methodology

Emissions in tons/yr = (Emissions lbs/ton) (annual production) (ton/2000 lb)

**Appendix A: Emissions Calculations
Alum Manufacturing (Bauxite)**

Company Name: General Chemical, LLC - Indianapolis
Address City IN Zip: 1598 South Senate Avenue, Indianapolis, IN 46225
Permit Number: 097-25731-00543
Plant ID: 097-00543
Reviewer: Bruce Farrar
Date: March 10, 2008

Stack Information

Height 30 ft
 Outlet dimensions 36 in
 Flow rate, V 2 acfm
 Velocity, v = V/A 0 ft/min
 0 ft/sec
 Temperature 210 °F
 Installation date 06/01/08
 Potential Actual
 to Emit Emissions

Process Information	Potential	Actual	
Batch size, alum (bauxite)	50	50	ton/batch
Batch rate	2	1	batches/day
Production year	365	365	days/year
Annual production	36500	18250	tons/year

Estimated Emissions

	factor	Potential Emissions	Actual Emissions
Pollutant	lb/ton	ton/yr	ton/yr
Particulate	0.25	4.6	2.3
	0.011	0.2	0.1
(Reverse Mix Bauxite Uncontrolled), as prepared by Parsons, August 2007.			
Sulfur Dioxide	0.32	5.8	2.9

Emission factors derived from multiple tests for Batch Liquid Aluminum Sulfate manufacturing, Section 3.4.2 (Standard Mix, Bauxite, Uncontrolled), as prepared by Parsons, August 2007. Test reports available upon request to General Chemical.

Methodology

Emissions in tons/yr = (Emissions lbs/ton) (annual production) (ton/2000 lb)

**Appendix A: Emissions Calculations
Bleach Manufacturing (Chlorine)**

Company Name: General Chemical, LLC - Indianapolis
Address City IN Zip: 1598 South Senate Avenue, Indianapolis, IN 46225
Permit Number: 097-25731-00543
Plant ID: 097-00543
Reviewer: Bruce Farrar
Date: March 10, 2008

Process Information	Potential To Emit	Actual Emissions	
Batch rate	2	1	batches/day
Production year	365	190	days/year
Annual production (Bleach)	176224.48	15213.02	tons/year
Annual chlorine	23730.84	2063.2	tons/year

Estimated Emissions

	Potential To Emit		Actual Emissions	
	Emission Factor	emissions	emissions	Emission Factor
Pollutant	lb/ton	lb/yr	lb/yr	lb/ton
Caustic Scrubber	0.012	0.0000E+00	0.0	0.012

	lbs/yr
Flanges (total 41 flanges)	46
Valves (total 10 valves)	112
	Potential Actual
Total Chlorine Emissions	406.8 182.8

Per information provided in GAC's 1999 Memo - Proposed Bleach Facility - "Potential to emit".
 Emission factors derived from AP-42 Section 5.5 (April, 1981)

Methodology

Emissions in tons/yr = (Emissions lbs/ton) (annual production) (ton/2000 lb)