ASCEND
PERFORMANCE MATERIALS

July 2, 2010

Mr. Rick Bradburn
Air Program Administrator
Department of Environmental Protection
160 Governmental Center
Pensacola, FL 32502-5794

RE: File Number 03300040-034-AC
Response to Request for Additional Information

Dear Mr. Bradburn:

Ascend Performance Materials LLC (Ascend) is pleased to provide additional information in response to the Department's request dated June 25, 2010.

Enclosed are responses to each question posed by the department, along with appropriate supporting documentation.

Ascend appreciates your consideration in this permitting process. If there are any questions, or if any clarification can be provided in support of this request, please contact Roy Noble at (850) 968-8721 (email: rwnobl@AscendMaterials.com) or Jim Schulze at (850) 968-7565 (email: jkschu@AscendMaterials.com).

Sincerely,

Gary L. Moore
Chemicals and Utilities Plant Manager

Enclosures: as stated

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :

   Gary L. Moore, Chemical & Utilities Plant Manager

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **Ascend Performance Materials LLC**
   Street Address: **P.O. Box 97**
   City: **Gonzalez** State: **FL** Zip Code: **32560-0097**

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(850) 968-7543** ext. Fax: **(850) 968-7220**

4. Owner/Authorized Representative Email Address: **glmoor1@ascendmaterials.com**

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.

Signature

07/02/2010
Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **Kennard F. Kosky**
   Registration Number: **14996**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **6026 NW 1st Place**
   City: **Gainesville** State: **FL** Zip Code: **32607**
3. Professional Engineer Telephone Numbers...
   Telephone: (**352**) **336-5600** ext.**21156** Fax: (**352**) **336-6603**
4. Professional Engineer Email Address: **kkosky@golder.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Kennard F Kosky — Signature

7/2/10 — Date

(seal)

* Attach any exception to certification statement.

** **Board of Professional Engineers Certificate of Authorization #00001670**

Enclosure 1. Ascend Performance Materials LLC Response to Florida Department of Environmental Protection's June 23, 2010 Request for Additional Information, Permit File 0330040-034-AC

This enclosure provides the additional information requested by the Florida Department of Environmental Protection concerning the above-referenced construction permit application. The additional information is presented in the same sequence as in the FDEP's letter, with a restatement of each comment followed by Ascend's response.

1. *Permit 0330040-018-AV, Subsection F, Area II Adipic Acid (EU 002), Specific Condition F.7, allow a maximum of 3,298 pounds of NOx per 2 hours of Start-Up/Shutdown/Malfunction event in a 24-hour period. In the application for this permit, NOx potential emissions are calculated based on the allowable maximum 3,298 pounds per day to arrive at 16.5 pounds per hour and 72.2 tons per year. However, a 500 ppm 30-day rolling average is denoted as the emission factor. Is 500 ppm equivalent to 16.5 pounds per hour at the maximum operating rate of 92,000 lbs KA feed/hr (hourly average basis), up to 850 million pounds Adipic Acid produced per 12-months rolling basis, as noted in Specific Condition F.2.? Please clarify and support with documentation and calculations. If the 500 ppm is not equivalent, please identify the equivalent mass emission rate and support with documentation and calculations.*

Response: No, the emissions presented in this application are not based on the "allowable maximum 3,298 pounds per day to arrive at 16.5 pounds per hour and 72.2 tons per year," but are based on AOR data and projected demand growth and post project production rates. Additionally, the forms referenced from the Title V permit application stating 16.5 pph and 72.2 tpy were incorrect and were corrected in documentation received by the Department on May 4, 2006. The corresponding values on the corrected forms were 934 pph and 1538 tpy. These were consistent with application for the initial Title V permit (0330040-002-AV). Adipic Acid's PTE was further reduced to 1197 tpy and this value appears in the current Title V permit in the Table in Section I, Subsection A. Following discussions with Mr. Prusa and/or Mr. White of the Department, the 1538 tpy value was lowered to 1197 tpy based on the installation of the Backup SCR (SCR II). This value also includes the NOx from Adipic Acid refining as discussed in Ascend's response to the Department's Request for Additional Information dated May 4, 2010.

The following calculations are provided to demonstrate the permitted emission rates. Please note that the 500 ppm is a 30-day rolling average. Instantaneous values measured by the CEMS may be above or below this value.

Calculations at 500 ppm 30-day average outlet NOx, 850,000,000 annual production

TRU Outlet Flow:	209,103 lbs/hr
Off-gas Molecular Weight:	25.23
NOx Molecular Weight:	32.41 (85% NO, 15% NO2)

TRU Exit Flow / MW of Exit Flow = Exit flow (lb moles/hr)
209,103 / 25.23 = 8287.87 lb moles/hr

TRU Exit Flow (lb moles/hr) * Exit NOx Conc. (fraction) = Exit flow (lb moles NOx)
8287.87 * 500 ppm/1,000,000 = 4.144 lb moles NOx/hr

TRU Exit Flow (lb moles NOx) *MW of NOx = lb NOx/hr
4.14 * 32.41 = 134.31 lb NOx/hr at TRU

TRU NOx Emissions per Year (Tons/yr) = 134.31 * 24 * 365 / 2000 = 588.3 Tons/yr NOx

Adipic Acid Process Emissions from Refining (AP-42): 127.5 tpy

Total Adipic Acid NOx Emissions: 715.8 tpy
Total Adipic Acid NOx Emissions: 163.4 lbs/hr annual average

This calculation demonstrates that the proposed NOx PSD avoidance limit of 610 TPY is well below the current allowable emission rate of 715.8 TPY.

2. *The Area II Adipic Acid (EU 002) production increase (from 850 to 930 MAR) should have a corresponding fugitive emissions increase as fugitive emissions are based on AP-42 emission factors and production rates for adipic acid. This is not shown in the calculations. Provide fugitive emission calculations, before and after the production increase, and the emission factors used.*

Response: Fugitive emissions are typically calculated using factors obtained from "USEPA, Protocol for Equipment Leak Emission Estimates, November 1995." AP-42 emission factors are used to determine process point source emissions. Fugitives are calculated using specific factors and component counts. Ascend has not proposed any additional equipment that would result in a net increase in components.

For example, in the light liquid (KA-Nitric Acid reaction) portion of Adipic Acid manufacturing there are 5 pumps, 209 valves and 587 connectors. Using the EPA document annual emissions would be as follows assuming no leaks are observed.

Component Type	Approximate Number of Components	Screening Value (ppmv)	Time Factor (hours)	Leak Rate Based on "Default Zero" Screening Values [1]		
				(kg/hr)	(lbs/hr)	(lbs/yr)
Valves, Light Liquid	209	0	8,760	0.00010	0.00023	1.9778
Connectors, Light Liquid	587	0	8,760	0.00036	0.00079	6.9152
Pumps, Light Liquid	5	0	8,760	0.00004	0.00008	0.7242
	Emissions					9.62

Should leaks be observed, the document gives equations to calculate leaks. This project will not increase the number of components (valves, pumps, connectors) or any activities that will increase the severity leaks observed annually. Therefore this project does not result in a net increase in fugitive emissions.

Adipic acid is a solid at room temperature and has a very low vapor pressure (0.1 mm Hg at room temperatures). Method 21 monitoring of visible process leaks in the heavy end (distillation and refining) does not detect any organics. With no net increase in components and no activities increasing the number of leaking components this project does not increase fugitive emissions.

As shown in the response to item number one of this RAI, adipic acid EU-002 point source emissions are calculated with CEM data for the TRU and AP-42 emission factors for the emissions resulting from refining. These emissions are added together for the total emissions from the unit. The AP-42 refining NOx emission factor is 0.6 lbs NOx per ton of adipic acid produced. At demand growth, 850,000,000 pounds production, the AP-42 emissions are equivalent to 127.5 tons per year NOx.

3. *Changes and/or replacements in the Area II Adipic Acid (EU 002) to pumps, motor sizes, distillation columns and impellers are indicated in the application project description. Provide justification, emission factors, and emission estimates and before and after the project.*

Response: Replacement in pumps, motors and impellers would not increase instantaneous emissions. Rather they would be used to increase on-stream time of crystallizers. These emissions are either captured, controlled and monitored, or accounted for by the increase in production and use of AP-42 factors. Emissions from the column, if it is replaced, would be collected and sent to the control devices.

The potential column replacement would be functionally like for like. This column is connected to the control devices of EU-002. The pump replacement is proposed to increase the pump size to maintain demonstrated column capacity after lowering the feed tank level (pump head) to reduce impurities/decomposition of product. In other words, the facility needs to increase the pump motor horse

power to make up for additional pump head requirements as a result of lower tank levels. Reboiler and Condenser capacities are not being changed therefore the column capacity or emissions are unchanged. These columns are also controlled by the control devices of EU-002.

Motor and impeller changes are being made to the recirculation flow on crystallizers to improve on stream time. They will not affect instantaneous emissions. The increased circulation flow prevents solids buildup on the surfaces of the crystallizers which reduces the time needed to stop production to clean and throw away material as waste. The seven crude crystallizers vent to the control devices. The six refined crystallizers contain low levels of nitric acid and vent uncontrolled. Emissions from the refined crystallizers are included in the AP-42 calculations for point sources in the adipic refining area. Based on the AP-42 Emission Factor for adipic acid refining, the overall emission increase in the refining process for 80,000,000 pounds of production is 12 tons of NOx annually.

4. *The permit application for project 0330040-034-AC proposed a NOx allowable emission limit of 585 tons per year based on a 12-month rolling average. In the Supplemental Information RAI response, the proposed NOx allowable emission limit was changed to 610 tons per year based on a 12-month rolling average. Provide rationale and emission calculations used to arrive at 585 and 610, and which limit is more appropriate.*

   Please note that prorated heat input cannot be used for the adipic acid process or any other process that has a CEMS or control unit. Any CEMS and/or emission data should be used before emission factors and prorated emissions.

Response: The proposed post project NOx emissions for Adipic Acid (EU-002) was based on the overall PSD applicability analysis and was chosen at a TPY rate that results in PSD avoidance and is achievable by the emission unit. As a result of the recalculation of the PSD applicability analysis requested by the Department, providing baseline emissions for each emission unit, the updated PSD analysis supported a higher NOx annual emission than originally proposed, 610 TPY compared to the original submittal of 585 TPY NOx. The project net NOx emission increase is estimated at 4.8 TPY which is well below the PSD review threshold of 40 TPY. Therefore, an Adipic Acid NOx PSD avoidance limit of 610 TPY is appropriate. To clarify the Tables submitted on June 1, 2010, the Demand Growth Column Heading has been changed to "Baseline Emissions plus Demand Growth." The Column previously labeled "Project Emission Increase (Post-Project minus Demand Growth) (TPY)" to "Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY)." These changes are made to more accurately reflect contents of the columns. Both Public and Confidential copies of the Tables are attached. No calculations have been changed except as described in the response to question # 9.

5. *Area II Adipic Acid (EU 002) NOx demand growth was shown as 642 tons per year in the permit application for project 0330040-034-AC. The RAI response had an Area II Adipic Acid NOx demand growth of 630 tons per hour. Please clarify which is the correct demand growth, provide rationale and emission calculations with emission factors used, to arrive at the correct demand growth.*

Response: The EU-002 projected actual emissions in the Table 1 on both May 14, 2010 and June 1, 2010 at 850 million pounds were 630.35 for 2002 and 651.79 for 2003. This is an annual average of 641.07 tpy for the 2 year period (1/1/2002 through 12/31/2003). This average was used to determine the excluded emissions. The 642 rather than 641.07 was the result of rounding in calculation steps. To clarify the Tables submitted on June 1, 2010, the Demand Growth Column Heading has been changed to "Baseline Emissions plus Demand Growth." The Column previously labeled "Project Emission Increase (Post-Project minus Demand Growth) (TPY)" to "Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY)." These changes are made to more accurately reflect contents of the columns. No calculations have been changed. No calculations have been changed except as described in the response to question # 9. Both Public and Confidential copies of the Tables are attached.

6. *In the RAI response to project 0330040-034-AC, calculations for Nylon Polymerization (EUs 081 and 082) added 15 tons per year of VOC for Nylon Polymerization malfunctions. Provide discussion, calculations and documentation to justify this number. The 15 tons per year, or other number mutually agreed upon, should not be included in the demand growth, it should only be applied to the projected actuals and not incorporated into the demand growth. Please recalculate the VOC emission increase for Nylon Polymerization.*

Response: The 15 tons VOC was not added to the demand growth emissions, Rather it was conservatively added to the projected post project emissions at 930 MAR Adipic Acid production. No changes are required in the Demand Growth Potential Emission (TPY) up to 850 MAR columns. In the description of "Emission Calculations for Adipic Acid Expansion" (originally submitted June 1, 2010) 15 tons of VOC were inadvertently shown to be added to the demand growth. A revised page 8 with removal of the 15 tons VOC from the demand growth example calculation is provided. No changes in the originally submitted calculations are required except as described for question # 9.

Permit Condition I.2. of Title V permit 0330040-029-AV states the following:

"The maximum allowable emission rate for VOC is 715 lbs/day as a rolling average. This limit includes reasonable down time of up to 10% of the total operations time for necessary operation and maintenance. As long as the emission limit is met, down time is not considered a violation of this permit."

The addition of 15 TPY to the post project emissions is performed to provide for malfunction emissions allowed under permit condition I.2. above, while maintaining overall VOC emissions below PSD review threshold for the project.

7. *In the RAI response to project 0330040-034-AC, calculations for Powerhouse (EUs 003, 004, 014, 015, 016, 099, 100 and 032) added 25 tons per year of SO2 to demand growth to avoid PSD. Provide discussion, calculations and documentation to justify this number. The 25 tons per year, or other number mutually agreed upon, should not be used in the demand growth. Please recalculate the SO2 emission increase for Powerhouse.*

Response: The 25 tons SO2 was not added to the demand growth emissions, rather it was conservatively added to the projected post project emissions at 930 MAR Adipic Acid production. No changes are required in the Demand Growth Potential Emission (TPY) up to 850 MAR columns. To avoid a PSD significant increase for SO2, the Post Project Emissions were calculated by adding 25 tpy SO2 to the Baseline Emissions plus Demand Growth. For all other pollutants, the Post Project Emissions were calculated based on heat input needed to support 930 MAR Adipic (16,374,276 Million MMBtu). "Baseline Emissions Plus Demand Growth" emissions were calculated by scaling up the baseline emissions to 850 MAR based on corresponding heat input of 16,060,362 Million MMBtu per year.

The addition of 25 TPY to the post project emissions was performed to provide additional operational flexibility, while maintaining overall SO2 emissions below PSD review threshold for the project

8. *Please provide a statement clarifying that Boilers Nos. 9 and 10, which were permitted with emissions restrictions to avoid PSD review, will not increase steam production and have no heat input increases as a result of this project.*

Response: Boiler 9 did increase the overall site instantaneous steam capacity. This capacity increase is not required for this project. The Powerhouse as configured prior to installation of Boiler 9 was able to meet the additional steam demand for this project.

Boilers 9 and 10 were permitted as a cost hedge following the hurricane seasons of 2004 and 2005 where natural gas supplies were disrupted with substantial increases in gas costs to greater than $14 per MMBtu. This resulted in excessive cost for generating electricity from the Cogeneration Unit. The objective of the Boiler 9 and 10 project was to reduce site operating costs by purchasing electricity and

directly generating steam with these boilers rather than operate Ascend's Cogeneration Unit. Boilers 9 and 10 were not permitted due to any expected site demand increases. Ascend currently has no intention of installing Boiler 10.

The prior to the addition of Boiler 9, the site had excess steam capacity. For every pound of steam generated by Boiler 9, a pound of steam is reduced at other steam generating units. Boiler 9 allows operational flexibility and Ascend took fuel restrictions on Boiler 9 rather than operational limits on Cogeneration to obviate the need for PSD review. The emissions from these units would be counted as part of the projected actual emissions increase.

9. *The choice of baseline years 2004/2005 and 2003/2004 for VOC and CO, respectively for EU-020, failed to consider the impact (reduced VOC and CO emissions) of the HALCON project, 0330040-017-AC, issued April 19, 2005. Baseline emissions for CO and VOC must be established after the HALCON project was constructed. Prorated heat input cannot be used for the any process that has a CEMS or control unit. Any CEMS and/or emission data should be used before emission factors and prorated emissions. Provide updated pre and post project calculations using appropriate emissions information and baseline emissions. Specify the quantities and sources of emissions; such as scrubbers, fugitives and Back-Up Thermal Oxidizer.*

Response: In reviewing all the AOR data and the operation of the power house, it became apparent that the later years did not include representative operation of the Cogeneration Unit. In contrast, 2003-2004 was more representative of the operation of the cogeneration unit. While the CO and VOC controls were not yet installed for HALCON (i.e., the OBUD), we used the definition of "Baseline Actual Emissions" in the Department's Rule 62-210.200(36) F.A.C. to adjust downward the baseline emissions for HALCON based on the current emission limits for HALCON had these been required in 2003-2004. The Table submitted to the Department on June 16, 2010 provided the calculations used for the adjustment showing the lower CO and VOC emission used as baseline actual emissions for HALCON. This approach appeared consistent with the Department's rule in 62-210.200(36)(b)3 F.A.C. and is consistent with allowing the selection of any consecutive 24-month period from the last 10 years.

Upon discussion with the Department, the average emissions from 2007/2008 are representative of current operation for EU-20 and will be used as Baseline Actual Emissions. For other emission units, the actual emissions for the 24-months periods selected for baseline Actual emission were used as discussed with the Department. The emissions for EU-20 were then converted to "Baseline Emissions plus Demand Growth" and Projected Actual Emissions as follows. (Note as production of the emission unit is identical for both Baseline Actual and Projected Actual Emissions the following table show the calculation applies to both emission projections. Also note that there will be no increase in emissions at 850 MAR for adipic acid as the Halcon unit reaches its maximum potential operation. Thus there is no emissions increase from this emission unit as a result of this project.).

EU-020 Baseline Actual Emissions and Baseline Actual plus Demand Growth Calculation

	CO	VOC	Production
2007	198	93	441.55
2008	97	49	351.91
Average	147.5	71	396.73

"Baseline Emissions plus Demand Growth" and "Post-Project Emission" Calculation

Baseline CO Average / Baseline Production Average x 580 = 215.64 tpy CO

Baseline VOC Average / Baseline Production Average x 580 = 103.80 tpy VOC

These values are entered in the attached Public and Confidential copies of "Table 1. Revised PSD Applicability Analysis." Note that they are entered for the corresponding baseline years for the remainder of the pollutants. This is 2003/2004 for CO and 2004/2005 for VOC.

10. *Table 1. Revised PSD applicability analysis. Please clarify how the baseline emissions, post project emissions and the demand growth emissions were derived. For example, for EUs 002 and 042, the demand growth claimed for emissions credit for NOx is much more than what could be expected from emissions at the maximum currently permitted MAR rates less emissions at the reported production MAR rates. Please clarify and support with documentation and calculations. Revise table as necessary.*

Response: All baseline emissions were based on AOR data previously submitted to the Department and calculated using the Department's priority (CEMS, then stack testing, then other emission testing, then Emission Factors). With the exception of EU 002 and 042 emissions for demand growth and post project were estimated based on scaling up baseline emissions based on production rates. For EU-002 and EU-042 the demand growth emissions were obtained by operating control devices identically as in the baseline years and scaling up the emissions based on production rates. Operating in this manner would ensure compliance with the Title V permit. For EU 002 and 042 post project emissions are based on operation of control devices to lower emission rates. Operating to lower control rates will be accomplished in EU-002 by increasing the amount of fuel burned in the TRU and/or increasing the amount of ammonia used in the SCR. Similarly, at EU-042, additional ammonia will be injected in the SCR to increase destruction of NOx. The existing control devices are capable of operating at the reduced emission rates required. Ascend believes that the TRU will be at, or near, its maximum capacity at the proposed levels. To clarify the Tables submitted on June 1, 2010, the Demand Growth Column Heading has been changed to "Baseline Emissions plus Demand Growth." The Column previously labeled "Project Emission Increase (Post-Project minus Demand Growth) (TPY)" to "Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY)." These changes are made to more accurately reflect contents of the columns. No calculations have been changed. Both Public and Confidential copies of the Tables are attached. No calculations have been changed except as described in the response to question # 9.

Based on the Company Confidential Table submitted on June 1, 2010, Ascend operated EU-042 at 0.483 tons NOx per MAR production (1.87 pounds NOx per ton dry nitric) in 2002/3. At full rates post project, Ascend will operate EU-042 at 0.433 tons NOx per MAR (1.73 pounds NOx per ton dry nitric) or less. This equates to approximately an 8% improvement in control.

Similarly for EU-002, after subtracting the NOx due to refining from the Total NOx Reported and dividing by the total production, Ascend operated the control devices in EU-002 at an average of 0.604 tons NOx per MAR production. Using the proposed post project EU total of 610 tons NOx at 930 MAR, Ascend will operate the control devices at an average of 0.506 tons NOx per MAR production or less. This represents an approximately 19% improvement in control.

Table 1. Revised PSD Applicability Analysis - Adipic Acid 930 MAR Project. (Public Copy)

Source		Baseline Emissions (TPY)					Post-Project Emissions: Projected Emissions (TPY) up to 930 MAR					Baseline Emissions plus Demand Growth: Projected Emissions (TPY) up to 850 MAR					Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY)				
		CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC
Adipic Acid (Synthesis & Refining) (EU-002)	2001	9.184	333.4	16.114		77.4594															
	2002	12.386	518.4	18.404		87.809		610.00					630.35					-20.35			
	2003	13.072	531.4	18.305		87.083	17.54	610.00	24.57			16.03	651.79	22.45			1.51	-41.79	2.11		
	2004	10.152	425.3	19.77		93.398	12.42		24.18		114.24	11.35		22.10		104.41	1.07		2.08		9.83
	2005	11.684	506.8	18.516		86.607					116.79					106.74					10.05
	2006	11.452	522.4	18.41		88.155															
	2007	12.536	506.9	20.985		100.665															
	2008	12.248	445.06	17.749		84.569															
	2009	9.786	398.5	14.574		73.217															
Nitric Acid Unit (EU-042)	2001		265.8																		
	2002		318.04					360.00					355.72					4.28			
	2003		315.3					360.00					356.29					3.71			
	2004		300.78																		
	2005		337.95																		
	2006		316.53																		
	2007		332.38																		
	2008		261.82																		
	2009		255.9																		
Halcon Unit (EU-020)	2001	274	1.19	0.02	0.01	84.09589															
	2002	317	1.37	0.026	0.0082674	97.09517		1.56					1.56					0.00			
	2003	321	1.39	0.026	0.0083819	98.4393	215.64	1.56	0.03	0.01		215.64	1.56	0.03	0.01		0.00	0.00	0.00	0.00	
	2004	349	1.51	0.028	0.009099	106.8612	215.64		0.03	0.01	103.80	215.64		0.03	0.01	103.80	0.00		0.00	0.00	0.00
	2005	312	1.35	0.025	0.008136	95.55187					103.80					103.80					0.00
	2006	306	1.324	0.025	0.008	93.9543															
	2007	198	2.111	0.04	0.013	93															
	2008	97	0.608	0.0116	0.004	49															
	2009	80	1.106	0.021	0.007	57															
Area 480 (P2K) (EU-088)	2001	0.796	7.581	0.569		0.946															
	2002	0.092	0.876	0.066		0.013		4.38					4.38					0.00			
	2003						0.46	4.38	0.33			0.46	4.38	0.33			0.00	0.00	0.00		
	2004						0.46		0.33		10.02	0.46		0.33		10.02	0.00		0.00		0.00
	2005										10.02					10.02					0.00
	2006	0.126	1.197	0.09		3.492															
	2007	0.229	2.176	0.163		8.793															
	2008	0.244	2.325	0.174		6.966															
	2009	0.25	2.384	0.179		3.631															
Hydrogen Unit (EU-049)	2001	0.285	26.223	2.362		1.134															
	2002	0.276	25.354	2.283		1.096		41.33					41.33					0.00			
	2003	0.272	25.026	2.254		1.082	0.41	37.64	3.39			0.41	37.64	3.39			0.00	0.00	0.00		
	2004	0.355	32.679	2.9431		1.413	0.45		3.72		1.79	0.45		3.72		1.79	0.00		0.00		0.00
	2005	0.337	30.999	2.792		1.34					1.79					1.79					0.00
	2006	0.315	29.014	2.613		1.254															
	2007	0.42	38.686	3.484		1.672															
	2008	0.339	31.337	2.81		2.375															
	2009	0.229	21.135	1.895		1.602															
HMD (EU-040/041)	2001					15.491															
	2002					16.603															
	2003					15.934															
	2004					15.687					19.68					19.68					0.00
	2005					16.435					22.11					22.11					0.00
	2006					15.881															
	2007					16.099															
	2008					14.114															
	2009					9.876															
DME	2001					3.56															
	2002					3.99															
	2003					3.98															
	2004					4.1					5.01					4.58					0.43
	2005					3.78					4.98					4.55					0.43
	2006					3.67															
	2007					3.32															
	2008					2.95															
	2009					1.79															
Nylon	2001					45.12															
	2002					45.12															
	2003					49.61															
	2004					49.61					89.75					65.55					24.21
	2005					48.03					91.30					66.90					24.40
	2006					44.62															
	2007					43.33															
	2008					27.98															
	2009					27.98															
Emissions from Vaporizers Grouped																					
Vaporizer No. 1	2001	2.134	2.540	0.048	0.015	0.140															
	2002	3.331	3.966	0.075	0.024	0.218		58.40					50.70					7.70			
	2003	3.056	3.639	0.069	0.022	0.200	49.06	58.40	1.11	0.35		42.59	50.70	0.96	0.30		6.47	7.70	0.15	0.05	
	2004	2.881	3.430	0.065	0.021	0.189	49.06		1.11	0.35	3.21	42.59		0.96	0.30	2.79	6.47		0.15	0.05	0.42
	2005	2.768	3.296	0.063	0.020	0.181					3.21					2.79					0.42
	2006	2.752	3.276	0.062	0.020	0.180															
	2007	2.169	2.582	0.049	0.015	0.142															
	2008	2.196	2.614	0.050	0.016	0.144															
	2009	0.000	0.000	0.000	0.000	0.000															
Vaporizer No. 2	2001	1.138	1.355	0.026	0.008	0.075															
	2002	2.882	3.431	0.065	0.021	0.189															
	2003	2.085	2.483	0.047	0.015	0.137															
	2004	2.793	3.325	0.063	0.020	0.183															

Source		Baseline Emissions (TPY) CO	NOX	PM/PM10	SO2	VOC	Post-Project Emissions Projected Emissions (TPY) up to 930 MAR CO	NOX	PM/PM10	SO2	VOC	Baseline Emissions plus Demand Growth Projected Emissions (TPY) up to 850 MAR CO	NOX	PM/PM10	SO2	VOC	Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY) CO	NOX	PM/PM10	SO2	VOC
	2005	2.730	3.250	0.062	0.020	0.179															
	2006	2.747	3.271	0.062	0.020	0.180															
	2007	1.814	2.160	0.041	0.013	0.119															
	2008	2.244	2.671	0.051	0.016	0.147															
	2009	1.614	1.922	0.037	0.012	0.106															
Vaporizer No. 3	2001	2.675	3.185	0.061	0.019	0.175															
	2002	3.195	3.804	0.072	0.023	0.209															
	2003	2.686	3.198	0.061	0.019	0.176															
	2004	2.768	3.295	0.063	0.020	0.181															
	2005	2.755	3.280	0.062	0.020	0.180															
	2006	2.727	3.246	0.062	0.019	0.179															
	2007	3.119	3.713	0.071	0.022	0.204															
	2008	2.769	3.297	0.063	0.020	0.181															
	2009	0.569	0.678	0.013	0.004	0.037															
Vaporizer No. 4	2001	3.331	3.965	0.075	0.024	0.218															
	2002	3.615	4.303	0.082	0.026	0.237															
	2003	3.507	4.176	0.079	0.025	0.230															
	2004	3.851	4.585	0.087	0.028	0.252															
	2005	3.831	4.561	0.087	0.027	0.251															
	2006	3.794	4.517	0.086	0.027	0.248															
	2007	3.015	3.589	0.068	0.022	0.197															
	2008	3.094	3.683	0.070	0.022	0.203															
	2009	2.993	3.563	0.068	0.021	0.196															
Vaporizer No. 5	2001	4.355	5.185	0.099	0.031	0.285															
	2002	4.653	5.540	0.105	0.033	0.305															
	2003	4.334	5.160	0.098	0.031	0.284															
	2004	4.368	5.200	0.099	0.031	0.286															
	2005	3.807	4.532	0.086	0.027	0.249															
	2006	3.830	4.560	0.087	0.027	0.251															
	2007	3.186	3.793	0.072	0.023	0.209															
	2008	2.906	3.460	0.066	0.021	0.190															
	2009	1.696	2.019	0.038	0.012	0.111															
Vaporizer No. 6	2001	2.822	3.360	0.064	0.020	0.185															
	2002	3.339	3.975	0.076	0.024	0.219															
	2003	2.581	3.073	0.058	0.018	0.169															
	2004	2.617	3.115	0.059	0.019	0.171															
	2005	2.042	2.431	0.046	0.015	0.134															
	2006	2.060	2.452	0.047	0.015	0.135															
	2007	1.516	1.805	0.034	0.011	0.099															
	2008	1.811	2.156	0.041	0.013	0.119															
	2009	1.621	1.930	0.037	0.012	0.106															
Vaporizer No. 7	2001	5.536	6.590	0.125	0.040	0.362															
	2002	6.410	7.631	0.145	0.046	0.420															
	2003	6.199	7.380	0.140	0.044	0.406															
	2004	5.825	6.935	0.132	0.042	0.381															
	2005	5.975	7.114	0.135	0.043	0.391															
	2006	6.009	7.153	0.136	0.043	0.393															
	2007	3.677	4.377	0.083	0.026	0.241															
	2008	3.669	4.368	0.083	0.026	0.240															
	2009	1.738	2.069	0.039	0.012	0.114															
Vaporizer No. 8	2001	4.691	5.585	0.106	0.034	0.307															
	2002	4.798	5.712	0.109	0.034	0.314															
	2003	5.309	6.320	0.120	0.038	0.348															
	2004	6.119	7.285	0.138	0.044	0.401															
	2005	6.794	8.088	0.154	0.049	0.445															
	2006	6.833	8.135	0.155	0.049	0.447															
	2007	7.216	8.590	0.163	0.052	0.472															
	2008	6.660	7.929	0.151	0.048	0.436															
	2009	6.211	7.394	0.140	0.044	0.407															
Adipic Drying																					
Bepex Dryer	2001			0.215																	
EU-060	2002			0.285																	
	2003			0.33			0.54					0.46					0.08					
	2004			0.285			0.54					0.47					0.08					
	2005			0.31																	
	2006			0.35																	
	2007			0.36																	
	2008			0.32																	
	2009			0.358																	
405A Dryer	2001			2.206																	
EU-061	2002			1.641																	
	2003			2.7			9.00					6.49					2.51					
	2004			4.04			9.00					6.48					2.52					
	2005			2.54																	
	2006			4.03																	
	2007			4.75																	
	2008			2.61																	
	2009			4.276																	
405B Dryer																					
EU-062	2001			1.765																	
	2002			1.245																	
	2003			2.123			9.05					6.61					2.44					
	2004			4.1			9.05					6.60					2.45					
	2005			2.87																	
	2006			4.24																	
	2007			5.39																	
	2008			3.8																	
	2009			4.278																	
465A Dryer																					
EU-063	2001			4.545																	
	2002			5.159																	
	2003			4.136			11.19					8.29					2.89					

Source		Baseline Emissions (TPY)					Post-Project Emissions Projected Emissions (TPY) up to 930 MAR					Baseline Emissions plus Demand Growth Projected Emissions (TPY) up to 850 MAR					Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY)				
		CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC
	2004			5.07					11.19					8.30					2.89		
	2005			2.99																	
	2006			5.27																	
	2007			7.31																	
	2008			6.83																	
	2009			6.454																	
465B Dryer EU-064																					
	2001			4.593																	
	2002			4.581																	
	2003			3.584					11.46					8.48					2.98		
	2004			5.05					11.46					8.47					2.99		
	2005			4.1																	
	2006			6.47																	
	2007			8.85																	
	2008			5.97																	
	2009			6.504																	
Nitro Dryer EU-079																					
	2001			0.297																	
	2002			0.377																	
	2003			0.335					0.63					0.41					0.22		
	2004			0.355					0.63					0.41					0.22		
	2005			0.36																	
	2006			0.54																	
	2007			0.57																	
	2008			0.47																	
	2009			0.489																	
Bulk Loading #1 EU-050																					
	2001			6																	
	2002			6.984																	
	2003			6.945					2.47					17.33					-14.86		
	2004			11.09					2.47					17.33					-14.86		
	2005			7.47																	
	2006			11.05																	
	2007			10.44																	
	2008			9.52																	
	2009			1.71																	
Bulk Loading #2 EU-051																					
	2001			0.082																	
	2002			0.096																	
	2003			0.101					0.29					0.27					0.02		
	2004			0.096					0.29					0.27					0.02		
	2005			0.106																	
	2006			0.125																	
	2007			0.119																	
	2008			0.109																	
	2009			0.102																	
Building 373 Loading EU-080																					
	2001			0.010																	
	2002			0.012																	
	2003			0.011					0.01					0.01					0.00		
	2004			0.012					0.01					0.01					0.00		
	2005			0.012																	
	2006			0.013																	
	2007			0.013																	
	2008			0.011																	
	2009			0.011																	
Building 465 Boxing/Bagging EU-045																					
	2001			0.038																	
	2002			0.038																	
	2003			0.042					0.05					0.06					-0.01		
	2004			0.048					0.05					0.06					-0.01		
	2005			0.038																	
	2006			0.048																	
	2007			0.071																	
	2008			0.049																	
	2009			0.049																	
Boiler 4 (EU-014)	2001	26.1	342.435	7.67	18.61	2.99															
	2002	26.9	349.652	6.78	0.39	2.903															
	2003	24.7	267.611	73.39	1045.88	4.341															
	2004	21.148	160.015	72.798	1045.181	3.84															
	2005	18.09	127.9	72.117	939.216	3.875															
	2006	11.528	84.044	20.683	211.253	2.399															
	2007	10.114	73.188	15.456	143.146	2.156															
	2008	10.065	71.135	10.25	127.112	2.382															
	2009	9.304	69.093	4.784	9.111	2.301															
Boiler 5 (EU-015)	2001	20.313	231.717	229.547	811.966	3.717															
	2002	24.658	322.311	200.49	188.262	3.377															
	2003	21.718	216.989	88.81	1302.24	4.48															
	2004	19.048	130.185	82.69	1261.218	4.369															
	2005	19.475	136.565	79.919	1046.301	4.242															
	2006	16.572	127.081	22.376	195.652	3.039															
	2007	16.696	126.653	27.782	250.664	3.137															
	2008	16.502	127.308	12.127	92.99	4.344															
	2009	11.383	92.282	5.748	3.767	3.171															

Emissions from Powerhouse *Grouped*

				1401.63						1374.76					26.87					
	210.95	1122.92	359.72	4671.32		206.91	1101.39	352.82	4646.32		4.04	21.53	6.90	25.00						
	250.76		337.87	4586.49	65.37	245.96		331.40	4561.49	64.12	4.81		6.48	25.00	1.25					
					63.15					61.94					1.21					

Source		Baseline Emissions (TPY) CO	NOX	PM/PM10	SO2	VOC	Post-Project Emissions: Projected Emissions (TPY) up to 930 MAR CO	NOX	PM/PM10	SO2	VOC	Baseline Emissions plus Demand Growth: Projected Emissions (TPY) up to 850 MAR CO	NOX	PM/PM10	SO2	VOC	Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY) CO	NOX	PM/PM10	SO2	VOC
Boiler 6 (EU-016)	2001	16.78	222.114	18.922	166.488	2.542															
	2002	20.663	277.532	15.046	127.328	3.02															
	2003	18.19	182.083	82.69	1252.197	4.354															
	2004	15.965	103.152	77.139	1202.073	4.049															
	2005	17.469	114.132	75.25	1010.395	4.38															
	2006	7.956	55.559	8.31	75.649	1.855															
	2007	8.947	60.917	20.649	218.242	2.147															
	2008	7.703	54.484	2.985	10.178	1.768															
	2009	5.167	36.593	1.686	0.449	1.184															
Boiler 7 (EU-004)	2001	12.56	13.211	11.791	0.227	1.698															
	2002	8.69	14.072	12.559	0.261	1.808															
	2003	8.69	14.954	13.346	0.28	1.922															
	2004	14.213	11.511	5.959	0.286	4.446															
	2005	8.7	10.959	5.673	0.27	4.266															
	2006	9.67	11.308	5.833	0.275	3.765															
	2007	12.56	10.784	7.204	0.243	3.884															
	2008	5.98	11.443	7.644	0.211	4.122															
	2009	2.5	7.662	5.118	0.166	2.76															
Boiler 8 (EU-003)	2001	11.64	17.661	4.884	0.216	9.191															
	2002	9.41	14.376	5.491	0.244	10.397															
	2003	9.41	14.003	5.349	0.244	10.313															
	2004	13.892	13.47	5.634	0.264	4.207															
	2005	8.7	13.302	5.564	0.256	4.145															
	2006	9.82	13.11	5.466	0.243	3.493															
	2007	12.8	9.633	7.146	0.237	3.853															
	2008	6.13	10.676	7.92	0.239	4.271															
	2009	2.51	7.677	5.695	0.208	3.071															
Boiler 9 (EU-099)	2001																				
	2002																				
	2003																				
	2004																				
	2005																				
	2006																				
	2007	8.07	14.04	1.72	1.968	1.376															
	2008	12.67	23.48	2.094	2.427	1.675															
	2009	9.16	13.26	1.58	1.849	1.264															
Cogen (EU-032)	2001	93.344	191.356	12.501	10.226	11.001															
	2002	101.847	208.787	13.64	11.157	12.003															
	2003	78.029	159.958	10.501	8.589	9.196															
	2004	105.444	219.283	11.39	9.316	28.544															
	2005	92.555	192.478	9.998	8.178	25.055															
	2006	65.019	197.425	9.892	8.091	18.766															
	2007	58.811	178.583	8.888	7.27	16.974															
	2008	24.964	75.805	3.822	3.126	7.205															
	2009	54.057	164.148	8.358	6.836	15.602															

Baseline Emissions Average 24-Month Periods		CO	NOX	PM/PM10	SO2	VOC
	2001 - 2002	522.92	1886.79	# 310.34	# 667.91	274.02
	2002 - 2003	539.37	1926.63	# 305.79	# 1968.76	290.01
	2003 - 2004	552.46	1599.59	# 312.43	# 3564.11	307.63
	2004 - 2005	549.69	1472.02	# 300.27	# 3261.71	312.14
	2005 - 2006	494.52	1452.29	# 208.94	# 1748.12	294.04
	2006 - 2007	417.28	1391.13	# 139.25	# 556.68	294.22
	2007 - 2008	292.04	1266.16	# 124.91	# 429.22	258.74
	2008 - 2009	209.99	1117.49	# 86.05	# 129.49	210.45
		552.46	1926.63	312.43	3564.11	312.14

Note: Minor PM10 emissions with Nylon (potenital of approximately 7.95 tons PM10) were permitted as part of the fiber to flake (pellet) conversion construction permits and are not included in these totals. Such emissions are not impacted by the adipic acid project.

Note EU-020 (Halcon) CO and VOC Post-Project Emissions and Baseline Emissions plus Demand Growth are based on 2007/2008 operations as representative of current operations (post Backup control Device installation).

Source: Ascend, 2010; Golder, 2010.

Total Emissions All Emission Units

	Projected Emissions (TPY) up to 930 MAR CO	NOX	PM/PM10	SO2	VOC	Projected Emissions (TPY) up to 850 MAR CO	NOX	PM/PM10	SO2	VOC	Net Emissions Change (TPY) CO	NOX	PM/PM10	SO2	VOC
2001															
2002		2477.29					2458.79					18.50			
2003	494.06	2194.89	433.83	4671.68		482.04	2203.75	428.41	4646.63		12.02	-8.85	5.41	25.05	
2004	528.79		411.93	4586.85	412.87	516.44		406.94	4563.59	376.73	12.34		4.98	25.05	36.14
2005					417.15					380.64					36.51
2006															
2007															
2008															
2009															
Avg.	511.42	2336.09	422.88	4629.26	415.01	499.24	2331.27	417.68	4605.11	378.69	12.18	4.82	5.20	25.05	36.32

PSD Review Applicability

	Baseline	Demand Growth - 850 MAR	Post-Project Emissions at 930 MAR	Project Increase	PSD Threshold
CO	552.46	499.24	511.42	12.18	100.00
NOx	1926.63	2331.27	2336.09	4.82	40.00
PM	312.43	417.68	422.88	5.20	25.00
PM10	312.43	417.68	422.88	5.20	15.00
SO2	3564.11	4605.11	4629.26	24.15	40.00
VOC	312.14	378.69	415.01	36.32	40.00