TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

Ascend Performance Materials LLC
3000 Old Chemstrand Road
Cantonment FL 32533

Pensacola Plant
Facility ID No. 0330040

PROJECT

Project No. 0330040-035-AC
Application for Title V Source Air Construction Permit
990 MAR Adipic Acid Rate

COUNTY

Escambia County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Air Resource Section
Northwest District Office
160 Governmental Center, Suite 308
Pensacola, Florida 32502-5794

December 15, 2010

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

Glossary of Common Terms

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

Facility Description and Location

Ascend Performance Materials LLC is an existing nylon and intermediate chemical manufacturing facility which is categorized under Standard Industrial Classification Code No. 2824 and 2869. The facility manufactures various chemicals, including adipic acid, nylon fibers, nylon resins, hexamethylene diamine, and maleic anhydride. The facility is located in Escambia County at 3000 Old Chemstrand Road in Cantonment, Florida. The UTM coordinates of the existing facility are Zone 16, 476.0 km East, and 3385.0 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility has no units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C., for the Prevention of Significant Deterioration (PSD) of Air Quality.

Project Description

Ascend submitted this new permit application to increase the permitted annual capacity for adipic acid production in EU-002 from 850 million pounds adipic acid (MAR) to 990 MAR based on a 12 month rolling basis. A previous permit, 0330040-034-AC, was issued August 13, 2010 to increase production from 850 Mar to 930 MAR. This new permit includes some provisions that were included in 0330040-034-AC to avoid PSD review and adds restrictions on certain production rates to ensure that PSD trigger levels are not exceeded by the additional increase in production requested in the current application. Permit 03300440-035-AC supersedes 03300440-034-AC.

With greater emphasis on minimizing equipment down-time and enhanced management of the unit operation cycle times associated with the process, Ascend has the ability to produce greater than the currently permitted 850

MAR adipic acid by increasing the currently permitted 92,000 lbs/hr KA feed rate to 98,000 lbs/hr KA feed rate. A portion of the adipic acid production is sent to dryers and shipped/sold as dry product to support a segment of customer demand, while the remainder of adipic acid production is further processed into nylon salt for use in the manufacture of nylon polymers. Under PSD rules, the proposed project will be a minor modification by accepting limits on NOx and SO_2 emissions, heat inputs, fuel usage, and production rates in some emissions units.

Processing Schedule

November 2, 2010: Received the application for a Title V source air pollution construction permit.

November 19, 2010: Department provided applicant with request for additional information (RAI) letter.

December 3, 2010: Received response from applicant regarding RAI.

December 8, 2010: Met with Ascend to discuss response to RAI

2. PSD APPLICABILITY

General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

The applicant provided actual emissions from annual operating reports for all emission units where there is a possible increase in emissions as a result of adipic acid production increasing from 850 million pounds per year (MAR) to 990 MAR. From the annual air operating report data over the last ten years, consecutive 24-month periods were chosen as baseline years for each pollutant. Baseline actual emissions for each affected emission unit were obtained by multiplying the reported emissions of each pollutant for the baseline period by the emission unit's production required to support 850 MAR of adipic acid by the emission unit's actual production during the baseline period. By this means, emission increases attributed to demand growth up to 850 MAR adipic acid production were excluded from the post-project actual emission projections.

The baseline years for each pollutant were chosen as follows: CO, 2003/2004; NOx, 2002/2003; PM/PM10, 2003/2004; SO2, 2003/2004; and VOC, 2004/2005. Halcon (EU020) and P2K (EU-088/089) are exceptions to this baseline grouping. The baseline for Halcon was chosen to be 2007/2008 due to the installation of the backup thermal oxidizer in 2006 under 0330040-017-AC which reduced emissions of VOC and CO, so that the emissions during the baseline years chosen for the other EUs are no longer representative of the unit's normal operation. Similarly, emissions from P2K are based on the maximum potential to emit multiplied by the fraction of P2K production required to support this project, since the unit was on long-term shut down during the baseline years chosen for the other EUs.

The following emission units were reported to currently operate at their maximum production rate to support 850 MAR adipic acid production, therefore, no increase in emissions is estimated to occur from these emission units as a result of this project: Halcon (EU020), Hydrogen (EU049), HMD (EU040/041), and DME (emissions primarily consist of emissions from one storage tank in EU097, designated 486TA19).

The following table provides the baseline actual emissions, baseline actual emissions plus demand growth and the projected actual emissions at an adipic acid production level of 990 MAR. As shown in the table, emissions of CO, NOx, PM, PM_{10}, SO_2 and VOC will increase. However, the emission increases are less than the corresponding significant emission rates for these air pollutants that would trigger PSD review and BACT determinations. In order to ensure that the PSD significant emission rates are not exceeded by this project, NOx and SO_2 emissions are limited and specific conditions limit heat input rates, fuel usage, and production rates for certain emission units.

As provided in the application, the following table summarizes potential emissions and PSD applicability for the project.

Table A. Potential Emissions (Tons/Year) and PSD Applicability

Emissions Changes due to Project:

Pollutant	Baseline Actual Emissions (TPY)	Baseline Actual plus Demand Growth (TPY) @ 850 Mar Adipic	Projected Actual Emissions (TPY) @ 990 Mar Adipic	Project Emissions Increase (TPY)	Significant Emissions Rate (TPY)	Subject To PSD?
CO	552	499	512	13	100	No
NO_X	1927	2300	2336	36	40	No
PM/PM_{10}	312/312	418/418	425/425	7/7	25/15	No
SO_2	3564	4604	4629	25	40	No
VOC	255.3	302	328	26	40	No

The facility is considered a major stationary source with respect to PSD because it is a chemical process plant that has the potential to emit 100 tons per year or more of the regulated air pollutants: NO_X, CO, PM, VOC, and SO_2. However, as shown in the above table, this project is not a major modification under PSD regulations since the differences between the baseline actual emissions including consideration of demand growth and projected actual emissions do not reach or exceed the significant emissions thresholds.

3. APPLICATION REVIEW

Application Fee

This project is classified as an AC/1B (source emitting more than 100 tons per year or more and not PSD or NAA) with no required permit fees. The facility is subject to annual emission fees as a Title V source.

Discussion of Emissions

Post project emissions for all affected emission units will be monitored annually for ten years after permit issuance. The annual emission report will compare the actual emissions to the post project projections and provide an explanation for any emissions that exceed the post project projections. In the event that actual post project emissions indicate that the PSD trigger levels have been exceeded, all provisions in 62-212.400 will apply as if the permit had never been issued.

State Requirements

Rules 62-210.300(1), 62-210.370, 212.300(1)(e), 62-213, and 62-212.400(12), F.A.C.

Federal NSPS Provisions

All NSPS Provisions remain the same as contained in the existing Title V permits. No new NSPS requirements are triggered as a result of this project. The adipic acid process may need replacement of an existing distillation column that is approaching the end of its service life. Detailed engineering design studies and documentation shall be submitted to the Department for a permitting determination prior to undertaking any construction associated with replacing the column. The new distillation column will be subject to 40 CFR 60 Subpart NNN, Standards of Performance for VOC Emissions from SOCMI Distillation Operations (40 CFR 60.660).

Federal NESHAP Provisions

All NESHAP Provisions remain the same as contained in the existing Title V permits. There are no new Federal NESHAP provisions applicable to this project.

Other Draft Permit Requirements

The applicant shall maintain and submit to the Department on an annual basis for a period of 10 years from the date of the permit, information demonstrating in accordance with Rule 62-212.300(1)(e), F.A.C., that the following emission units together do not result in a significant emissions increase.

E.U. ID.	Brief Description
003	Boiler No. 8
004	Boiler No. 7
014	Boiler No. 4
015	Boiler No. 5
016	Boiler No. 6
099	Boiler No. 9
049	Hydrogen Generating Plant #1
060	Adipic Acid 485 BEPEX Dryer
061	Adipic Acid Dryer 405-A
062	Adipic Acid Dryer 405-B
063	Adipic Acid Dryer 465-A
064	Adipic Acid Dryer 465-B
079	Adipic Acid 485 NIRO Dryer
005	Vaporizer No.1
007	Vaporizer No.2
008	Vaporizer No.3
009	Vaporizer No.4
010	Vaporizer No.5
011	Vaporizer No.6
013	Vaporizer No.7
075	Vaporizer No.8
020	Cyclohexane Oxidation Process
002	Adipic Acid Process
088	Area 480 KA Expansion, P2K
032	Cogeneration Plant
040	Hexamethylene Diamine Synthesis and Refining
041	B and C Hexamethylene Diamine Stripper Distillation Column
081	Continuous Nylon Polymerization Lines
082	Batch Nylon Polymerization
042	Nitric Acid Plant
050	Adipic Bulk Loading

The maximum adipic acid production rate shall not exceed 990 MAR and NOx emissions from the Adipic Acid Process (EU-002) shall not exceed 610 tons per year on a 12-month rolling basis. Feed rate shall not exceed 98,000 lbs/hr KA.

Production rates are limited by specific condition for those emission units affected by this project whose post project emissions depend on the production rate. Production rates are confidential information.

EU050, Adipic Acid Bulk Loading, has been listed as an unregulated emission unit in the Title V Air Operating permit. However, information submitted with this permit application indicates that this emission unit's potential to emit exceeds 10 TPY. The bags used in the baghouse were upgraded in 2008, resulting in an emission reduction in PM/PM10 of 15 TPY. Maintenance of the baghouse removal efficiency will be required as a specific condition for this emission unit.

Permittee shall maintain and submit to the Department on an annual basis for a period of 10 years from the date of this permit, information demonstrating in accordance with Rule 62-212.300(1)(e), F.A.C., that the project did not result in total heat input for Emissions Units 003, 004, 014, 015, 016, 032 and 099 in excess of 16,374,276 MMBtu/yr from all fuels in any 12-month rolling period and that the total No. 6 fuel oil combustion in EU 014, EU, 015, and EU016 did not exceed 3,439,781.33 MMBtu in any 12-month rolling period.

Permittee shall maintain and submit to the Department on an annual basis for a period of 10 years from the effective date of this permit, information demonstrating in accordance with Rule 62-212.300(1)(e), F.A.C., that the project did not result in emission increases of 25 tons/year for SO_2. Permittee shall maintain and submit to the Department on an annual basis for a period of 10 years from the effective date of this permit, information demonstrating in accordance with Rule 62-212.300(1)(e), F.A.C., that the project did not result in total SO_2 emissions from fuel oil firing in excess of 4,616.49 TPY in any 12-month rolling period.

Permittee shall maintain and submit to the Department on an annual basis for a period of 10 years from the effective date of this permit, information demonstrating in accordance with Rule 62-212.300(1)(e), F.A.C., that the project did not result in emissions increases of any regulated pollutant for each emission unit affected by this project above the projected emission increase included with the application. For any emissions that exceed the projected emission increase, an explanation will be provided and if the increase in emissions is such that a PSD trigger level is exceeded, 62-212.400(1)-(12) shall apply.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. Rick Prusa is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the 850/595-0634 or rick.prusa@dep.state.fl.us.