



500 Swedes Landing Road
Wilmington, DE 19801

noramco.com



February 19, 2020

Mr. Mohamed Mellaouch
Environmental Engineer
Division of Air Quality
Department of Natural Resources and Environmental Control (DNREC)
100 W. Water Street, Suite 6A
Dover, DE 19904

Subject: Application for scaling Methylphenidate in Plant 5 and the installation of a New Vacuum Pump: Regulation 2 Air Containment Equipment Construct Permit

Dear Mr. Mellaouch:

Noramco, Inc. located in Wilmington, Delaware is hereby submitting an Air Contaminant Equipment Registration Forms for a new vacuum pump (VP103-001E) that will be used in the Methylphenidate (MPH) process in Plant 5 and other batch processing operations at the facility. In addition, Noramco is requesting to increase the current hourly and twelve month rolling average emission limit for isopropyl acetate and dimethyl carbonate in the existing Title V Operating Permit.

The vacuum pump is intended to be used for MPH and will be utilized for additional processes in Plant 5 in the future. Estimated emissions have been calculated utilizing Emission Master Software, which is developed by Mitchell Scientific per US EPA Chapter 16, Emissions Estimation Guidelines.

The MPH process in Plant 5 will be operated in accordance with all operational limitations, testing, and monitoring requirements, and all records will be kept in accordance with the Title V permit. The MPH process in Plant 5 is over five times greater in scale than the existing capabilities of Plant 3. Currently, production is targeted for the beginning of the second quarter of 2020 or sooner, if attainable.

Accompanying this letter are updated and added application forms:

Name	Description
AQM-1	Administrative Information
AQM-2	Process Flow Diagram with updated equipment (VP103-001E)



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Name	Description
AQM-3.1	Generic Process Equipment Application for addition of VP103-001E
AQM-4.4	Scrubber Application Form
AQM-5	Emission Information Application for MPH process utilizing new equipment
Attachment 1	MPH Emission Master Analysis Report
Attachment 2	Manufacturer Specification for vacuum pump VP103-001E
Attachment 3	Air Contaminant Registration Form for vacuum pump VP103-001E
Attachment 4	Site Plan
Attachment 5	Claim of Confidentiality

Noramco, Inc. appreciates your timely review to ensure that this meets your expectations. Please feel free to contact me at 302-888-4452 if you need any additional information.

Sincerely,

Alexandra Vanaman
Sr. EHS Engineer
Noramco, Inc.



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Administrative Information

One original and one copy of All Application Forms Should Be Mailed To:
Air Quality Management
Blue Hen Corporate Center
655 S. Bay Road, Suite 5 N
Dover, DE 19901

All Checks Should Be Made Payable To:
State of Delaware



<u>Company and Site Information</u>	
1.	Company Name: Noramco, Inc.
2.	Company Mailing Address: 500 Swedes Landing Road City: Wilmington State: DE Zip Code: 19801
3.	Site Name: Noramco, Inc. Wilmington, DE
4.	Site Mailing Address: same as Company mailing address (if different from above) City: State: Zip Code:
5.	Physical Location of Site: same as Company mailing address (if different from above) City: State: Zip Code:
6.	Site Billing Address: same as Company mailing address (if different from above) City: State: Zip Code:
7.	Air Quality Management Facility ID Number: 1000300324
8.	Site NAICS Code: 325411 (list all that apply)
9.	Site SIC Code: 2388 (list all that apply)
10.	Site Location Coordinates: Latitude: +39 ° 44' 14.2" Longitude: -75 ° 32' 25.8"
11.	Is the Facility New or Existing? <input type="checkbox"/> NEW <input checked="" type="checkbox"/> EXISTING
<i>If the Facility is an Existing Facility, Complete the Rest of Question 11. If Not, Proceed to Question 12.</i>	
11.1.	Does the Facility Have Active Air Permits? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
12.	Is this Application For New Equipment or a Modification to Existing Equipment? <input checked="" type="checkbox"/> New Equipment <input type="checkbox"/> Modification of Existing Equipment <input checked="" type="checkbox"/> Other (Specify): [REDACTED]
<i>If the application is for the modification of existing equipment, complete the rest of Question 12. If not,</i>	



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Company and Site Information

proceed to Question 13.

12.1. Does the Equipment Have an Active Air Permit? ☐ YES ☒ NO

If the equipment has an active air permit, complete the rest of Question 12. If not, proceed to Question 13.

12.2. Permit Number of Existing Equipment: **AQM-003/00324**

13. Status of Equipment Being Applied For: ☐ Natural Minor Source
☐ Synthetic Minor Source
☒ Major Source
☒ Federally Enforceable Restrictions

14. Facility Status: ☐ Natural Minor Facility ☐ Synthetic Minor Facility ☒ Major Facility

If the facility is a Major Source, complete the rest of Question 14. If not, proceed to Question 15.

14.1. Responsible Official Name: **Lucas Zumstein**

14.2. Responsible Official Title: **Director, Manufacturing & Technical Operations**

Contact Information

15. Name of Owner or Facility Manager: **Lucas Zumstein**

16. Title of Owner or Facility Manager: **Director, Manufacturing & Technical Operations**

17. Permit Contact Name: **Alexandra Vanaman**

18. Permit Contact Title: **Sr. EHS Engineer**

19. Permit Contact Telephone Number: **302-888-4452**

20. Permit Contact Fax Number: **302-652-4417**

21. Permit Contact E-Mail Address: **avanaman@noramco.com**

22. Billing Contact Name: **Alexandra Vanaman**

23. Billing Contact Title: **Sr. EHS Engineer**

24. Billing Contact Telephone Number: **302-888-4452**

25. Billing Contact Fax Number: **302-652-4417**

26. Billing Contact E-Mail Address: **avanaman@noramco.com**

Proposed Construction and Operating Schedule

27. When Will the Proposed Construction/Installation/Modification Occur: **3/1/2020**

28. Proposed Operating Schedule: **24 hours/day 7 days/week 365 weeks/year**

28.1. Is There Any Additional Information Regarding the Operating Schedule? ☒ YES ☐ NO



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Proposed Construction and Operating Schedule

If YES, complete the rest of Question 28. If NO, proceed to Question 29.

28.2. Describe the Additional Information:

[Redacted area for Question 28.2]

Coastal Zone Information

29. Is the Facility Located in the Coastal Zone? ☐ YES ☒ NO

If the facility is located in the Coastal Zone complete the rest of Question 29. If not, proceed to Question 30.

29.1. Is a Coastal Zone Permit Required for Construction or Operation of the Source Being Applied for? ☐ YES ☐ NO

Attach a copy of the Coastal Zone Determination if it has not been previously submitted

If a Coastal Zone Permit is required complete the rest of Question 29. If not, proceed to Question 30.

29.2. Has a Coastal Zone Permit Been Issued? ☐ YES ☐ NO

Attach a copy of the Coastal Zone Permit if it has not been previously submitted

Local Zoning Information

30. Parcel Zoning: Commercial/Manufacturing

Attach Proof of Local Zoning if it has not been previously submitted

Application Information

31. Is the Appropriate Application Fee Attached? ☒ YES ☐ NO

32. Is the Advertising Fee Attached? ☒ YES ☐ NO

For help determining your application and advertising fees see:

<http://www.dnrec.state.de.us/DNREC2000/Library/Fees/DE%20Permit%20Fees.htm>

Attach the appropriate fees. Note that your Application will not be considered complete if the appropriate fees are not included.

33. Is a Cover Letter Describing the Process Attached? ☒ YES ☐ NO

Attach a brief cover letter describing your Application.

If the Facility is a New Facility complete Question 34. If not, proceed to Question 35.

34. Is a Copy of the Applicant Background Information Questionnaire on Record at the Department? ☐ YES ☐ NO

If NO, complete the rest of Question 34. If YES, process to Question 35.

34.1 Is a Copy of the Applicant Background Information Questionnaire Attached? ☐ YES ☐ NO



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Application Information

For a copy of the Applicant Background Information Questionnaire see
<http://www.dnrec.delaware.gov/services/Documents/Chapter79Form.pdf>

Attach a copy of the Applicant Background Information Questionnaire if applicable.

35. Check Which Application Forms are Attached:

- | | | | | | | |
|---|----------------------------------|-----------------------------------|-----------------------------------|---|---|--------------------------------|
| <input checked="" type="checkbox"/> AQM-1 | <input type="checkbox"/> AQM-3.4 | <input type="checkbox"/> AQM-3.9 | <input type="checkbox"/> AQM-3.14 | <input checked="" type="checkbox"/> AQM-4.4 | <input type="checkbox"/> AQM-4.9 | <input type="checkbox"/> AQM-6 |
| <input checked="" type="checkbox"/> AQM-2 | <input type="checkbox"/> AQM-3.5 | <input type="checkbox"/> AQM-3.10 | <input type="checkbox"/> AQM-3.15 | <input type="checkbox"/> AQM-4.5 | <input type="checkbox"/> AQM-4.10 | |
| <input checked="" type="checkbox"/> AQM-3.1 | <input type="checkbox"/> AQM-3.6 | <input type="checkbox"/> AQM-3.11 | <input type="checkbox"/> AQM-4.1 | <input type="checkbox"/> AQM-4.6 | <input type="checkbox"/> AQM-4.11 | |
| <input type="checkbox"/> AQM-3.2 | <input type="checkbox"/> AQM-3.7 | <input type="checkbox"/> AQM-3.12 | <input type="checkbox"/> AQM-4.2 | <input type="checkbox"/> AQM-4.7 | <input type="checkbox"/> AQM-4.12 | |
| <input type="checkbox"/> AQM-3.3 | <input type="checkbox"/> AQM-3.8 | <input type="checkbox"/> AQM-3.13 | <input type="checkbox"/> AQM-4.3 | <input type="checkbox"/> AQM-4.8 | <input checked="" type="checkbox"/> AQM-5 | |

36. Check Which Documents are Attached:

- | | |
|---|---|
| <input type="checkbox"/> Coastal Zone Determination | <input checked="" type="checkbox"/> Claim of Confidentiality |
| <input type="checkbox"/> Coastal Zone Permit | <input checked="" type="checkbox"/> Manufacturer Specification(s) |
| <input type="checkbox"/> Proof of Local Zoning | <input type="checkbox"/> Material Safety Data Sheets (MSDSs) |
| <input checked="" type="checkbox"/> Application Fee | <input checked="" type="checkbox"/> Supporting Calculations |
| <input checked="" type="checkbox"/> Advertising Fee | <input checked="" type="checkbox"/> Descriptive Cover Letter |
| <input type="checkbox"/> Applicant Background Information Questionnaire | <input checked="" type="checkbox"/> Other (Specify): Emissions Master Modeling |

Confidentiality Information

37. Do You Consider Any of the Information
Submitted With this Application Confidential? ☒ YES ☐ NO

For help on how to submit a confidentiality claim see

<http://regulations.delaware.gov/register/december2011/final/15%20DE%20Reg%20864%2012-01-11.htm>

If a Claim of Confidentiality is made it MUST meet the requirements of Section 6 of DNREC's Freedom of Information ("FOIA") Regulation at the time the Application is submitted.

Signature Block

I, the undersigned, hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all of its attachments as to the truth, accuracy, and completeness of this information. I certify based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete. By signing this form, I certify that I have not changed, altered, or deleted any portions of this application. I acknowledge that I cannot commence construction, alteration, modification or initiate operation until I receive written approval (i.e. permit, registration, or exemption letter) from the Department. I acknowledge that I may be required to perform testing of the equipment to receive construction or operation approval, and that if I do not receive approval to construct or operate that I may appeal the decision.

Lucas Zinsten
Owner or Operator

2/24/2020
Date

[Signature]
Signature of Owner or Operator

One Original and One Copy of All Application Forms Should Be Mailed To:



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Division of Air Quality
Blue Hen Corporate Center
655 S. Bay Road, Suite 5 N
Dover, Delaware 19901

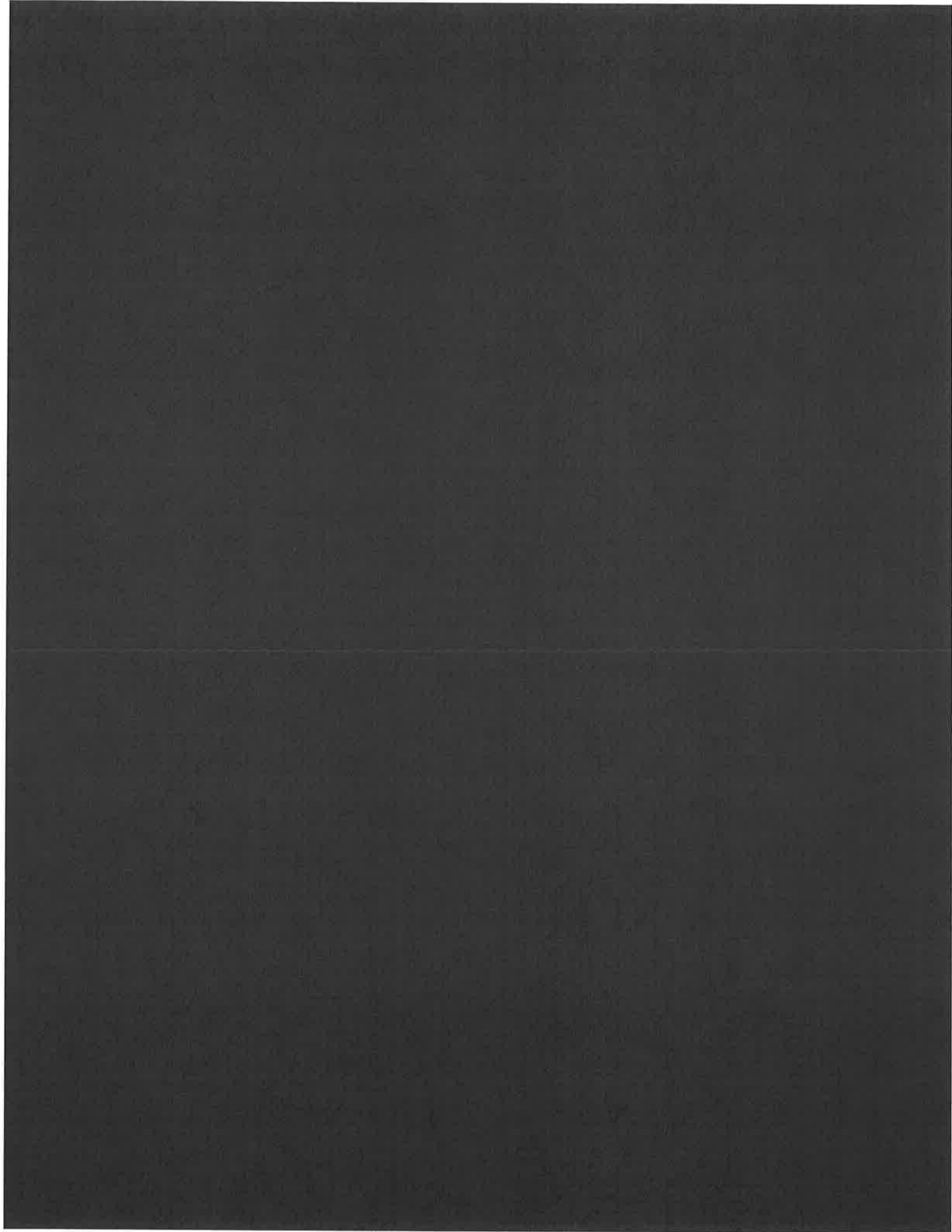
All Checks Should Be Made Payable To:
State of Delaware

DNREC – Air Quality Management Section
Application to Construct, Operate, or Modify
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Process Flow Diagram

Sketch the Process Flow Diagram for the equipment or process being applied for. Include each emission unit and control device (even existing emission units that will not be modified by this application). You may identify each emission unit with a simple shape. Label each emission unit and control device with a unique identifier. Show the relationship between each emission unit and/or control device by drawing arrows between them to indicate the flow of air pollutants. List which application forms are included for each emission unit or control device below the shape representing each emission unit or control device. See <http://www.delaware.gov/reg2/default.htm> for example Process Flow Diagrams for common processes. If you already have a Process Flow Diagram for the equipment or process being applied for, you may attach it to the application instead of using this form.





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Form AQM-3.1
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Generic Process Equipment Application

If you are using this form electronically, press F1 at any time for help

General Information

1. Facility Name: Noramco, Inc.
2. Equipment ID Number: Existing Equipment ID Numbers are [REDACTED]. New equipment ID [REDACTED] will be used for [REDACTED] for multiple products in the future.
3. Provide a brief description of Equipment or Process: [REDACTED] will be used for [REDACTED]. The associated [REDACTED] will be used for [REDACTED]. [REDACTED] will be used to [REDACTED].
4. Manufacturer: [REDACTED]
5. Model: [REDACTED]
6. Serial Number: New Equipment - Serial number will be documented during inspection

Raw Material Information

7. Raw Materials Used in Process

If there are more than four Raw Materials used, attach additional copies of this page as needed.

<u>Raw Material Used</u>	<u>CAS Number</u>	<u>Usage Rate (include units)</u>	<u>MSDS Attached?</u>
7.1. [REDACTED]	[REDACTED]	[REDACTED]	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
7.2. [REDACTED]	[REDACTED]	[REDACTED]	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
7.3. [REDACTED]	[REDACTED]	[REDACTED]	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
7.4. [REDACTED]	[REDACTED]	[REDACTED]	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Attach a copy of all calculations made to support the data in the table above.
Attach a Material Safety Data Sheet (MSDS) for each Raw Material used.

Products Produced Information

8. Products Produced

If there are more than four Products Produced, attach additional copies of this page as needed.

<u>Product Produced</u>	<u>CAS Number</u>	<u>Production Rate (include units)</u>	<u>MSDS Attached?</u>
8.1. [REDACTED]	[REDACTED]	[REDACTED]	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
8.2. [REDACTED]	[REDACTED]	[REDACTED]	<input type="checkbox"/> YES <input type="checkbox"/> NO
8.3. [REDACTED]	[REDACTED]	[REDACTED]	<input type="checkbox"/> YES <input type="checkbox"/> NO
8.4. [REDACTED]	[REDACTED]	[REDACTED]	<input type="checkbox"/> YES <input type="checkbox"/> NO

Attach a copy of all calculations made to support the data in the table above.
Attach a Material Safety Data Sheet (MSDS) for each Product Produced.



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Generic Process Equipment Application

If you are using this form electronically, press F1 at any time for help

General Information	
1.	Facility Name: Noramco, Inc.
2.	Equipment ID Number: Existing Equipment ID Numbers are [REDACTED]. [REDACTED] will be used for [REDACTED] for multiple products in the future.
3.	Provide a brief description of Equipment or Process: [REDACTED] will be used for [REDACTED]. The associated [REDACTED] will be used for [REDACTED].
4.	Manufacturer: [REDACTED]
5.	Model: [REDACTED]
6.	Serial Number: New Equipment - Serial number will be documented during inspection

Raw Material Information			
7. Raw Materials Used in Process			
If there are more than four Raw Materials used, attach additional copies of this page as needed.			
Raw Material Used	CAS Number	Usage Rate (include units)	MSDS Attached?
7.1. [REDACTED]	[REDACTED]	[REDACTED] lb/batch	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
7.2. [REDACTED]	[REDACTED]	[REDACTED] lb/batch	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
7.3. [REDACTED]	[REDACTED]	[REDACTED] lb/batch	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
7.4. [REDACTED]	[REDACTED]	[REDACTED] lb/batch	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Attach a copy of all calculations made to support the data in the table above. Attach a Material Safety Data Sheet (MSDS) for each Raw Material used.			

Products Produced Information			
8. Products Produced			
If there are more than four Products Produced, attach additional copies of this page as needed.			
Product Produced	CAS Number	Production Rate (include units)	MSDS Attached?
8.1. [REDACTED]	[REDACTED]	[REDACTED] lb/batch	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
8.2.			<input type="checkbox"/> YES <input type="checkbox"/> NO
8.3.			<input type="checkbox"/> YES <input type="checkbox"/> NO
8.4.			<input type="checkbox"/> YES <input type="checkbox"/> NO
Attach a copy of all calculations made to support the data in the table above. Attach a Material Safety Data Sheet (MSDS) for each Product Produced.			



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Byproducts Generated Information

9. Byproducts Generated

If there are more than four Byproducts Generated, attach additional copies of this page as needed.

	<u>Byproduct Generated</u>	<u>CAS Number</u>	<u>Generation Rate</u> (include units)	<u>MSDS Attached?</u>
9.1.				<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
9.2.				<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
9.3.				<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
9.4.				<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Attach a copy of all calculations made to support the data in the table above.
Attach a Material Safety Data Sheet (MSDS) for each Byproduct Generated.

General Information

10. Manufacturer's Rated Capacity or Maximum Throughput of Equipment or Process:

11. Describe Important Manufacturer Specifications and/or Operating Parameters for Equipment or Process: 5HP, 230/460 volt, 60 Hz, 3 phase, NEMA, 3600 RPM, Class 1, Division 1. 80 ACFM nominal pumping speed, .0075 Torr continuous ultimate pressure.

Attach the Manufacturer's Specification Sheet(s) for the equipment or process.

Control Device Information

12. Is an Air Pollution Control Device Used? ☒ YES ☐ NO

If an Air Pollution Control Device is used, complete the rest of Question 12. If not, proceed to Question 13.

12.1. Is Knockout Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.11 and attach it to this application.

12.2. Is a Settling Chamber Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.10 and attach it to this application.

12.3. Is an Inertial or Cyclone Collector Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.5 and attach it to this application.

12.4. Is a Fabric Collector or Baghouse Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.6 and attach it to this application.

12.5. Is a Venturi Scrubber Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.8 and attach it to this application.



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Control Device Information

12.6. Is an Electrostatic Precipitator Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.7 and attach it to this application.

12.7. Is Adsorption Equipment Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.2 and attach it to this application.

12.8. Is a Scrubber Used? ☒ YES ☐ NO

If YES, complete Form AQM-4.4 and attach it to this application.

12.9. Is a Thermal Oxidizer or Afterburner Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.1 and attach it to this application.

12.10. Is a Flare Used? ☐ YES ☒ NO

If YES, complete Form AQM-4.3 and attach it to this application.

12.11. Is Any Other Control Device Used? ☐ YES ☒ NO

If YES, attach a copy of the control device Manufacturer's Specification Sheet(s).

If any other control device is used, complete the rest of Question 12. If not, proceed to Question 13.

12.12. Describe Control Device: Reactors R-001 and R-002 are equipped with vent condensers R-001 and E-002, respectively. These condensers lead to a wet scrubber (pH=11) that serves as a secondary control for solvent vapors and a primary control for acid vapors.

12.13. Pollutants Controlled: ☒ VOCs ☒ HAPs ☐ PM ☐ PM₁₀ ☐ PM_{2.5} ☐ NO_x ☐ SO_x ☐ Metals
☐ Other (Specify):

12.14. Control Device Manufacturer: **See AQM 4.4**

12.15. Control Device Model: **See AQM 4.4**

12.16. Control Device Serial Number: **See AQM 4.4**

12.17. Control Device Design Capacity: **See AQM 4.4**

12.18. Control Device Removal or Destruction Efficiency: Dictated by the desired condenser outlet temperature and contaminant VP. The scrubber removes 98% of acid vapors.

Stack Information

13. How Does the Process Equipment Vent:
(check all that apply)
☐ Directly to the Atmosphere
☒ Through a Control Device Covered by Forms AQM-4.1 through 4.12
☐ Through Another Control Device Described on This Form

If any of the process equipment vents directly to the atmosphere or through another control device described on this form, proceed to Question 14. If the process equipment vents through a control device, provide the stack parameters on the control device form and proceed to Question 18.

14. Number of Air Contaminant Emission Points: 1

If there are more than three Emission Points, attach additional copies of this page as needed.

For the first Emission Point

15. Emission Point Name: XXXXXXXXXX



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<u>Stack Information</u>	
15.1. Stack Height Above Grade:	69 feet
15.2. Stack Exit Diameter:	1.33 feet <i>(Provide Stack Dimensions If Rectangular Stack)</i>
15.3. Is a Stack Cap Present?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
15.4. Stack Configuration:	<input checked="" type="checkbox"/> Vertical <input type="checkbox"/> Horizontal <input type="checkbox"/> Downward-Venting <i>(check all that apply)</i> <input type="checkbox"/> Other (Specify):
15.5. Stack Exit Gas Temperature:	293 °K
15.6. Stack Exit Gas Flow Rate:	5000 ACFM
15.7. Distance to Nearest Property Line:	118 feet
15.8. Describe Nearest Obstruction:	
15.9. Height of Nearest Obstruction:	feet
15.10. Distance to Nearest Obstruction:	feet
15.11. Are Stack Sampling Ports Provided?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>For the second Emission Point. If there is no second Emission Point, proceed to Question 18.</i>	
16. Emission Point Name:	
16.1. Stack Height Above Grade:	feet
16.2. Stack Exit Diameter:	feet <i>(Provide Stack Dimensions If Rectangular Stack)</i>
16.3. Is a Stack Cap Present?	<input type="checkbox"/> YES <input type="checkbox"/> NO
16.4. Stack Configuration:	<input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal <input type="checkbox"/> Downward-Venting <i>(check all that apply)</i> <input type="checkbox"/> Other (Specify):
16.5. Stack Exit Gas Temperature:	°F
16.6. Stack Exit Gas Flow Rate:	ACFM
16.7. Distance to Nearest Property Line:	feet
16.8. Describe Nearest Obstruction:	
16.9. Height of Nearest Obstruction:	feet
16.10. Distance to Nearest Obstruction:	feet
16.11. Are Stack Sampling Ports Provided?	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>For the third Emission Point. If there is no third Emission Point, proceed to Question 18.</i>	
17. Emission Point Name:	
17.1. Stack Height Above Grade:	feet
17.2. Stack Exit Diameter:	feet <i>(Provide Stack Dimensions If Rectangular Stack)</i>
17.3. Is a Stack Cap Present?	<input type="checkbox"/> YES <input type="checkbox"/> NO
17.4. Stack Configuration:	<input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal <input type="checkbox"/> Downward-Venting <i>(check all that apply)</i> <input type="checkbox"/> Other (Specify):
17.5. Stack Exit Gas Temperature:	°F
17.6. Stack Exit Gas Flow Rate:	ACFM



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Stack Information

- 17.7. Distance to Nearest Property Line: feet
- 17.8. Describe Nearest Obstruction:
- 17.9. Height of Nearest Obstruction: feet
- 17.10. Distance to Nearest Obstruction: feet
- 17.11. Are Stack Sampling Ports Provided? ☐ YES ☐ NO

Monitoring Information

18. Will Emissions Data be Recorded by a Continuous Emission Monitoring System? ☐ YES ☒ NO
- If Yes, attach a copy of the Continuous Emission Monitoring System Manufacturer's Specification Sheets*
- If YES, complete the rest of Question 18. If NO, proceed to Question 19.*
- 18.1. Pollutants Monitored: ☐ VOCs ☐ HAPs ☐ PM ☐ PM₁₀ ☐ PM_{2.5} ☐ NO_x ☐ SO_x ☐ Metals
☐ Other (Specify):
- 18.2. Describe the Continuous Emission Monitoring System:
- 18.3. Manufacturer:
- 18.4. Model:
- 18.5. Serial Number:
- 18.6. Will Multiple Emission Units Be Monitored at the Same Point? ☐ YES ☐ NO
- If YES, complete the rest of Question 18. If NO, proceed to Question 19.*
- 18.7. Emission Units Monitored:
- 18.8. Will More Than One Emission Unit be Emitting From the Combined Point At Any Time? ☐ YES ☐ NO
- If YES, complete the rest of Question 18. If NO, proceed to Question 19.*
- 18.9. Emission Units Emitting Simultaneously:

Voluntary Emission Limitation Request Information

19. Are You Requesting Any Voluntary Emission Limitations to Avoid Major Source Status, Minor New Source Review, MACT, NSPS, etc.? ☐ YES ☒ NO
- If YES, complete the rest of Question 19. If NO, proceed to Question 20.*
- 19.1. Describe Any Requested Emission Limitations:



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Voluntary Operating Limitation Request Information

20. Are You Requesting Any Voluntary Operating Limitations to Avoid Major Source Status, Minor New Source Review, MACT, NSPS, etc.? ☐ YES ☒ NO

If YES, complete the rest of Question 20. If NO, proceed to Question 21.

- 20.1. Describe Any Requested Operating Limitations:

Additional Information

21. Is There Any Additional Information Pertinent to this Application? ☒ YES ☐ NO

If YES, complete the rest of Question 21.

- 21.1. Describe: Noramco is requesting an increase in the currently permitted hourly and 12-month emission limits for dimethyl carbonate and isopropyl acetate. [REDACTED], the result of which would generate a maximum rate of dimethyl carbonate emissions of 0.21458 lbs/hr and isopropyl acetate emissions of 1.35130 lbs/hr.



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Scrubber Application

(See Form AQM-4.8 for Venturi Scrubbers)

If you are using this form electronically, press F1 at any time for help

General Information

1. Facility Name: **Noramco, Inc.**

2. Equipment ID Number: [REDACTED]

3. Manufacturer: [REDACTED]

4. Model: [REDACTED]

5. Serial Number: [REDACTED]

Attach the Manufacturer's Specification Sheet for the scrubber and any Removal Efficiency calculations.

Contaminant Information

6. Concentration of Each Contaminant in the Waste Gas, Vapor Pressure, Solubility in the Scrubbing Liquor, and Removal Efficiency

If more than five Contaminants are present, attach additional copies of this page as needed.

<u>Contaminant</u>	<u>CAS Number</u>	<u>Concentration in Waste Gas</u>	<u>Vapor Pressure</u>	<u>Solubility in Scrubbing Liquor</u>	<u>Removal Efficiency</u>
6.1.		% by Weight	atm at °F	<input type="checkbox"/> Insoluble <input type="checkbox"/> Slightly Soluble <input type="checkbox"/> Highly Soluble <input type="checkbox"/> Miscible <input type="checkbox"/> Not Applicable	%
6.2.		% by Weight	atm at °F	<input type="checkbox"/> Insoluble <input type="checkbox"/> Slightly Soluble <input type="checkbox"/> Highly Soluble <input type="checkbox"/> Miscible <input type="checkbox"/> Not Applicable	%
6.3.		% by Weight	atm at °F	<input type="checkbox"/> Insoluble <input type="checkbox"/> Slightly Soluble <input type="checkbox"/> Highly Soluble <input type="checkbox"/> Miscible <input type="checkbox"/> Not Applicable	%
6.4.		% by Weight	atm at °F	<input type="checkbox"/> Insoluble <input type="checkbox"/> Slightly Soluble <input type="checkbox"/> Highly Soluble <input type="checkbox"/> Miscible <input type="checkbox"/> Not Applicable	%
6.5.		% by Weight	atm at °F	<input type="checkbox"/> Insoluble <input type="checkbox"/> Slightly Soluble <input type="checkbox"/> Highly Soluble <input type="checkbox"/> Miscible <input type="checkbox"/> Not Applicable	%



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Gas Stream Information

7. Maximum Inlet Volumetric Gas Flow Rate: 2664 acfm at 293 °K
8. Maximum Outlet Volumetric Gas Flow Rate: 5000 acfm at 293 °K
9. Pressure Drop Across Scrubber: <5 inches water

Scrubbing Liquor Information

10. Scrubbing Liquor Components

If more than five Components are present, attach additional copies of this page as needed.

<u>Scrubbing Liquor Component</u>	<u>CAS Number</u>	<u>Concentration</u>
10.1. Sodium Hydroxide	1310-73-2	18 % by Weight
10.2.		% by Weight
10.3.		% by Weight
10.4.		% by Weight
10.5.		% by Weight

11. Scrubbing Liquor Flow Rate: 75 gallons/minute

12. pH Operating Range: >11

13. Is the Scrubbing Liquor Recirculated? ☒ YES ☐ NO

14. Is There More Than One Operating Scenario for the Scrubber? ☐ YES ☒ NO

If YES, Complete the rest of Question 14. If NO, proceed to Question 15.

14.1. Alternate Operating Scenario Scrubbing Liquor Flow Rate: gallons/minute

14.2. Alternate Operating Scenario pH Operating Range:

14.3. Is the Scrubbing Liquor Recirculated in the Alternate Operating Scenario? ☐ YES ☐ NO

15. Describe How Spent Scrubbing Liquor is Treated or Disposed Of:

Operational Information

16. Scrubber Type: ☐ Spray Tower ☐ Ionizing ☐ Fluidized Bed Scrubber
☒ Packed Bed ☐ Tray Tower ☐ Other (Specify):

17. Scrubber Height: 10.33 feet

18. Scrubber Inside Diameter: 4 feet

19. Does the Scrubber Use Packing? ☒ YES ☐ NO



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Operational Information

If YES, complete the rest of Question 19. If NO, proceed to Question 20.

- 19.1. Packing Type: ☐ Berl Saddle ☐ Pall Ring
☐ Intalox Saddle ☐ Tellerette
☐ Raschig Ring ☐ Marbles
☐ Lessig Ring ☒ Other (Specify): Heilex 300 (saddles)

19.2. Packing Size: **3 inch**

19.3. Packing Material: **Polypropylene**

19.4. Height of Packing: **5.5 feet**

20. Does the Scrubber Use Trays, Plates, or Baffles? ☐ YES ☒ NO

If YES, complete the rest of Question 20. If NO, proceed to Question 21.

20.1. Type of Impactor/Impingement: ☐ Trays ☐ Baffles
☐ Plates ☐ Other (Specify):

20.2. Type of Perforation: ☐ Holes ☐ Adjustable Trays
☐ Bubble Caps ☐ Other (Specify):
☐ Movable Discs

20.3. Spacing Between Trays, Plates, or Baffles: **inches**

21. Configuration: ☒ Counter-Current
☐ Co-Current
☐ Other (Specify):

22. Will a Mist Eliminator Be Installed? ☒ YES ☐ NO

If YES, complete the rest of Question 22. If NO, proceed to Question 23.

22.1. Describe the Mist Eliminator: **Polypropylene Ø50" x 4"**

Stack Information

23. Emission Point Name: **[REDACTED]**

23.1. Stack Height Above Grade: **[REDACTED]**

23.2. Stack Exit Diameter: **1.33 feet**
(Provide Stack Dimensions If Rectangular Stack)

23.3. Is a Stack Cap Present? ☐ YES ☒ NO



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Stack Information

23.4. Stack Configuration: ☒ Vertical ☐ Horizontal ☐ Downward-Venting
(check all that apply) ☐ Other (Specify):

23.5. Stack Exit Gas Temperature: 293 °K

23.6. Stack Exit Gas Flow Rate: 5000 ACFM

23.7. Distance to Nearest Property Line: 118 feet

23.8. Describe Nearest Obstruction: [REDACTED]

23.9. Height of Nearest Obstruction: 50 feet

23.10. Distance to Nearest Obstruction: 31 feet

23.11. Are Stack Sampling Ports Provided? ☐ YES ☐ NO

Monitoring and Alarm Information

24. Are There Any Alarms You Would Like the Department to Consider When Drafting the Permit? ☐ YES ☒ NO

If YES, complete the rest of Question 24. If NO, proceed to Question 25.

24.1. Describe the System Alarm(s):

If there are more than five alarms, attach additional copies of this page as needed.

	Operating Parameter Monitored	Describe Alarm Trigger	Monitoring Device or Alarm Type	Does the Alarm Initiate an Automated Response?
24.1.1.			<input type="checkbox"/> Visual <input type="checkbox"/> Auditory <input type="checkbox"/> Automatic (Remote Monitoring) <input type="checkbox"/> Other	<input type="checkbox"/> NO <input type="checkbox"/> YES Describe:
24.1.2.			<input type="checkbox"/> Visual <input type="checkbox"/> Auditory <input type="checkbox"/> Automatic (Remote Monitoring) <input type="checkbox"/> Other	<input type="checkbox"/> NO <input type="checkbox"/> YES Describe:
24.1.3.			<input type="checkbox"/> Visual <input type="checkbox"/> Auditory <input type="checkbox"/> Automatic (Remote Monitoring) <input type="checkbox"/> Other	<input type="checkbox"/> NO <input type="checkbox"/> YES Describe:
24.1.4.			<input type="checkbox"/> Visual <input type="checkbox"/> Auditory <input type="checkbox"/> Automatic (Remote Monitoring) <input type="checkbox"/> Other	<input type="checkbox"/> NO <input type="checkbox"/> YES Describe:



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Monitoring and Alarm Information

24.1.5.

- ☐ Visual
☐ Auditory
☐ Automatic
(Remote Monitoring)
☐ Other

☐ NO

☐ YES

Describe:

Additional Information

25. Is There Any Additional Information Pertinent to this Application? ☐ YES ☒ NO

If YES, complete the rest of Question 25.

25.1. Describe:

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Emissions Information Application

If you are using this form electronically, press F1 at any time for help

Process Information	
1.	Number of Individual Pieces of Process Equipment in Process: <input type="text"/>
2.	Number of Individual Control Devices in Process: <input type="text"/>

Emissions Information for First Emission Point/Stack					
3. Emission Point Name: MPH Process in Plant 5					
4. Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack: R-001, R-002, V-001, V-002, Q-505, VP103-001E					
5. Pollutant Emissions					
If more than 15 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.					
Pollutant Name (Specify VOCs and HAPs Individually in 5.10 through 5.18)	CAS Number (Not required for 5.1 through 5.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
5.1. Particulate Matter (PM)		lbs/hour	lbs/hour	tons/year	tons/year
5.2. PM ₁₀		lbs/hour	lbs/hour	tons/year	tons/year
5.3. PM _{2.5}		lbs/hour	lbs/hour	tons/year	tons/year
5.4. Sulfur Oxides (SO _x)		lbs/hour	lbs/hour	tons/year	tons/year
5.5. Nitrogen Oxides (NO _x)		lbs/hour	lbs/hour	tons/year	tons/year
5.6. Carbon Monoxide (CO)		lbs/hour	lbs/hour	tons/year	tons/year
5.7. Total Volatile Organic Compounds (VOCs)		149.36 lbs/hour	2.8 lbs/hour	25.55 tons/year	12.99 tons/year
5.8. Total Hazardous Air		42.8 lbs/hour	0.12 lbs/hour	14.75 tons/year	7.5 tons/year

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<u>Emissions Information for First Emission Point/Stack</u>					
Pollutants (HAPs)					
5.9. CO ₂		24.96 lbs/hour	24.96 lbs/hour	24.8 tons/year	12.7 tons/year
5.10. CO _{2a}		lbs/hour	lbs/hour	tons/year	tons/year
5.11. [REDACTED]		lbs/hour	lbs/hour	7.8 tons/year	4.0 tons/year
5.12. [REDACTED]		lbs/hour	lbs/hour	0.31 tons/year	0.17 tons/year
5.13. [REDACTED]		lbs/hour	lbs/hour	1.52 tons/year	0.78 tons/year
5.14. [REDACTED]		lbs/hour	lbs/hour	1.81 tons/year	0.93 tons/year
5.15. [REDACTED]		lbs/hour	lbs/hour	14.43 tons/year	7.4 tons/year
6. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above: In accordance with EPA guidance for batch processes the maximum hourly rates were determined as estimated batch values. The requested annual limit was based on [REDACTED] batches per year.					
Attach the Basis of Determination or Calculations for each Emission Rate provided above.					

<u>Emissions Information for Second Emission Point/Stack</u>					
7. Emission Point Name:					
8. Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack:					
9. Pollutant Emissions					
If more than 15 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.					
Pollutant Name (Specify VOCs and HAPs Individually in 9.10 through 9.18)	CAS Number (Not required for 9.1 through 9.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
9.1. Particulate Matter (PM)		lbs/hour	lbs/hour	tons/year	tons/year
9.2. PM ₁₀		lbs/hour	lbs/hour	tons/year	tons/year

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Emissions Information for Second Emission Point/Stack					
		lbs/hour	lbs/hour	tons/year	tons/year
9.3.	PM _{2.5}				tons/year
9.4.	Sulfur Oxides (SO _x)				tons/year
9.5.	Nitrogen Oxides (NO _x)				tons/year
9.6.	Carbon Monoxide (CO)				tons/year
9.7.	Total Volatile Organic Compounds (VOCs)				tons/year
9.8.	Total Hazardous Air Pollutants (HAPs)				tons/year
9.9.	CO ₂				tons/year
9.10.	CO _{2e}				tons/year
9.11.					tons/year
9.12.					tons/year
9.13.					tons/year
9.14.					tons/year
9.15.					tons/year
10. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above:					
Attach the Basis of Determination or Calculations for each Emission Rate provided above.					

Emissions Information for Third Emission Point/Stack	
11.	Emission Point Name:
12.	Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack:
13.	Pollutant Emissions

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Emissions Information for Third Emission Point/Stack

If more than 15 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.

Pollutant Name (Specify VOCs and HAPs Individually in 13.10 through 13.18)	CAS Number (Not required for 13.1 through 13.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
13.1. Particulate Matter (PM)		lbs/hour	lbs/hour	tons/year	tons/year
13.2. PM ₁₀		lbs/hour	lbs/hour	tons/year	tons/year
13.3. PM _{2.5}		lbs/hour	lbs/hour	tons/year	tons/year
13.4. Sulfur Oxides (SO _x)		lbs/hour	lbs/hour	tons/year	tons/year
13.5. Nitrogen Oxides (NO _x)		lbs/hour	lbs/hour	tons/year	tons/year
13.6. Carbon Monoxide (CO)		lbs/hour	lbs/hour	tons/year	tons/year
13.7. Total Volatile Organic Compounds (VOCs)		lbs/hour	lbs/hour	tons/year	tons/year
13.8. Total Hazardous Air Pollutants (HAPs)		lbs/hour	lbs/hour	tons/year	tons/year
13.9. CO ₂		lbs/hour	lbs/hour	tons/year	tons/year
13.10. CO _{2e}		lbs/hour	lbs/hour	tons/year	tons/year
13.11.		lbs/hour	lbs/hour	tons/year	tons/year
13.12.		lbs/hour	lbs/hour	tons/year	tons/year
13.13.		lbs/hour	lbs/hour	tons/year	tons/year
13.14.		lbs/hour	lbs/hour	tons/year	tons/year
13.15.		lbs/hour	lbs/hour	tons/year	tons/year
14. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above:					

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Emissions Information for Third Emission Point/Stack
Attach the Basis of Determination or Calculations for each Emission Rate provided above.

Emissions Information for Fourth Emission Point/Stack					
15. Emission Point Name:					
16. Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack:					
17. Pollutant Emissions					
If more than 15 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.					
Pollutant Name (Specify VOCs and HAPs Individually in 17.10 through 17.18)	CAS Number (Not required for 17.1 through 17.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
17.1. Particulate Matter (PM)		lbs/hour	lbs/hour	tons/year	tons/year
17.2. PM ₁₀		lbs/hour	lbs/hour	tons/year	tons/year
17.3. PM _{2.5}		lbs/hour	lbs/hour	tons/year	tons/year
17.4. Sulfur Oxides (SO _x)		lbs/hour	lbs/hour	tons/year	tons/year
17.5. Nitrogen Oxides (NO _x)		lbs/hour	lbs/hour	tons/year	tons/year
17.6. Carbon Monoxide (CO)		lbs/hour	lbs/hour	tons/year	tons/year
17.7. Volatile Organic Compounds (VOCs)		lbs/hour	lbs/hour	tons/year	tons/year
17.8. Total Hazardous Air Pollutants (HAPs)		lbs/hour	lbs/hour	tons/year	tons/year
17.9. CO ₂		lbs/hour	lbs/hour	tons/year	tons/year
17.10. CO _{2e}		lbs/hour	lbs/hour	tons/year	tons/year
17.11.		lbs/hour	lbs/hour	tons/year	tons/year
17.12.		lbs/hour	lbs/hour	tons/year	tons/year

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<u>Emissions Information for Fourth Emission Point/Stack</u>				
17.13.		lbs/hour	lbs/hour	tons/year
17.14.		lbs/hour	lbs/hour	tons/year
17.15.		lbs/hour	lbs/hour	tons/year
18. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above:				
Attach the Basis of Determination or Calculations for each Emission Rate provided above.				
If there are more than four Emission Points/Stacks, attach additional copies of this form as needed.				

<u>Overall Process Emissions</u>					
19. Pollutant Emissions					
If more than 15 pollutants are emitted from this Process, attach additional copies of this page as needed.					
Pollutant Name (Specify VOCs and HAPs Individually in 19.10 through 19.18)	CAS Number (Not required for 19.1 through 19.10)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Requested Permitted Annual Emissions
19.1. Particulate Matter (PM)		lbs/hour	lbs/hour	tons/year	tons/year
19.2. PM ₁₀		lbs/hour	lbs/hour	tons/year	tons/year
19.3. PM _{2.5}		lbs/hour	lbs/hour	tons/year	tons/year
19.4. Sulfur Oxides (SO _x)		lbs/hour	lbs/hour	tons/year	tons/year
19.5. Nitrogen Oxides (NO _x)		lbs/hour	lbs/hour	tons/year	tons/year
19.6. Carbon Monoxide (CO)		lbs/hour	lbs/hour	tons/year	tons/year
19.7. Total Volatile Organic Compounds (VOCs)		149.36 lbs/hour	2.8 lbs/hour	25.55 tons/year	12.99 tons/year
19.8. Total Hazardous Air Pollutants (HAPs)		42.8 lbs/hour	0.12 lbs/hour	14.75 tons/year	7.5 tons/year

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Overall Process Emissions						
19.9.	CO ₂		24.96 lbs/hour	24.96 lbs/hour	24.8 tons/year	12.7 tons/year
19.10.	CO _{2e}		lbs/hour		tons/year	tons/year
19.12.			lbs/hour	lbs/hour	7.8 tons/year	4.0 tons/year
19.13.			lbs/hour	lbs/hour	0.31 tons/year	0.17 tons/year
19.14.			lbs/hour	lbs/hour	1.52 tons/year	0.78 tons/year
19.15.			lbs/hour	lbs/hour	1.81 tons/year	0.93 tons/year
					14.43 tons/year	7.4 tons/year
20. Provide Any Additional Information Necessary to Understanding the Emission Rates Provided Above: As noted above.						
Attach the Basis of Determination or Calculations for each Emission Rate provided above.						

Minor New Source Review Information	
21.	Does the Process Have the Potential to Emit More Than Five Tons Per Year of Any Pollutant? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
22.	Is the Source New or Existing? <input type="checkbox"/> NEW <input checked="" type="checkbox"/> EXISTING
If the Process has the Potential to Emit more than five tons per year of any pollutant, and is a New Source, a Control Technology Analysis pursuant to Regulation No. 1125 Section 4 must be conducted and attached to this application.	

Major New Source Review Information	
23.	Does the Process Have the Potential to Emit More Than the Significance Level for Any Pollutant? (Check All That Apply)

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- ☐ Greater Than 25 Tons Per Year of Particulate Matter (PM)
☐ Greater Than 15 Tons Per Year of PM₁₀
☐ Greater Than 10 Tons Per Year of PM_{2.5}
☐ Greater Than 40 Tons Per Year of Sulfur Dioxide(SO₂)
☐ Greater Than 25 Tons Per Year of Nitrogen Oxides (NO_x) in New Castle and Kent County
☐ Greater Than 100 Tons Per Year of Nitrogen Oxides (NO_x) in Sussex County
☐ Greater Than 100 Tons Per Year of Carbon Monoxide (CO)
☐ Greater Than 25 Tons Per Year of Total Volatile Organic Compounds (VOCs) in New Castle and Kent County
☐ Greater Than 50 Tons Per Year of Total Volatile Organic Compounds (VOCs) in Sussex County
☐ Greater Than 75,000 Tons Per Year of Equivalent Carbon Dioxide (CO_{2e})

If the Process has the Potential to Emit greater than any of the amounts listed above 7 DE Admin. Code 1125 Sections 2 and/or 3 apply. Contact the Department at (302) 323-4542 or (302) 739-9402 for additional information

Additional Information

24. Is There Any Additional Information Pertinent to this Application? ☒ YES ☐ NO

If YES, complete the rest of Question 24.

24.1. Describe: **Site plan with new location noted.**

NORAMCO

ATTACHMENT 1:
Emission Master Modeling Results

1/24/2020

[illegible][illegible]

- (2) Compound Emission Average = Compound emission quantity / Compound emission time in hours.

NORAMCO

ATTACHMENT 2:

Manufacturer Specification for Vacuum
Pump [REDACTED]

COBRA NC 0100 - 0300 B

COBRA NC screw vacuum pumps are high-performance and robust vacuum pumps for process technology. They are used wherever gases and vapours need to be pumped reliably and without contamination. Due to the dry screw technology, the compression chamber is completely free from operating fluids. This design feature minimizes process contamination and maximizes uptime by reducing maintenance intervals compared to other technologies.

Reliable pumping speed

COBRA NC screw vacuum pumps are designed to achieve a high, stable pumping speed – even at normal working pressure range of 75 to less than 1 Torr.

Operationally reliable

The variable-pitch screw design and free gas discharge allow for a high degree of fluid and particle compatibility. Optimum corrosion resistance is ensured by even temperature distribution. The outstanding levels of efficiency reduce the thermal demand and increase the life cycle.

Application-oriented

COBRA NC screw vacuum pumps are available in a range of application-specific versions, and can therefore be finely adjusted to suit any requirement. There are also a variety of custom versions. Contact a knowledgeable Busch representative for more information.



Would you like to know more?

Contact us directly (Busch United States)
+1 757 463 7800

Technical Specifications

Technical specifications

The COBRA NC is a single-stage, rotary screw vacuum pump. Two screw rotors are rotating inside the cylinder. The pumping medium is trapped between the individual screw-shaped rotors, compressed and transported to the gas discharge. During the compression process, the two screw rotors do not come into contact with each other or with the cylinder. This means there is no need for lubrication or operating fluids in the compression chamber.

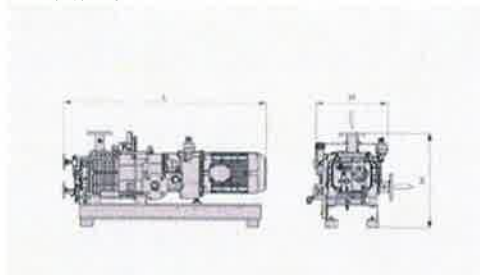
Water cooling options include both direct water cooling or radiator cooling with air-cooled heat exchangers. Due to a wide range of technical options and accessories, COBRA NC

screw vacuum pumps can be perfectly adjusted to suit every process. The complete COBRA NC series includes pumps with maximum pumping speeds ranging from 82 to 1471 ACFM.

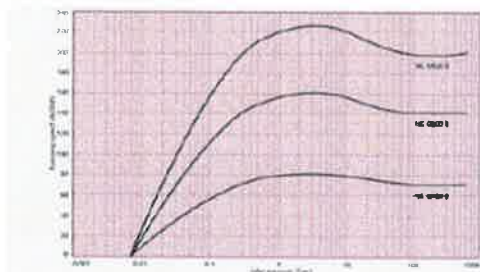
Accessories / Technical options

- Flush package
- Seal purge
- Gas ballast
- Knock out pots
- Variable speed drives

Dimensional Drawing
COBRA NC 0100-0300 B



Air at 70 °F. Tolerance ± 10% — 60 Hz



750 - 60 Hz	100 - 60 Hz
100 - 60 Hz	

Technical data	COBRA NC 0100 B	COBRA NC 0200 B	COBRA NC 0300 B
Pumping speed	82 ACFM	160 ACFM	225 ACFM
Ultimate pressure	0.0075 Torr	0.0075 Torr	0.0075 Torr
Internal motor rating	5 HP	10 HP	15 HP
Internal motor speed	1600 RPM	1600 RPM	1600 RPM

Technical data	COBRA NC 0100 B	COBRA NC 0200 B	COBRA NC 0300 B
Sound level (ISO 2151)	74 dBA	76 dBA	77 dBA
Approximate weight	730 Lbs	908 Lbs	1160 Lbs
Dimensions (L x W x H)	63 1/2 x 24 1/2 x 26 1/2 inches	60 7/8 x 26 x 26 1/2 inches	65 1/2 x 28 x 26 1/2 inches
Gas inlet / Gas outlet	1 1/2" / 1 1/2" NPT	2" / 2" NPT	2" / 2" NPT

Downloads

COBRA NC 0100 - 0300 B

- [Instruction Manual](#) eng bh (299.6 kB pdf-File)
- [Technical Manual](#) COBRA NC 0100 - 0300 B (watercooled version) english (11.0 MB pdf-File)

You did not find a suitable product?

DISCOVER OUR VACUUM SYSTEMS



NORAMCO

ATTACHMENT 3:

Air Contaminant Registration Form for Vacuum
Pump [REDACTED]

Delaware Dept. of Natural Resources and Environment Control Air Contaminant Equipment Registration Form

Registration No.

Purpose: To register equipment pursuant to Regulation No. 2, § 2.1(a) of Delaware's "Regulations Governing the Control of Air Pollution."

Directions: If self-registering, complete Parts 1-7. If not self-registering, complete Parts 1-4 and 6-7 and leave Parts 5 blank. For more information on completing this form see the *Air Contaminant Equipment Registration Instruction Booklet*.

For Department Use Only.

PART 2 EMISSION SOURCE DESCRIPTION Describe the source. Include physical location of the equipment, its purpose, and provide a model number, if applicable.

PART 1 SITE INFORMATION

NAME **Noramco, Inc.**

STREET ADDRESS **500 Swedes Landing Road**

CITY **Wilmington**

STATE **DE**

ZIP CODE **19801**

TELEPHONE NUMBER
(302) 888-4452 ext.

Is the source equipped with an air contaminant control device? Yes ☒ No ☐

Do any other source emit air contaminants to the same emission point as the same equipment to be registered? Yes ☒ No ☐

PART 3 EMISSION SOURCE INFORMATION Complete Section A, and either B, C, or D, as applicable (see *Instruction booklet* for source types and metric unit conversion table).

B. Point Source			C. Area Source			D. Volume Source		
1.	2.	3.	4.	1.	2.	3.	1.	2.
Distance to Nearest Property line, m	Stack Height, m	Stack Exit Inside Diameter, m	Stack Exit Flow Rate, ACFM or m ³ /s, Or Velocity m/s	Source Height, m	Length of Larger Side, m	Length of Smaller Side, m	Half of Source Height, m	Initial Lateral Dimension, m
36	21	0.4	5000					
			293					Initial Vertical Dimension, m

PART 4 AIR CONTAMINANT INFORMATION

(If more than air contaminants will be emitted, attach additional information to this form.)

PART 5 TOXICOLOGICAL DATA AND DIS-PERSON MODEL RESULTS Complete this section only if self-registering. Attach SCREEN model output.

B. Max. Daily Hours of Emissions from Equipment		C. Maximum Emission Rate (without control device)			A.	B.	C.	D.
Air Contaminant		1. lb/day	2. (Circle one) Point, g/s, Area g/s-m ² , or Volume, g/s	3. Basis (i.e., calculated, manufacturer's info, etc)	TLV (TWA), mg/m ³	MDC From SCREEN, µg/m ³	Adjusted MDC, mg/m ³ Block 5(B) x 0.0007	TLV: Adjusted MDC Block 5(A) / Block 5 (C)
Isopropyl Acetate								
TOTAL								


All footnotes are back of form

Be sure to read and sign back of form.

PART 6 CONDITIONS OF REGISTRATION . The registrant may commence construction/operation if the maximum aggregate air contaminant emission rate (Block 4(D)) is less than ten (10) pounds per day, each and every day, and if the TLV:Adjusted MDC (Block 5(D)) ratio for each air contaminant emitted is equal to or greater than 100. As an option, the registrant may submit to the Department all of the information required on this form except for the information required in Part 5 Toxicological Data and Dispersion Modeling Results, and may request that the Department identify the TLV (Block 5(A)) and determine the MDC (Block 5(B)) and the TLV:Adjusted MDC ratio (Block 5(D)). In such a case, the registrant shall not commence construction/operation until written approval is obtained from the Department.

PART 7 CERTIFICATION . The registrant shall be the person identified in Regulation No. 2, Section 3.1. A copy of this registration shall be maintained on the premises where the equipment is located and shall be made available to a representative of the Department upon request. The registrant shall notify the Department in writing prior to making any change that will change any of the information on this form. I certify that all of the information on this form is true, accurate, and complete. If at any time the emission rate exceeds ten (10) pounds per day, or if any parameter changes such that the TLV:Adjusted MDC ratio falls below 100, a violation of Regulation No. 2 of Delaware's " Regulations Governing the Control of Air Pollution " may have occurred, and all necessary permits must be secured for operation of said equipment.

REGISTRANT NAME (Please print or type)
Lucas Zornstein

REGISTRANT SIGNATURE  DATE 2/24/20

REGISTRANT MAILING ADDRESS (if different from site address in Part 1)
CITY

STATE ZIP CODE TELEPHONE NUMBER () - Ext.

TABLE 1 Input parameters for SCREEN air dispersion model.

PARAMETER	POINT SOURCE	AREA SOURCE	VOLUME SOURCE
GENERAL	Select Rural, Flat Terrain, Full Meteorology, and Automated Distance Array with Block 3(A), and 5000 as distance selection.		
EMISSION RATE	Maximum Rate without Control Device (Block 4(C)(2)) _e		
EMISSION RELEASE HEIGHT	Height to Top of Stack from Ground (Block 3(B)(1))	Height of Source Release from Ground (Block 3(D)(1))	Half of Source Release Height (Block 3(D)(1))
SOURCE DIMENSIONS	Stack Inside Diameter (Block 3(B)(2))	Length of Larger Side (Block 3(C)(2))	Initial Lateral = length of shorter side Dimension 4.3
	Select no downwash Effects (building height, width, and length are zero)	Length of Smaller Side Block 3(C)(3))	Initial Lateral = length of source Dimension 2.15 Block 3(D)(3))
EXIT FLOW RATE OR EXIT VELOCITY	Measured or Calculated Exit Velocity or Flow Rate (Block 3(B)(3))	NA	NA
EXIT GAS TEMPERATURE	Temperature of Emissions (Block 3(B)(4))	NA	NA
AMBIENT TEMPERATURE	293°K (67.7°F)	NA	NA
RECEPTOR FLAGPOLE HEIGHT	Zero		
a	Enter the distance from the equipment to the nearest property line (Block 3(A)).	d	Threshold Limit Value (TLV) expressed as a time-weighted average (TWA) as established by ACGIH or NIOSH, or other Department-approved human health exposure value.
b	Initial lateral and vertical dimensions defined in the above table.	e	Maximum Downwind Concentration (MDC) beyond the nearest property line as predicted by the SCREEN model.
c	Note that the maximum emission rate is to the atmosphere for uncontrolled sources and to the inlet of the control device for source with an air contaminant control device. Emission rates for area sources are obtained by dividing the emission rate by the area of the source.	f	If velocity is entered, type in numeric value. If flow rate is entered, type in "v/m" followed by the cfm numeric value, or type in "v/m" followed by the metric numeric value.

NORAMCO

ATTACHMENT 4:

Site Plan

NORAMCO

ATTACHMENT 5:
Claim of Confidentiality



500 Swedes Landing Road
Wilmington, DE 19801

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February 19, 2020

Secretary Shawn M. Garvin
DNREC Office of the Secretary
89 Kings Highway
Dover, DE 19901

**RE: Confidentiality Substantiation of Information Included in the Permit
Application for the Methylphenidate process**

Dear Secretary Garvin:

Pursuant to the Department's Freedom of Information Act Policy, 29 Del. C. Chapter 100, Noramco, Inc., at 500 Swedes Landing Road, Wilmington, DE 19801, is requesting that certain information disclosed in the permit application for the Methylphenidate process be entitled to confidential treatment.

- The following portions in the application should be entitled to confidential treatment:
 - Cover Letter – Process details
 - Form AQM-1, Question 12 and 28.2 – Process information/duration
 - Form AQM-2, Process flow diagram
 - Form AQM-3, Section 1-3 - Process details
 - Form AQM-3, Section 7 – Raw material information
 - Form AQM-3, Section 8 – Products produced information
 - Form AQM-3, Section 9 – Byproducts generated information
 - Form AQM-4, Equipment Information
 - Forms AQM-5, Section 3 – Emission Point Name
 - Forms AQM-5, Section 5 – Pollutant name
 - Forms AQM-5, Section 19 – Pollutant name
 - Attachment 1 – Emission Determination
 - Equipment Manufacture Specifications

Noramco has taken measures in order to protect undesired disclosure to others through the following:

- Employee Agreement (Noramco Policy)—A signed agreement of every employee at Noramco to ensure the secrecy of confidential information. Section 6 of the agreement states.



500 Swedes Landing Road
Wilmington, DE 19801

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"You acknowledge that CONFIDENTIAL INFORMATION is of great value to the COMPANY, that the COMPANY has legitimate business interests in protecting its CONFIDENTIAL INFORMATION, and that the disclosure to anyone not authorized to receive such information, including a COMPETITOR, will cause immediate irreparable injury to the COMPANY. Except as required by your duties for the COMPANY, you will not use, disclose, disseminate, lecture upon or publish any CONFIDENTIAL INFORMATION, either during your employment with the COMPANY or thereafter, unless you first obtain the written consent of the COMPANY."

- Consulting Agreement---A signed agreement between consultants rendering professional services to Noramco in the solution of agreed upon problems. Section 5(a) of this Agreement states in part:
"The Consultant further acknowledges that protection of the Company's Confidential Information against unauthorized disclosure and use is of critical importance to the Company in maintaining its competitive position. Accordingly, the Consultant will not, at any time during or after the Term of this Agreement, make any unauthorized disclosure of any Confidential Information of the Company, or make any use thereof, except solely for the benefit of, and on behalf of, the Company in the performance of the consulting services pursuant to this Agreement. The Consultant will safeguard the Confidential Information from unauthorized disclosure."
- Noramco Confidentiality Agreement—A document signed by the highest ranking officer in the company doing business with Noramco in agreement with the following:
 1. All information pertaining to the project shall be treated as highly confidential.
 2. No information pertaining to the project shall be revealed to any person or organization outside your company or Noramco, Inc., without the written consent of Noramco, Inc. No information pertaining to the project shall be revealed to anyone within your organization except such personnel as are absolutely necessary to its fulfillment.



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Wilmington, DE 19801

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3. Neither this project, nor the name NORAMCO, Inc. shall be identified in connection with the purchase from others of materials for the project without prior written approval from NORAMCO, Inc., nor shall any person outside your firm be employed to work in connection with the project without such consent.
- Upon completion of the project, all records, test results and reports will be returned to NORAMCO, Inc. with the final invoice.
 - Noramco discloses proprietary information and trade secrets to consultants with the written consent of the above measures. Any individual requesting proprietary information must justify the request and provide appropriate credentials (i.e. governmental agencies and customers) in order to view any "Business Confidential Information."
 - Information requested for confidential treatment discloses information on the methylphenidate process. The process flow diagram describes the new process and the associated raw materials. Noramco holds patents for the development of the process. It will constitute a substantial loss for Noramco, if the process information were revealed to Noramco's competitors.

Please do not hesitate to contact me if you have any questions regarding this request.

Sincerely,

Lucas Zumstein

Director, Manufacturing & Technical Operations

Noramco, Inc.
Enclosure:
Affidavit



500 Swedes Landing Road
Wilmington, DE 19801

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STATE OF DELAWARE

COUNTY OF NEW CASTLE

I, Lucas Zumstein, of full age, being duly sworn according to law, deposes and says:

1. I have been the Director of Manufacturing & Technical Operations at Noramco, Inc. in Wilmington, Delaware since February 7, 2020.
2. I certify that the Noramco process information contained in the cover letter, form AQM-1, the process flow diagram in form AQM-2, AQM-3, AQM-4, sections 3, 5, and 19 of form AQM-5, and the attached Emissions Determination constitute highly confidential and proprietary information of Noramco, Inc.
3. Both the identity of the raw materials which Noramco uses for the Methylphenidate process, and the details of the chemical process itself, were developed with an investment of very considerable time and expense and are trade secrets of Noramco, Inc. If these pieces of information were to fall into the hands of Noramco's competitors, it would constitute a very considerable loss of Noramco's investment, competitive position, and intellectual property, which it has attained by virtue of that investment.



Lucas Zumstein

Director, Manufacturing & Technical Operations

Noramco, Inc.

Sworn to and Subscribed

Before me this 24th day of February, 2020.