

ENVIRONMENTAL PROTECTION COMMISSION OF  
HILLSBOROUGH COUNTY, as Delegated by

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF PERMIT ISSUANCE

CERTIFIED MAIL

Paul M. Spisak  
Plant Supervisor  
General Chemical, LLC  
3004 East Clark Street  
Tampa, FL 33605

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File No.: 0570229-011-AO  
County: Hillsborough

Enclosed is Air Operating (AO) Permit No. 0570229-011-AO for the operation of a liquid aluminum sulfate manufacturing facility located at 3004 East Clark Street, Tampa, Florida 33605, issued pursuant to Section 403.087, Florida Statutes. Please read this new permit thoroughly as there are changes from the previous permit.

The EPC will issue the final permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Section 120.569 and 120.57 F.S. before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Legal Department of the EPC at 3629 Queen Palm Dr, Tampa, Florida 33619, Phone 813-627-2600, Fax 813-627-2602. Petitions filed by the permit applicant or any of the parties listed below must be filed within 14 (fourteen) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within 14 (fourteen) days of receipt of this permit. Under Section 120.60(3), however, any person who asked the EPC for notice of agency action may file a petition within 14 (fourteen) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an

administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this

proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the F.A.C.

A petition that disputes the material facts on which the EPC's action is based is required to contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number if known;
- (b) The name, address, and telephone number of the petitioner and the name, address, and telephone number of each petitioner's representative, if any, which shall be the address for service purposes during the course of the proceedings; and an explanation of how the petitioner's substantial interests will be affected by the EPC's determination;
- (c) A statement of how and when the petitioner received notice of the EPC action;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the EPC's proposed action;
- (f) A statement of specific rules or statutes that the petitioner contends requires reversal or modification of the EPC's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the EPC to take with respect to the EPC's proposed action.

A petition that does not dispute the material facts upon which the EPC's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the EPC's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the EPC on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under section 120.573, F.S. is not available in this proceeding.

This action is final and effective on the date filed with the Clerk of the EPC unless a petition is filed in accordance with above. Upon the timely filing of a petition, this order will not be effective until further order of the EPC.

Any person listed below may request to obtain additional information, a copy of the application (except for information entitled to confidential treatment pursuant to Section 403.111, F.S.), all relevant supporting materials, and all other materials available to the EPC that are relevant to the permit decision. Interested persons may contact Diana M. Lee, P.E., at the above address or call (813) 627-2600, for additional information.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida rules of Appellate Procedure with the EPC's Legal Office at 3629 Queen Palm Dr., Tampa, Florida 33619 and with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tampa, Florida

ENVIRONMENTAL PROTECTION  
COMMISSION OF HILLSBOROUGH COUNTY

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Richard D. Garrity, Ph.D.  
Executive Director

RDG/KRZ/krz

cc: Kenneth E. Given, P.E. - Air Testing & Consulting, Inc.

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT ISSUANCE and all copies were mailed before the close of business on \_\_\_\_\_ to the listed persons.

FILING AND ACKNOWLEDGEMENT FILED, on this date, pursuant to Section 120.52(11), Florida Statutes, with the clerk, receipt of which is hereby acknowledged.

\_\_\_\_\_  
Clerk

\_\_\_\_\_  
Date

PERMITTEE:  
General Chemical, LLC  
Tampa Works  
3004 East Clark Street  
Tampa, FL 33605

PERMIT/CERTIFICATION  
Permit No: 0570229-011-AO  
Expiration Date: 10/28/2018  
Project: Liquid Aluminum Sulfate  
Manufacturing Plant

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 62-204, 62-210, 62-212, 62-296, 62-297, and 62-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the EPC and made a part of hereof and specifically described as follows:

General Chemical, Tampa Works, manufactures liquid aluminum sulfate by mixing finely crushed bauxite and up to 10% by weight Alternate Alumina Source (AAS) material with sulfuric acid and water in a 21,840 gallon Batch Reactor Mix Tank. Bauxite/AAS is gravity fed into the Batch Reactor Mix Tank from the Bucket Elevator, which can feed either the Batch Reactor Mix Tank or a screw conveyor. The screw conveyor then feeds either the 200-ton Bauxite/AAS Storage Silo or the Railcar Loadout. After the bauxite/AAS is weighed in the storage silo, the bauxite/AAS can then be gravity fed to another covered screw conveyor back to the bottom of the Bucket Elevator. The maximum production rate of the facility is 60 tons of aluminum sulfate per batch, with a maximum of 3 batches per day.

Raw bauxite/AAS is delivered to the facility by covered trucks and is gravity unloaded into the material handling building (EU 003). Bauxite/AAS may also be stored outside and covered with tarps. Operations in the material handling building include bauxite/AAS storage, a front-end loader, feed hopper, belt conveyor, hammermill crusher, and an enclosed conveyor system which conveys the crushed bauxite/AAS to the bucket elevator outside which may feed the Batch Reactor Mix Tank (EU 001), or a screw conveyor which leads to the Bauxite/AAS Storage Silo (EU 004) or the Railcar Loadout (EU 002).

Particulate matter (PM) emissions from the hammermill crusher and the belt conveyor transfer point are controlled by an EVO Corporation Baghouse, Model No. 84NF036C. The baghouse vents inside the material handling building. A cloth filter controls particulate matter emissions from the loading of the Bauxite/AAS storage silo. Particulate matter emissions from the Railcar Loading are controlled by the use of a cloth filter over the railcar vent.

Sulfuric acid is brought in by truck and splash loaded into a 30,086 gallon Sulfuric Acid Storage Tank, where it is then pumped into the Batch Reactor Mix Tank. Each sulfuric acid tanker truck holds approximately 4,500 gallons of acid, and takes approximately 40-60 minutes to unload.

The facility currently uses the “Reverse Mix Process” where water, a mixture of crushed bauxite combined with AAS, and sulfuric acid is mixed and reacted to form liquid aluminum sulfate. Different polymers, flocculants, and activated carbon are used in the process to aid in settling and clarifying the un-reacted solids “mud”. The mud is then pumped into two (2) 26,087 gallon Mud Wash Tanks where the mud is mixed with water to extract any residual alumina remaining in the mud. The Mud Wash Tanks are fed by three (3) Polymer Tanks (Tank #1: 235 gallon; Tank #2: 360; Tank #3: 375 gallon). The polymer and flocculant (defoamer) are mixed in two (2) separate 150 gallon tanks near the Batch Reactor Mix tank. The resulting non-hazardous solids (a mixture of the settling aids and un-reacted solids) are dewatered and shipped offsite for disposal and the water is reused in the process. The process is a batch reaction and takes approximately eight (8) hours to complete.

Once completed, liquid aluminum sulfate is pumped to three (3) 36,000 gallon Aluminum Sulfate Storage Tanks before final loadout into tanker trucks. There is a single loading arm, which loads at approximately 350 gallons/minute. The mud is then pumped into a final 150 gallon tank where additional polymer is added from a third 150 gallon Polymer Tank before being pumped to the filter press, where water is removed. From the filter press, the mud is then belt conveyed to an intermediate storage area near the filter press, before being transferred, via front-end loader, to the west storage area for final shipment off-site. The facility also has two (2) Recycled Water Tanks, with a combined capacity of 31,200 gallons (Tank 1: 13,700 gallons; Tank 2: 17,500 gallons), that recycle process water and stormwater runoff.

The “Reverse Mix Process” reaction in the Batch Reactor Mix Tank is exothermic and generates emissions of PM and Sulfuric Acid Mist (SAM), which are controlled by a Bionomic Series 4000 cross flow horizontal scrubber. Exhaust from the reaction tank is vented through a duct out of the north side of the building, and then through a scrubber inlet of approximately 3 feet in diameter and across a dual stage mesh pad mist eliminator of approximately 5 feet in height. Water is sprayed perpendicularly across the mist eliminators at a flow rate of approximately 35 to 50 gpm. The water is then collected in a 500 gallon recycle tank and re-circulated back through the scrubber. An exhaust fan with a variable speed drive ensures that there is sufficient airflow through the scrubber and out the stack. The scrubber’s maximum design air flow rate is 10,000 acfm. After the scrubber, the emissions are vented back into the building housing the reaction tank and then tied into the existing stack above the tank. A solid slide (blank) is installed at the base of the existing stack to ensure that all emissions from the tank are vented through the scrubber during normal operation.

The scrubber operates from the beginning of each reaction until the reaction is complete, which is approximately 3.5 hours. At that point, the scrubber operation stops and the water that has been re-circulated through the scrubber during the reaction is pumped into the reactor tank to dilute the batch. The facility has an option of switching to a straight mix process if desired because it can lead to a higher yield. In the straight mix process, the acid and water are mixed first, and the bauxite/AAS is added last.

Emission Units 001 through 004 are subject to PM-RACT (Rule 62-296.712, F.A.C.) with a 5% opacity standard, since the Potential-to-Emit of the facility for PM is greater than 15 tons per year (TPY) and 5 pounds per hour (lb/hr).

Location: 3004 East Clark Street, Tampa, FL 33605



PERMITTEE:  
General Chemical, LLC

PERMIT/CERTIFICATION NO.: 0570229-011-AO  
PROJECT: Liquid Aluminum Sulfate Manufacturing Plant

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions. [Rule 62-4.160, F.A.C.]
2. All applicable rules of the Environmental Protection Commission of Hillsborough County including design discharge limitations specified in the application shall be adhered to. The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction. [Rule 62-4.070(7), F.A.C.]
3. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapters 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C., or any other requirements under federal, state, or local law. [Rule 62-210.300, F.A.C.]
4. The permittee shall not cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320, F.A.C.]
5. In order to limit the potential to emit of the emission units, the PM emissions and visible emissions (VE) from the following sources shall not exceed the following limits:  
[Rules 62-4.070(3), F.A.C., Permit No. 0570229-008-AC, and Rule 1-3.52, Rules of the EPC]

<u>Emission Unit</u>	<u>Source</u>	<u>Allowable</u>	<u>VE Standard</u>
001	Batch Reactor Mix Tank	0.03 gr/dscf	5% opacity
002	Railcar Loading	n/a	5% opacity
003	Material Handling Building	n/a	5% opacity
004	Bauxite/AAS Storage Silo	n/a	5% opacity

6. In order to demonstrate compliance with the limitations of Specific Condition No. 5, the following operating limits shall not be exceeded on a twelve consecutive month period:  
[Rule 62-4.070(3), F.A.C. and Permit No. 0570229-008-AC]

<u>Process/Description</u>	<u>Limit</u>
A) Maximum production rate	60 tons per batch (dry basis)
B) Reverse/Straight Mix Process	3 batches/day, 1,095 batches/yr.
C) Bauxite Usage	20,000 tons/yr. (*)
D) Maximum Alternate Alumina (AAS)	2,000 tons/yr. (*)

Source usage\* (on a dry weight basis)

7. In order to limit the facility's potential to emit, the hours of operation for the Railcar Loading operation shall not exceed 1,138 hours per 12 consecutive month period. Hours of operation for the activities inside the Material Handling Building and the Bauxite/AAS Storage Silo are not limited.  
[Rule 62-4.070(3), F.A.C. and Permit No. 0570229-008-AC]

PERMITTEE:  
General Chemical, LLC

PERMIT/CERTIFICATION NO.: 0570229-011-AO  
PROJECT: Liquid Aluminum Sulfate Manufacturing Plant

SPECIFIC CONDITIONS:

8. Test the exhausts of the Batch Reactor Mix Tank (EU 001), Railcar Loading (EU 002), Material Handling Building (EU 003), and Bauxite/AAS Storage Silo (EU 004) for visible emissions annually during each federal fiscal year (October 1 - September 30), with a target date of July 30<sup>th</sup>, and submit two copies of the test data to the Air Management Division of the Environmental Protection Commission of Hillsborough County within forty-five days of such testing. Testing procedures shall be consistent with the requirements of Rule 62-297.310, F.A.C. Additionally, the visible emissions testing of EU 002 and EU 003 shall be conducted for each of the following scenarios:

- A) The storage building while the hammermill crusher and front-end loader are operating.
- B) The storage building during truck unloading. If a truck is not unloaded during the federal fiscal year, notify the Air Compliance Section of the Environmental Protection Commission of Hillsborough County in writing and test the next truck that is unloaded at the facility for opacity.
- C) The railcar filter vent. If a railcar is not loaded during the federal fiscal year, notify the Air Compliance Section of the Environmental Protection Commission of Hillsborough County in writing and test the next railcar that is loaded at the facility for opacity.

9. Compliance with the emission limitations of Specific Condition No. 5 shall be determined using EPA Methods 1, 2, 4, 5, 8, and 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. The sampling time per run for EPA Methods 1, 2, 3, 5, and 8 shall be 3 and ½ hours during the process period in which maximum emissions are emitted. The EPA Method 9 observation period for the Bauxite/AAS Storage Silo, Material Handling Building, and Railcar Loading shall be 30 minutes, whereas the EPA Method 9 observation period for the Batch Reactor Mix Tank shall be at least 60 minutes during the process period in which maximum emissions are emitted. For the Material Handling Building, the opacity reading of the roof vents or entrance door, whichever is higher, shall be recorded for the building. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60, Appendix A.

10. Testing of emissions shall be conducted with the source operating at capacity. Capacity is defined as 90-100% of rated capacity of 60 tons (on a dry weight basis) of product per batch, up to 10% AAS (on a dry weight basis), and the maximum silo filling and railcar loading rate of 23 tons per hour. The EPA Method 9 test on the Batch Reactor Mix Tank stack and reactor building shall be performed under the same operating conditions, process, and emission rates as during the compliance tests for particulate matter and sulfuric acid mist. The hammermill crusher and the corresponding baghouse inside the Material Handling Building shall be operating at capacity (i.e. 90-100% of 23 tons per hour) while performing the emission test on the Material Handling Building. If it is impracticable to test at capacity, then the source may be tested at less than capacity; in this case subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the EPC. Failure to submit the input rates and actual operating conditions such as baghouse pressure drop, scrubber pressure drop, and scrubber liquid flow rate may invalidate the test. [Rules 62-4.070(3) and 62-297.310(2)(b), F.A.C.]

PERMITTEE:  
General Chemical, LLC

PERMIT/CERTIFICATION NO.: 0570229-011-AO  
PROJECT: Liquid Aluminum Sulfate Manufacturing Plant

SPECIFIC CONDITIONS:

11. The permittee shall notify the Air Compliance Section of the Environmental Protection Commission of Hillsborough County at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the contact person who will be responsible for coordinating and having such test conducted. [Rule 62-297.310(7)(a)9., F.A.C]

12. In order to ensure compliance with the emission limitations in Specific Condition Nos. 5 and 6, the following restrictions and limitations for the Batch Reactor Mix Tank operation shall apply: [Rule 62-4.070(3), F.A.C. and Permit No. 0570229-008-AC]

- a) The scrubber shall be in operation prior to the addition of bauxite or sulfuric acid to a new batch.
- b) The scrubber shall remain in operation for at least the initial 3 and ½ hours of each batch to ensure that the control device is operating during the process period in which maximum emissions are emitted.
- c) The permittee shall maintain and operate the scrubber in accordance with the design as submitted with the application.

13. In order to demonstrate compliance with Specific Condition Nos. 5, 6, and 7 the permittee shall maintain records of operations for the most recent three year period. The records shall be made available to the Environmental Protection Commission of Hillsborough County, state or federal air pollution agency upon request. The records shall include, but not limited to, the following: [Rules 62-4.070(3), and 62-4.160, F.A.C]

- A) Day, Month, Year.
- B) Amount of Bauxite and AAS received by truck (tons).
- C) Raw material usage: Bauxite: \_\_\_\_\_ tons, AAS: \_\_\_\_\_ tons.
- D) Number of batches and Aluminum Sulfate production in tons per batch (on a dry weight basis).
- E) Hours of operation for the Railcar Loading operation.
- F) A monthly and rolling 12-month total of the items specified above in B) thru E).
- G) Pressure drop reading of the scrubber during the reaction period of each batch.

14. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Rule 62-296.320, F.A.C. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alterations, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling. The reasonable precautions employed by the facility should include, but not be limited to:

- A) Using only enclosed railcars.
- B) Filtering dust-laden displaced air from the railcar vent with a cloth filter.
- C) Application of water or dust suppressants on unpaved plant grounds.
- D) Removal of particulate matter from paved areas, buildings and work areas under the control of the owner/operator.
- E) Use of the baghouse during crushing operations.

PERMITTEE:  
General Chemical, LLC

PERMIT/CERTIFICATION NO.: 0570229-011-AO  
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SPECIFIC CONDITIONS:

15. When the Environmental Protection Commission of Hillsborough County (EPC) after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rules 62-204, 62-210, 62-212, 62-296, or 62-297, F.A.C., or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the source to conduct compliance tests which identify the nature and quantity of pollutant emissions from the source and to provide a report on the results of said tests to the EPC.

[Rule 62-297.310(7)(b), F.A.C.]

16. The permittee shall annually perform a visual inspection of the tank(s), pumping system, pipes, hoses, valves and associated auxiliary instruments/equipment for rust, cracks or leaks and ensure that all emission control devices are functioning properly. The permittee shall document and retain all findings and corrective actions taken for a minimum period of twenty-four months. [Rule 62-4.070(3) F.A.C.]

17. The use of property, facilities, equipment, processes, products, or compounds, or any other act, that causes or materially contributes to a public nuisance is prohibited, pursuant to the Hillsborough County Environmental Protection Act, Section 16, Chapter 84-446, Laws of Florida, as Amended.

18. The pollution control equipment (baghouse, scrubber, building enclosure, and cloth filters) shall be operated and maintained in good repair to perform adequately the function for which they are intended. Maintenance shall include, but is not limited to, daily/weekly/monthly/quarterly/annual inspections and replacement or repair of faulty equipment when necessary or as required by the manufacturer. The permittee shall comply with the requirements of the Operation and Maintenance (O&M) Plan for the scrubber as described below: [Rule 62-4.070(3), and 62-296.700(6), F.A.C.]

Scrubber

A) Process Parameters:

1. Manufacturer: Bionomic Industries
2. Model Name and Number: Bionomic Series 4000
3. Type: Model 6 cross-flow scrubber
4. Maximum Design Gas Volume: 10,000 acfm
5. Average Inlet Temperature: 209 °F
6. Scrubbing Flow Rate: 35 - 50 gpm (recycle)
7. Design Spray nozzle pressure: 10 psig
8. Pressure drop across scrubber: < 3 inches w.c. (max. – 5 psig)
9. Efficiency: Sulfuric acid mist – 95%
10. Efficiency: Particulate Matter – 98%
11. Process controlled by scrubber: Aluminum Sulfate Batch Reactor
12. Operation Schedule: 8,760 hrs/yr

B) The following observations, checks and operations shall be conducted on the schedule specified:

PERMITTEE:  
General Chemical, LLC

PERMIT/CERTIFICATION NO.: 0570229-011-AO  
PROJECT: Liquid Aluminum Sulfate Manufacturing Plant

SPECIFIC CONDITIONS:

Daily

1. Inspect general condition of the equipment when the equipment is operated

Monthly

1. Inspect Packing Media
2. Inspect Spray Nozzles
3. Inspect Ducts and Drains
4. Inspect Re-circulating Piping

Quarterly

1. Inspect Fan Shaft Bearings
2. Inspect Fan Drive Coupling
3. Inspect Fan Motor

Annual

1. Inspect Fan Blades

19. If the permittee wishes to transfer this permit to another owner, an "Application for Transfer of Permit" (DEP Form 62-210.900(7)) shall be submitted, in duplicate, to the Environmental Protection Commission of Hillsborough County within 30 days after the sale or legal transfer of the permitted facility. [Rule 62-4.120, F.A.C.]

20. Prior to sixty days before the expiration of this operating permit, the permittee shall apply for a renewal of the permit using the current version of the permit renewal application form. A renewal application shall be timely and sufficient. If the application is submitted prior to sixty days before the expiration of the permit, it will be considered timely and sufficient. If the renewal application is submitted at a later date, it will not be considered timely and sufficient unless it is submitted and made complete prior to the expiration of the operation permit. When the application for renewal is timely and sufficient, the existing permit shall remain in effect until the renewal application has been finally acted upon by the EPC or, if there is court review of the final agency action, until a later date is required by Section 120.60, Florida Statutes. [Rule 62-4.090, F.A.C.]

ENVIRONMENTAL PROTECTION COMMISSION  
OF HILLSBOROUGH COUNTY

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Richard D. Garrity, Ph.D.  
Executive Director