



# Florida Department of Environmental Protection

Southwest District Office  
13051 North Telecom Parkway  
Temple Terrace, Florida 33637-0926

Rick Scott  
Governor

Jennifer Carroll  
Lt. Governor

Herschel T. Vinyard Jr.  
Secretary

## FINAL PERMIT

### PERMITTEE

ArrMaz Custom Chemicals, Inc.  
4800 State Road 60 East  
Mulberry, FL 33860

### Authorized Representative:

Mr. William H. Cook, Jr., Chief Manufacturing  
Officer

Air Permit No. 1050097-026-AC  
Permit Expires: 09/01/2014  
Site Name: ArrMaz Custom Chemicals -  
Mulberry Facility  
Minor Air Construction Permit  
Project Name: Addition of 2<sup>nd</sup> Sulfonation  
Unit & Modification of Construction Permit  
1050097-024-AC

This is the final air construction permit for a new sulfonation unit at the facility and for elimination of the requirement to monitor the condenser outlet temperature for reaction kettle Nos. 1, 2, 4, and 5 (Emissions Unit 006). The proposed work will be conducted at the ArrMaz Custom Chemicals - Mulberry Facility (Standard Industrial Classification No. 2869). The facility is located in Polk County at 4800 State Road 60 East in Mulberry, Florida. The UTM coordinates are Zone 17, 408.3 km East, and 3085.7 km North km North. As noted in the Final Determination provided with this final permit, no changes or only minor changes and clarifications were made to the draft permit.

This final permit is organized by the following sections:

- Section 1. General Information
- Section 2. Administrative Requirements
- Section 3. Emissions Unit Specific Conditions
- Section 4. Appendices

Due to the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

This air pollution permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not subject to the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Upon issuance of this final permit, 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 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 30 days after this order is filed with the clerk of the Department.

Executed in Hillsborough County, Florida



Robert C. Wong  
District Air Program Administrator  
Southwest District

09/07/2012  
Effective Date

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination, the Final Permit and the Appendices) was sent by electronic mail (or a link to these documents made available electronically on a publicly accessible server) with received receipt requested before the close of business on the date indicated below to the persons listed below.

Mr. William H. Cook, Jr., Chief Manufacturing Officer  
ArrMaz Custom Chemicals, Inc.  
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Mr. Steve Basarab, EHS Manager  
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Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

\_\_\_\_\_  
(Clerk)

\_\_\_\_\_  
(Date)

ArrMaz Custom Chemicals, Inc.  
Mulberry Facility

Air Permit No. 1050097-026-AC  
Addition of 2<sup>nd</sup> Sulfonation Unit &  
Modification of Construction Permit 1050097-024-AC

**SECTION 1. GENERAL INFORMATION (FINAL)**

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**FACILITY AND PROJECT DESCRIPTION**

**ArrMaz Custom Chemicals, Inc.**

This is a chemical manufacturing facility that stores, handles, and processes primarily tall oils, tall oil fractions, tall oil derivatives, animal or vegetable fatty acids, organic acids, amines, petroleum distillates or derivatives, and mixtures thereof.

The existing facility consists of the following emissions units.

Facility ID No. 1050097	
ID No.	Emission Unit Description
001	Sulfonation Unit
003	500 HP Steam Boiler (NSPS)
006	Reaction Kettles

**Project Description and Affected/Proposed Emission Units**

ArrMaz Custom Chemicals, Inc. proposes to construct a new sulfonation unit. This second sulfonation unit at the facility is expected to have a maximum sulfur input rate of 634 pounds per hour. The emissions from this new unit will be controlled by an electrostatic precipitator and a sulfur dioxide (SO<sub>2</sub>) absorber.

This project will also eliminate the requirement to monitor the condenser outlet temperature for reaction kettle Nos. 1, 2, 4, and 5 (Emissions Unit 006).

This project will add the following emissions unit.

Facility ID No. 1050097	
ID No.	Emission Unit Description
010	Sulfonation Unit No. 2

This project will also modify the following emissions unit.

Facility ID No. 1050097	
ID No.	Emission Unit Description
006	Reaction Kettles

*NOTE: Please reference the Permit No., Facility ID, and Emission Unit ID in all correspondence, test report submittals, applications, etc.*

**Exempt Emissions Units/Activities**

- Natural gas fired backup heater for EU 010's sulfur burner, exempt from permitting pursuant to Rule 62-210.300(3)(a)34., F.A.C. (Note: The primary heater for the burner is provided by electricity).

## SECTION 1. GENERAL INFORMATION (FINAL)

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### FACILITY REGULATORY CLASSIFICATION

- The facility is not a major source of hazardous air pollutants (HAPs).
- The facility has no units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is not a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is not a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C.
- This facility is a synthetic non-Title V source for sulfur dioxide (SO<sub>2</sub>). The restriction on maximum sulfur input rate and proper use and maintenance of the control devices (SO<sub>2</sub> absorbers) will ensure that the facility's SO<sub>2</sub> emissions will be below the threshold for a Title V source.

### PERMIT HISTORY/AFFECTED PERMITS

Partially modifies construction permit 1050097-024-AC. Cross reference with operation permit 1050097-025-AO and construction permit 1050097-024-AC.

## SECTION 2. ADMINISTRATIVE REQUIREMENTS (FINAL)

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1. Permitting Authority: The permitting authority for this project is the Florida Department of Environmental Protection (Department), Southwest District's Air Resource Management Section. The Southwest District's mailing address and phone number is:

Florida Department of Environmental Protection  
Southwest District Office  
Air Resource Management Section  
13051 North Telecom Parkway  
Temple Terrace, Florida 33637-0926  
Telephone: 813-632-7600

All documents related to applications for permits shall be submitted to the above address.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Southwest District Office's Air Resource Management Section (see above mailing address and phone number)
3. Appendices: The following Appendices are attached as part of this permit:
  - a. Appendix A. Citation Formats and Glossary of Common Terms;
  - b. Appendix B. General Conditions;
  - c. Appendix C. Common Conditions; and
  - d. Appendix D. Common Testing Requirements.
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.
5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time.  
[Rule 62-4.080, F.A.C.]
6. Modifications: Unless otherwise exempt by rule, the permittee shall not initiate any construction, reconstruction, or modification at the facility and shall not install/modify any pollution control device at the facility without obtaining prior authorization from the Department. Modification is defined as: Any physical change or changes in the method of operations or addition to a facility that would result in an increase in the actual emissions of any air pollutant subject to air regulations, including any not previously emitted, from any emission unit or facility.  
[Rules 62-210.200 - Definition of "Modification" and 62-210.300(1)(a), F.A.C.]
7. Annual Operating Report: On or before **April 1** of each year, the permittee shall submit a completed DEP Form 62-210.900(5), "Annual Operating Report for Air Pollutant Emitting Facility" (AOR) for the preceding calendar year. The report may be submitted electronically in accordance with the instructions received with the AOR package sent by the Department, or a hardcopy may be sent to the Compliance Authority.  
[Rule 62-210.370(3), F.A.C.]

## SECTION 2. ADMINISTRATIVE REQUIREMENTS (FINAL)

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8. Application for Non-Title V Air Operation Permit: This permit authorizes construction of an emissions unit and initial operation to determine compliance with Department rules. A Non-Title V air operation permit is required for continued operation of the permitted emissions unit(s). The permittee shall apply for a Non-Title V air operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after the new sulfonation unit (Emissions Unit 010) commences operation. Commencing operation means setting into operation of any emissions unit for any purpose. To apply for a Non-Title V air operation permit, the applicant shall submit the following:
- a. the appropriate permit application form (*see current version of Rule 62-210.900, F.A.C. (Forms and Instructions)*), and/or FDEP Division of Air Resource Management website at: <http://www.dep.state.fl.us/air/>;
  - b. the appropriate operation permit application fee from Rule 62-4.050(4)(a), F.A.C.; and
  - c. a copy of the test report for the SO<sub>2</sub> emissions test required by Specific Condition No. B.3., if not previously submitted;
  - d. copies of the most recent month of records/logs specified in Specific Condition No. B.8.

The application shall be submitted to the Permitting Authority.

[Rules 62-4.030, 62-4.050, and 62-4.220, F.A.C.]

**SECTION 3. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)**

**A. EU No. 006 – Reaction Kettles**

This section of the permit addresses the following emissions unit.

ID No.	Emissions Unit Description										
006	<p>This emissions unit is used to produce fatty amino acids, glycol esters, and other products primarily used for the phosphate industry. It is also used to produce sulfurized crude tall oils. A summary of the reaction kettles and their maximum fill capacities is shown below:</p> <table border="1"> <thead> <tr> <th>Reaction Kettle No.</th> <th>Capacity (gallons)</th> </tr> </thead> <tbody> <tr> <td>1 (<i>proposed</i>)</td> <td>20,000</td> </tr> <tr> <td>2 (<i>existing</i>)</td> <td>6,500</td> </tr> <tr> <td>4 (<i>existing</i>)</td> <td>10,438</td> </tr> <tr> <td>5 (<i>existing</i>)</td> <td>11,709</td> </tr> </tbody> </table> <p><i>Note: The permittee may elect to install a smaller capacity reactor for reaction kettle No. 1. The permittee has stated that reaction kettle No. 1 will have a capacity of 10,000, 15,000 or 20,000 gallons.</i></p> <p>The kettles are batch operated with each batch averaging approximately 18 to 20 hours in duration during the production of the normal product line and approximately 3 to 4 hours in duration during the production of sulfurized crude tall oils. In addition to the reaction kettles, this emission unit includes several packed tower scrubbers, equipped with a mist eliminator. The scrubbers operate using either sodium hydroxide or sodium hypochlorite as the scrubbing liquid. This emission unit also includes a thermal oxidizer that has a design heat input rate of 4.0 mmBtu/hour and is fired with natural gas. The thermal oxidizer is used during the production of sulfurized crude tall oils to minimize the potential for objectionable odors.</p> <p>Operations and controls of all equipment included in this emission unit are summarized below:</p> <p>Reaction kettle No. 2 can be configured to produce either the sulfurized crude tall oil product line or the normal product line. When producing sulfurized crude tall oil, the vapors from kettle No. 2 vent through its condenser, then through a condensate collection tank, then through three scrubbers in series. Vapors exiting the final scrubber pass through a thermal oxidizer and out a stack to the atmosphere. When producing the normal product line, the vapors from kettle No. 2 vent through its condenser, then through a condensate collection tank, and then through a scrubber to the atmosphere.</p> <p>Reaction kettle No. 4 is configured to produce the normal product line. Vapors from kettle No. 4 vent through its condenser, then through a condensate collection tank, and then finally through its dedicated scrubber to the atmosphere.</p> <p>Reaction kettle No. 5 is configured to produce the normal product line. Vapors from kettle No. 5 vent through its condenser, then through a condensate collection tank, and then finally through a scrubber to the atmosphere.</p> <p>Reaction kettle No. 1 will likely be configured to produce the normal product line. Vapors from kettle No. 1 will vent through its condenser, then through its condensate collection tank, and then through its dedicated scrubber to the atmosphere.</p>	Reaction Kettle No.	Capacity (gallons)	1 ( <i>proposed</i> )	20,000	2 ( <i>existing</i> )	6,500	4 ( <i>existing</i> )	10,438	5 ( <i>existing</i> )	11,709
Reaction Kettle No.	Capacity (gallons)										
1 ( <i>proposed</i> )	20,000										
2 ( <i>existing</i> )	6,500										
4 ( <i>existing</i> )	10,438										
5 ( <i>existing</i> )	11,709										

## SECTION 3. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

### A. EU No. 006 – Reaction Kettles

#### PERFORMANCE RESTRICTIONS

- A.1. Hours of Operation: The hours of operation are not limited (8,760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]
- A.2. Operation Limitations: Reaction kettle Nos. 1, 2, 4 and 5 may operate simultaneously. To ensure proper management of reactor kettle exhaust vapors, the following operation conditions shall be maintained:

*Scrubber Operation* – All scrubbers used to control emissions from reaction kettles shall be equipped with mist eliminators and properly maintained and operated. To ensure proper operation of the scrubbers, the following operating conditions shall be maintained during reaction kettle batch operations:

- a. Scrubber liquid shall be sodium hydroxide or other solutions to be determined by the Review Procedure below;
- b. Scrubber liquid minimum flow shall be maintained at or above 6 gallons per minute;
- c. Scrubber liquid pH shall be maintained between 8 and 12.5, or as determined by the chemistry of kettle vapors or scrubber liquid (as per item a.);

*Sulfurized Crude Tall Oil Production* – During the production of the sulfurized crude tall oils, the following operation procedures shall be followed:

- d. Reaction kettles producing sulfurized crude tall oils must vent through the three scrubbers in series and the thermal oxidizer;
- e. The thermal oxidizer shall have a minimum set point temperature of 1,550° F during the reaction of sulfur with crude tall oil.

*Review Procedure* – Emissions from the R & D reaction kettle are controlled by the same Southerland Associates packed tower wet scrubber that controls emissions from reaction kettle Nos. 2 and 5. In order to prevent objectionable odors, and in accordance with the process safety review proposed in Kenneth Given's letter dated December 14, 1993, a safety, environmental and mechanical review of the R & D reaction kettle, and each packed tower wet scrubber operation shall be instituted prior to the evaluation of any product class not previously processed. Records of the review shall be maintained on-site for a minimum of the most recent three (3) year period, and be made available to the Department upon request.

Should the Department have reason to believe that the reaction kettles are causing objectionable odor that interferes with the enjoyment of the surrounding area and interferes with the comfort and convenience of people, the Department may require that additional measures be taken.

[Rule 62-4.070(3), F.A.C.; requested in letter received on 09/08/11 and e-mail received on 08/08/12]

#### RECORDS AND REPORTS

- A.3. Daily Records – Operating Parameters: To ensure proper operation of scrubbers and thermal oxidizer, the permittee shall monitor and record the following parameters:
- a. Facility name, facility ID No., emissions unit ID No., and date;

### SECTION 3. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

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#### A. EU No. 006 – Reaction Kettles

- b. For each reaction kettle batch operation, record prior to and at a minimum of once during kettle batch operations:
  - 1) Reaction kettle number (1, 2, 4, or 5);
  - 2) Product type (normal or sulfurized crude tall oil);
  - 3) Identify scrubber(s) used to control the reaction kettle exhaust;
  - 4) For each scrubber used to control reaction kettle exhaust, record:
    - a) Scrubber liquid (e.g., sodium hydroxide);
    - b) Scrubber liquid flow rate in gallons per minute;
    - c) Scrubber liquid pH;
- c. If producing sulfurized crude tall oil, record the thermal oxidizer temperature every hour.

Daily records shall be completed within ten (10) calendar days. These records shall be maintained at the facility for at least three years, unless otherwise noted, and be made available to the Department for inspection upon request.

[Rule 62-4.070(3), F.A.C.; requested in letter received on 09/08/11 and e-mails received on 10/03/11 and 08/08/12]

## SECTION 3. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

### B. EU No. 010 – Sulfonation Unit No. 2

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
010	<p>In this emissions unit, sulfur is burned to produce sulfur dioxide (SO<sub>2</sub>). The SO<sub>2</sub> is then oxidized to sulfur trioxide (SO<sub>3</sub>) in a catalyst bed. In the production of organic sulfonate products, SO<sub>3</sub> gas generated from the catalyst bed is passed through a reactor (36 inches in diameter) in contact with various organic liquids. The reactor then discharges into a cyclone separator. The cyclone is considered process equipment in this emission unit and is used to recover liquid from the reactor discharge. The liquid stream exiting the cyclone is subsequently neutralized to produce organic sulfonate products, while the gas stream exiting the cyclone is vented through the “ESP/Scrubbing System”. In this system, the gas first passes through the electrostatic precipitator (ESP) unit which removes remaining condensables and particulates. The gas then passes through the SO<sub>2</sub> Absorber (packed tower), which removes SO<sub>2</sub> in the gas stream prior to discharge to the atmosphere.</p> <p>During startups and shutdowns, when organic sulfonate products are not being produced, the SO<sub>3</sub> gas generated from the catalyst bed goes directly to a sulfuric acid scrubber and produces sulfuric acid. The small amount of sulfuric acid that is produced (and given away) is to prevent emissions. Therefore, the production of sulfuric acid does not meet the definition of a “sulfuric acid production unit” in 40 CFR 60.81(a) and is not subject to 40 CFR 60 Subpart H – Standards of Performance for Sulfuric Acid Plants. The gas stream from the sulfuric acid scrubber is vented through the “ESP/SO<sub>2</sub> Absorber/Scrubbing System”.</p>

#### PERFORMANCE RESTRICTIONS

- B.1. Permitted Capacity: The maximum sulfur input rate shall not exceed 634 pounds/hour, averaged daily.  
[Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]  
*{Permitting Note: Proposed by applicant in the permit application received on 07/20/12.}*
- B.2. Hours of Operation: The hours of operation are not limited (8,760 hours per year).  
[Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]  
*{Permitting Note: Proposed by applicant in the permit application received on 07/20/12.}*

#### TESTING REQUIREMENTS

- B.3. SO<sub>2</sub> Emissions Test: This emissions unit shall be tested to determine its potential SO<sub>2</sub> emissions (in pounds per hour). The test shall be conducted no later than 180 days after initial operation of the unit.  
[Rule 62-4.070(3), F.A.C.]  
*{Permitting Note: The test will be conducted at the highest sulfur input rate that the unit is able to achieve at the time. If the sulfur input rate is below 90 percent of the permitted capacity, subsequent emissions unit operation will not be limited to 110 percent of the test rate. Unit’s potential SO<sub>2</sub> emissions will be estimated assuming linear relationship between the sulfur input rate and stack SO<sub>2</sub> emissions.}*

ArrMaz Custom Chemicals, Inc.  
Mulberry Facility

Air Permit No. 1050097-026-AC  
Addition of 2<sup>nd</sup> Sulfonation Unit &  
Modification of Construction Permit 1050097-024-AC

## SECTION 3. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

### B. EU No. 010 – Sulfonation Unit No. 2

- B.4. Test Requirements: Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. Condition No. D.1. is not applicable (*see Specific Condition No. B.3. above*).  
[Rule 62-297.310, F.A.C.]
- B.5. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Methods	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
6 or 6C	Determination of Sulfur Dioxide Emissions from Stationary Sources

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other method(s) may be used unless prior written approval is received from the Department.

[Rule 62-204.800, F.A.C.; and Appendix A of 40 CFR 60]

### NOTIFICATION REQUIREMENTS

- B.6. Test Notification: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. The notification must include the following information: the date, time, and location of each test; the name and telephone number of the facility's contact person who will be responsible for coordinating the test; and the name, company, and the telephone number of the person conducting the test.

*{Permitting Note: The notification should also include the relevant emission unit ID No(s), test method(s) to be used, and pollutants to be tested.}*

[Rules 62-4.070(3) and 62-297.310(7)(a)9., F.A.C.]

- B.7. Notification of Operation Commencement: The permittee shall notify the Compliance Authority in writing of the date of commencing operation of the Emissions Unit 010, no later than fifteen (15) days after that date. Commencing operation means setting into operation of any emissions unit for any purpose.

[Rule 62-4.070, F.A.C., and Rule 62-210.200, F.A.C., (Definition of Commence Operation)]

### RECORDS AND REPORTS

- B.8. Daily and Monthly Logs: To demonstrate compliance with the sulfur input rate limitation of Specific Condition No. B.1., the permittee shall maintain the following records:

a. Facility name, facility ID No., emissions unit ID No., and date;

b. Daily average sulfur input rate in pounds/hour;

c. Daily average must be determined by one of the following methods:

Manually – Calculate the “Daily Average Sulfur Input Rate” by dividing the total quantity of sulfur feed input by total hours of operation for each day.

Continuous Monitoring – Calculate the “Daily Average Sulfur Input Rate” using continuous monitoring source data.

### SECTION 3. EMISSION UNIT SPECIFIC CONDITIONS (FINAL)

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#### B. EU No. 010 - Sulfonation Unit No. 2

If the continuous monitoring recordkeeping option is selected, then the permittee shall also maintain the following monthly records:

- d. Facility name, facility ID No., emissions unit ID No., and month and year;
- e. Daily average sulfur input rate in pounds/hour and date for each day during the month.

All daily records shall be completed within ten (10) calendar days and all monthly records shall be completed by the end of the following month. All required records required shall be maintained at the facility for at least three years, unless otherwise noted, and be made available to the Department for inspection upon request.

[Rule 62-4.070(3), F.A.C.]