9/30/14

ORIGINAL

TOWN OF ORANGETOWN

USE SUBJECT TO PERFORMANCE STANDARDS

RESUME OF OPERATIONS AND EQUIPMENT

The following information is the minimum required in order that the Zoning Board of Appeals may make a determination regarding your proposed use of the land. **ATTACH ADDITIONAL SHEETS AS NEEDED!**

Applicants Name: Anellotech, Inc. (David Sudolsky, President & CEO) Phone: Contact Person: Marc Schneidkraut, P.E. Cell: [redacted]

Address: 401 N. Middletown Road, Building 170A, Pearl River, NY 10965

Owner's Name: Pfizer, Inc. (contact person: Robert Bracco) Phone: Office: 845-602-3260 Cell: [redacted]

Address: 401 N. Middletown Road, Pearl River, NY 10965

1. Address of proposed use: 401 N. Middletown Road, Building 123, Pearl River, NY 10965
2. Size of building: Existing: 3,850 SF / Addition: 2,254 SF / Total: 6,104 SF No. of stories: Existing: one story Type of Construction: Type IB
   Addition: one story with separate process skids with attached stairways
3. Name or designation of building: Building 123: Anellotech Research and Development Facility
4. Number of employees: 8 maximum number anticipated: 12
5. Operations: days of week: 7 days/week
   hours of operation: 24 hours/day
   NOTE: This is a Research and Development facility, not a Manufacturing facility. While operations may be as much as 24/7, there are likely to be down times.
6. Product to be manufactured or assembled and/or services to be performed. Submit descriptive literature or brochure of product.
   Addition will house a Research and Development facility to learn how to produce organic chemicals from sustainable and renewable biomass.
   **Attachment: Print-outs from Anellotech's website provide descriptive literature.*
7. Describe operations, manual or mechanical, to be performed on premises.
   Research and development operations may include: reaction, catalyst regeneration, product recovery, distillation, and laboratory analysis.
8. Production equipment. Describe type and number of machines, mechanical equipment and handling equipment to be used including blowers, fans, furnaces, pressure exhausts, pressure equipment, intakes,etc.
   **Attachment: See attached equipment list.*
9. What degree of noise or vibration will be produced by equipment and/or operations listed in No. 7 and No. 8?
   There will be minimal amounts of noise and vibration produced by the equipment and operations. Some of the equipment will be located outside (e.g. fans for Chiller and HVAC system). This equipment will have a noise level of approximately 64 dBA at a distance of five feet from the fan (sound intensity decreases as you move away). The distance to the nearest lot line that borders a Residential district is ~978'. There will be no vibration discernible at or beyond the lot line.
10. Describe control measure for No. 9.
    Most of the equipment and operations will be located inside of the building. Noise and vibration from any equipment or operation will be below allowable thresholds at or beyond the lot line. Our operations will conform to the restrictions of the Performance Standards for Noise (4.181) and Vibration (4.171).
11. What equipment and/or operations may emit heat, cold,dampness, glare, electrical disturbances or radioactivity?
    The gas leaving the stack is at high temperature (~1300 degF). There is an outdoor liquid nitrogen system, which is a cryogenic liquid (liquefied gas kept at very low temperatures). This material is stored between -320 to -346 degF.

USE SUBJECT TO PERFORMANCE STANDARDS

SHEET - #2

12. Describe control measures for No. 11.

The heat of the high temperature gas stream will quickly dissipate into the atmosphere. The gas stream will quickly come to equilibrium with the ambient temperature. The liquid nitrogen system will be fenced in and only accessed by trained personnel. The cold will only be noticeable in the immediate vicinity of the system (within the fenced area). Heat and cold will not be noticeable at or beyond the lot line. Our operations will conform to the restrictions of the Performance Standards.

13. What smoke, odor, dust, fly ash, fumes, gases, vapors and other potential air pollution producing equipment and operations are contemplated?

There will be one combined gas stream that will be sent out through a roof-top stack. This will be the outlet stream from the Regenerator and the outlet from a Gas Clean Up Unit. The clean air stream from the dust collection system will be vented to the atmosphere. The two fume hoods will be vented to the atmosphere.

14. Indicate on floor plan chimneys,vents, exhaust openings and equipment they serve as well as unvented operations that might release any air pollution to the outside atmosphere through open windows and floors.

There will be one combined gas stream that will be sent out through a roof-top stack. This will be the outlet stream from the Regenerator and the outlet from a Gas Clean Up Unit. Vents from the various pick-up points will be sent to a Gas Clean Up Unit. All of these will be combined and exit the building through a roof-top stack. The clean air stream from the Dust Collection system will be vented to the atmosphere. The fume hoods will be vented to the atmosphere. **Attachment: See floor plan.*

15. Describe air pollution control for No. 13 and 14.

There will be a Gas Clean Up Unit used for air pollution control. The relevant streams will be sent to a Gas Clean Up Unit. There will be filters on the Dust Collection system to remove particulates from the exhaust stream. Our operations will conform to the restrictions of the New York State Department of Environmental Conservation (NYSDEC) and Performance Standards (4.163, 4.164, and 4.182).

16. Is there any operation involving fire, explosive, radioactive or other hazards? Yes, small quantities of flammable liquids, flammable gases, and combustible solids.

17. If answer is YES describe control measures.

Fire-fighting control measures will include fire alarm system (connected to Rockland County 44-Control), sprinklers, and portable fire extinguishers. The building will have a high-density sprinkler system, consistent with NFPA 13 (Standard for the Installation of Sprinkler Systems). Our operations will conform to the restrictions of the Fire Code and Building Code of New York State.

18. Is there use or storage of any chemicals, acids or corrosive agents animal, vegetable or mineral oils or grease, petroleum products, or explosive materials? Yes, there will be use and storage of small quantities of chemicals, acids, and corrosive agents.

19. If answer is YES, identify all such items indicating: (a) Quantity of each (b) Gallons or weight of each (c) type of container (d)storage area, indoors or outdoors, above or below ground. Attach list if necessary. (Use trade names nit chemical symbols)

**Attachment: See attached table.*

20. If answer is YES to Item #16 and/or #17, furnish, with this application, approval of control method or system by Fire Prevention Bureau. Refer to Fire Prevention Supplement.

21. Would there be any industrial liquid waste, including water but not limited to products listed in #18, discharged (a) over or into the ground or water course, or (b) into a private disposal system or town sewer? (If answer is yes, approval is required by Orangetown Department of PublicWorks) No. Industrial waste will be collected and hauled off-site by a licensed contractor. Our operations will conform to the restrictions of the Performance Standards (4.165).

22. How is solid waste disposal handled(garbage, trash, etc.)? By private contract, or if otherwise, state how disposed.

Solid waste disposal (garbage, trash, etc.) is handled by private contract. Our operations will conform to the restrictions of the Performance Standards (4.165).

USE SUBJECT TO PERFORMANCE STANDARDS

SHEET - #3

State of New York) ss:
County of Rockland)

David Sudolsky
(for Anellotech, Inc.) being duly

sworn, deposes and says that he is the President & CEO
Title in Company

applicant herein; that he has read the contents thereof, that all matters contained therein are true to the best of deponent's knowledge, information and belief, and deponent further agrees that the proposed use will comply in all respects with the provisions if Section 4.1, Performance Standards, Zoning Code of the Town of Orangetown.

Signature

Subscribed and sworn to before me

This 1st day of October ~~199~~ 2014

Notary Public Kristina Krasnioi

KRISTINA KRASNIOI
Notary Public - State of New York
NO. 01KR6254413
Qualified in Rockland County
My Commission Expires 1/17/2016

Information given above indicates CONFORMANCE sufficient to warrant issuance of a Building Permit subject to compliance with the orders, rules and regulations of the Building Department and all other departments having jurisdiction of the premises.

Any alleged violation of the Performance Standards may necessitate investigation by experts, at the expense of the applicant.

By: _____ Date 01 Oct 2014

The above requirements of the Zoning Board of Appeals is hereby ACCEPTED:

BY: _____ Date 01 Oct 2014

FIRE PREVENTION SUPPLEMENT

USE SUBJECT TO PERFORMANCE STANDARDS RESUME OF OPERATIONS & REPAIRS

1. a) Does any operation or process involve the use of any of the following: Yes

1) Explosives and blasting agents
2) Poison gas
3) Poison and irritant
4) Flammable liquid
5) Flammable solid
6) Flammable gas to include propane
7) Oxidizer
8) Organic peroxide
9) Combustible liquid
10) Radioactive material
11) Corrosive material
12) Dangerous when wet material
13) Etiologic material
14) Combustible fibers

b) Does any operation consist of the following: Yes

1) Produces dust subject to explosion or spontaneous combustion
2) Produces poisonous fumes or gases
3) Spray operations
4) Fuel dispensing
5) Propane forklifts
6) Any other operation which may present a fire, explosive, radiological or other hazard.

If either item above is answered "yes" describe control methods such as fire alarm systems, automatic fire suppression devices such as sprinklers, portable fire extinguishers, and any other safety devices.

Fire-fighting control measures will include fire alarm system (connected to Rockland County 44-Control), sprinklers, and portable fire extinguishers. The building will have a high-density sprinkler system, consistent with NFPA 13 (Standard for the Installation of Sprinkler Systems).
Our operations will conform to the restrictions of the Fire Code and Building Code of New York State.

2. Is there to be storage or use of any material listed in Item #1a above: Yes.

If answered "yes" indicate which material:

*Attachment: See attached table.

3. a) Attach Material Safety Data sheets for all materials listed in Item #2 above. *Attachment: See attached MSDS.

b) Supply list of all materials showing: *Attachment: See attached table.
1) Quantity of each
2) Gallons or weight of each
3) Type of container

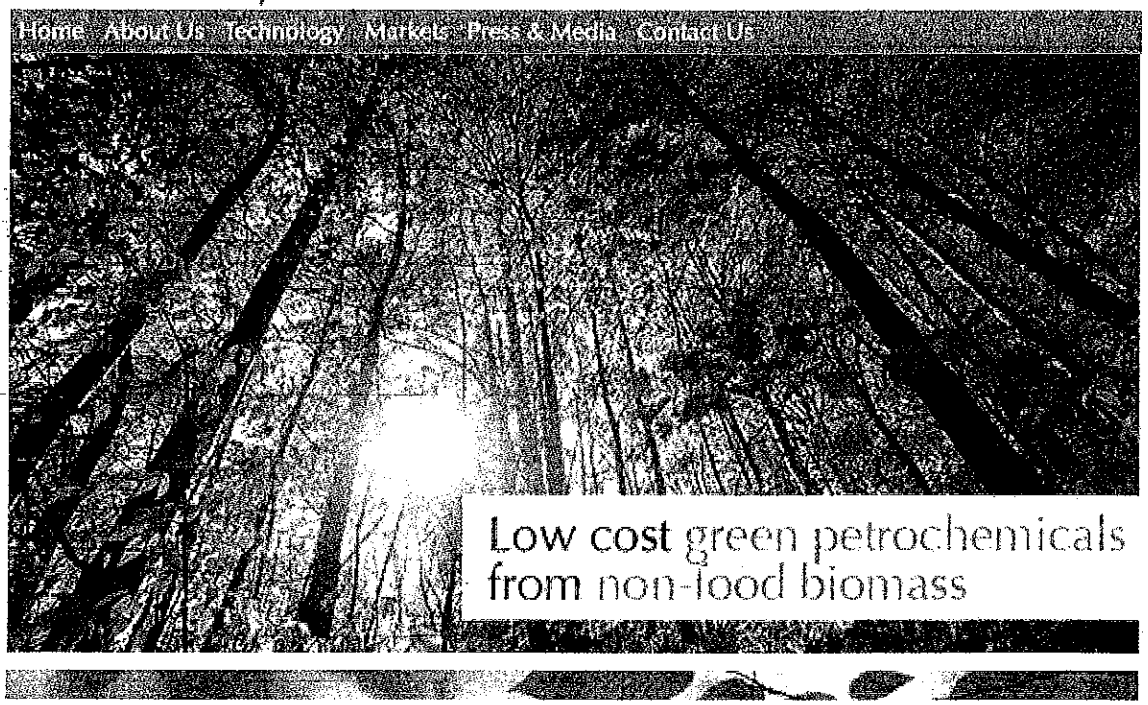
c) Show proposed storage area of materials. *Attachment: See attached floor plan.

Provide name, address and phone number of contact person who can provide additional information on the above if needed:

Anellotech, Inc.
Marc Schneidkraut, P.E.
401 N. Middletown Road, Building 170A
Pearl River, NY, 10965
Cell: 914-645-1143

Performance Standards Q #6

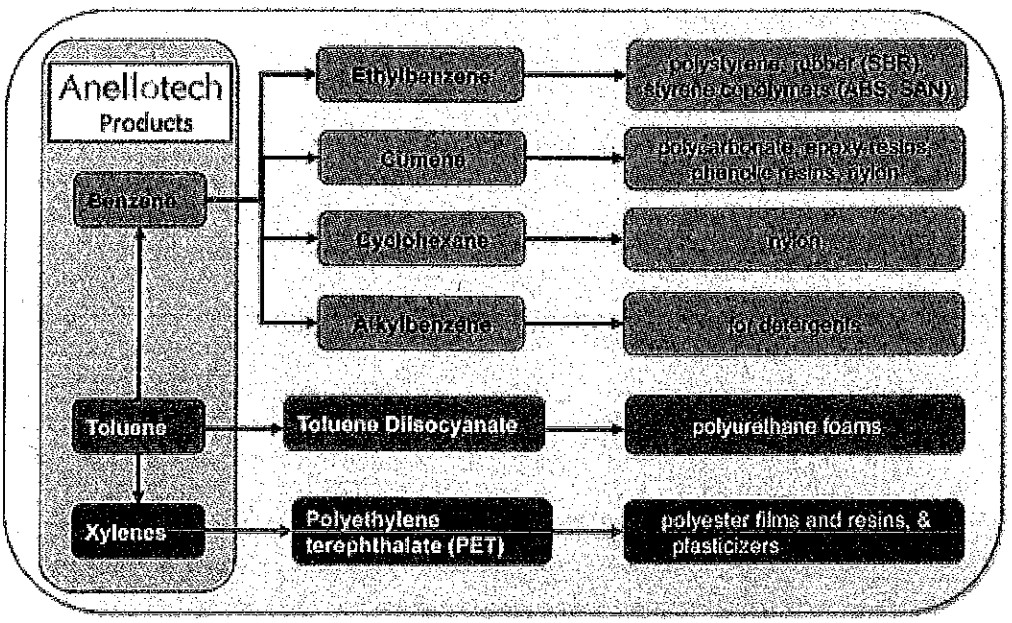
Anellotech, Inc.



Anellotech has developed a clean technology platform for inexpensively producing petrochemicals from renewable non-food biomass.

Anellotech's products will be profitable and priced competitively to their identical petroleum-derived counterparts. These excellent economics are achieved by performing the thermo chemical conversions in one processing step in a single fluidized bed reactor, using an economical, proprietary catalyst and non-food biomass feedstocks.

The first application of the technology, Biomass to Aromatics™ ("BTA") will produce "green" benzene, toluene, and xylenes ("BTX") that can be sold into an established $120 billion market serving multiple downstream consumer and industrial market needs and applications.



Q #6

Anellotech, Inc.

About Anellotech, Inc.

Founded in 2008 by Prof. George Huber and David Sudolsky, Anellotech has developed a clean technology platform for inexpensively producing petrochemicals from renewable non-food biomass materials. Anellotech's renewable products are less expensive to manufacture than their identical, petroleum-derived counterparts. Anellotech has the exclusive license from the University of Massachusetts for the core Catalytic Fast Pyrolysis (CFP) process technology developed in the Huber lab. The first application of the technology, Biomass to Aromatics™ ("BTA"), will produce "green" benzene, toluene, and xylenes ("BTX"). These drop-in, green versions of widely used petrochemicals are used in the creation of consumer goods such as plastic bottles, clothing, carpeting, automotive parts, as well as other everyday consumer and industrial products.

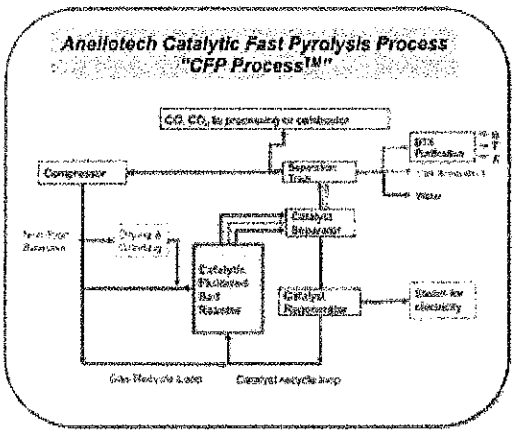
Anellotech's new research center and corporate headquarters (pictured below) has opened recently in Pearl River, NY, about twenty miles north of New York City.

Pearl River, NY R&D Campus (top), site of Anellotech's Facilities (middle and bottom)

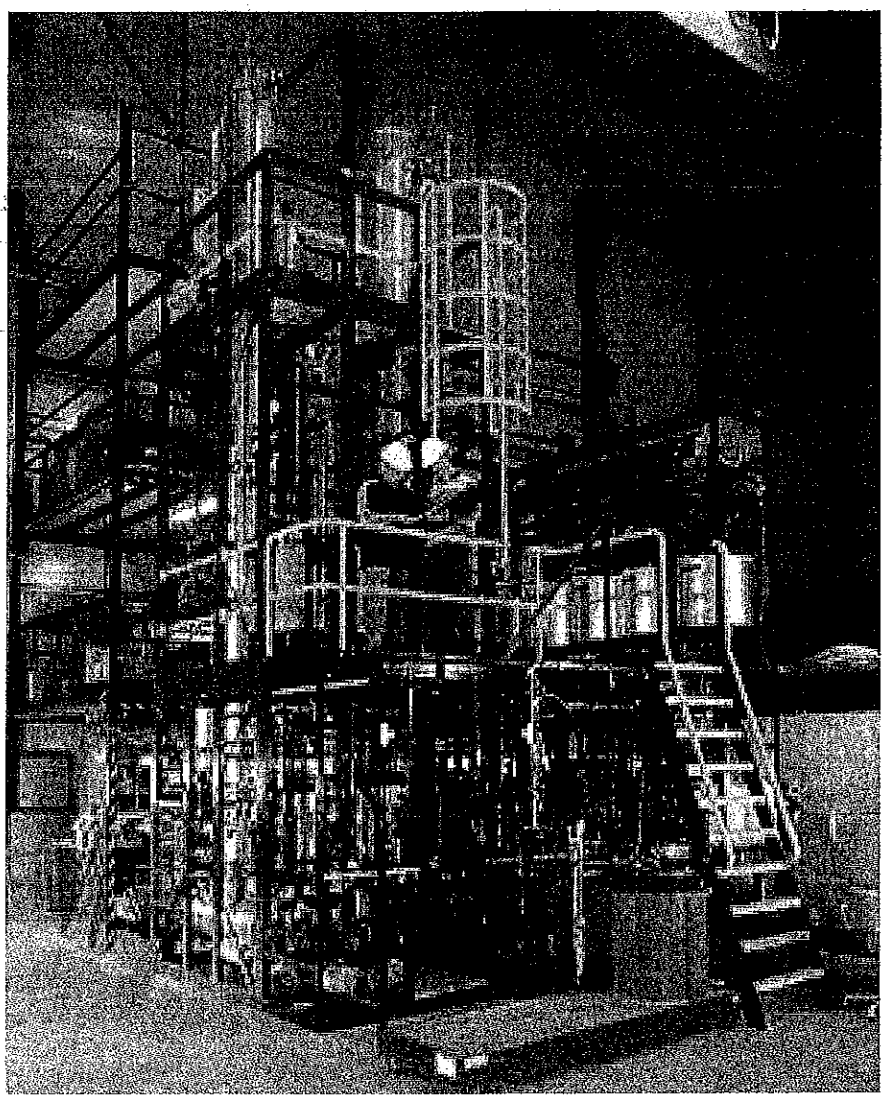
Anellotech, Inc.

Simple, Novel Technology for Producing 'Clean' Petrochemicals and Transportation Fuels

Anellotech's core technology, catalytic fast pyrolysis (CFP) for Biomass to AromaticsTM, is based on scientific research performed in Professor George Huber's research laboratory at the University of Massachusetts-Amherst and on process and catalyst developments by Anellotech. A simplified schematic of this process is shown below. The lignocellulosic biomass (i.e. wood waste, corn stover, sugar cane bagasse, and other non-food materials) is first dried and ground before injection into a fluidized bed reactor in the presence of a proprietary zeolite-based catalyst. In this one brief step, biomass is rapidly heated without oxygen and the resulting gases are immediately converted into desired aromatic and olefinic hydrocarbons along with CO, CO2, H2O, and undesired coke. The resulting BTX mixture, which is identical to their petroleum-derived counterparts, fits easily into the existing petrochemical infrastructure and can be sold to petrochemical companies for processing in their existing separation units, or distilled and sold directly into the market.



Photograph of system that is similar to our planned system:



ANELLOTECH

Orangetown, Zoning Board of Appeals, Performance Standards, Q8.

9/29/2014

Question 8.

Production equipment. Describe type and number of machines, mechanical equipment and handling equipment to be used including blowers, fans, furnaces, pressure exhausts, pressure equipment, intakes, etc.

Equipment Type	Quantity	Description	Notes
On Process Skids			
Air Blower	1	Move low pressure air	
Gas Compressor	1	Increase pressure of gas	
Cyclones	4	Separation of entrained solids from gas stream	Less than 6" diameter, less than 2' tall
Filters	8	Various filters throughout the process	Less than 4" diameter, less than 12" tall
Heat Exchangers	11	Various heating and cooling of process streams	Less than 6" diameter, less than 3' long
Pumps	2	Movement of a liquid stream	Nominal flow: 10 GPM
Reactor	1	Catalytical Fast Pyrolysis reaction	Pipe: Diameter: less than 1', height: less than 25'
Regenerator	1	Regenerate catalyst by removing coke	Pipe: Diameter: less than 18", height: less than 20'
Vessels	17	Various hoppers, collection drums, and process vessels	Diameters: 6" - 2', Heights: 2' - 25'
Other			
Air Compressor	1	Provide air to the process at pressure	
Gas Clean Up Unit	1	Clean up any gas before exiting the building	
Liquid Nitrogen System	1	Provide nitrogen to the process	
Chiller	1	Provide low temperature cooling water	
Biomass Feeding System	1	Transport biomass from supersack to the process	
Batch Distillation System	1	Off-line distillation studies	
Small Reactor System	1	Off-line catalyst studies	
Dust Collection	1	Clean up any dust that may be in the building	
Analytical			
Micro Gas Chromatograph (Micro GC)	2	Separate, identify, and quantify components in a mixture	
Gas Chromatograph (GC)	1	Separate, identify, and quantify components in a mixture	
High Performance Liquid Chromatograph (HPLC)	1	Separate, identify, and quantify components in a mixture	
Infrared Analyzer (IR)	1	Measure gas concentration	
Karl Fischer Titrator	1	Determine trace amounts of water in a sample	
Furnace	1	High temperature heating of various samples (up to 1200 degC)	
Oven	1	Heating of various samples (up to 250 degC)	
Refrigerator	1	Storage of heat-sensitive materials at lower temperatures	
Laboratory Hood	1	Ventilation for certain laboratory tasks	

Performance Standards Q #8