APPLICANT'S NAME: ARLON GRAPHICS LLC

FACILITY PERMIT ID# 167066

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EQUIPMENT ADDRESS: Same

Title V/RECLAIM Permit Revision:
Application No. 532299

PERMIT TO CONSTRUCT
NEW CONSTRUCTION

Equipment Description:

PROCESS 1: FILM COATING					
System 6: Air Pollution Control					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
REGENERATIVE THERMAL OXIDIZER, ADWEST TECHNOLOGIES, MODEL RETOX 50.0 RTO97 RTO, NATURAL GAS FIRED, WITH 7500 CFH NATURAL GAS INJECTION, 14.45 MMBTU/HR START-UP BURNER BURNER, MAXON KINEDIZER LE, LOW-NOX BURNER, 14.45 MMBTU/HR Reference A/N 534234	C-28	D2, D3, D13, D14, D16, D17, D25, D30, D31,	NOX: LARGE UNIT	NOX: 30 PPMV NATURAL GAS (3) [RULE 2012, *2012, 5-6-2005*] NOX:30 PPMV NATURAL GAS (4) [RULE 2005, *5-6-2005]* CO: 2000 PPMV (5); [RULE 407, 4-2-1982]: CO: 100 PPMV NATURAL GAS (4) [RULE 1303 (a)(1)-BACT, 12-06-02]; PM: 0.1 GRAINS/SCF (5)[RULE 409, 8-7-1981] PM:(9) [RULE 404, 2-7-1986]	A72.1, A72.2, D29.1, D29.2, E193.1, E448.2
AFTERBURNER, HOT ROCK, PRIMARY, SMITH, MODEL AB25HX90E1965, NATURAL GAS, 8 MMBTU/HR Reference A/N: ~~519602~~532302	C4	D2, D3, D13, D14, D16, D17, D25, D30, D31	NOx: PROCESS UNIT	CO: 2000 PPMV (5) RULE 407, 4-2-1982]; NOX: 130 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981]	A72.1, A72.2, C6.3, D29.1, E193.1, E448.1, E448.2

FACILITY WIDE CONDITIONS:

F2.1 The operator shall limit emissions from this facility as follows:

CONTAMINANT	EMISSIONS LIMIT
VOC	Less than or equal to 931 lbs in any one day

In addition to the record keeping requirements of Rule 109, the operator shall keep adequate records for each VOC emitting equipment to verify daily VOC emissions in pounds, daily VOC-containing material usage in gallons, and VOC content of each material as applied (including water and exempt compounds).

For the equipment that is vented to the air pollution control (APC) system, the VOC emissions shall be calculated using the required overall control efficiency specified in the permit for the APC system.

The operator shall total and record VOC emissions for the day from all the VOC emitting equipment covered by this daily VOC emission limit. The records shall include any procedures used to account for waste disposal.

All records required by this permit shall be prepared in a format which is acceptable to the District, shall be retained at the facility for five years, and shall be made available to any District representative upon request.

Conditions:

A72.1 The operator shall maintain this equipment to achieve a minimum capture efficiency of 100 percent for ROG during the normal operation of the equipment it vents.

A72.2 The operator shall maintain this equipment to achieve a minimum destruction efficiency of 98.5 percent for ROG during the normal operation of the equipment it vents.

Existing RTO C4

C6.3 The operator shall use this equipment in such a manner that the flow being monitored, as indicated below, does not exceed 25000 CFM.

To comply with this condition, the operator shall install and maintain a(n) flow meter to accurately indicate the flow rate being supplied to the afterburner.

D29.1 The operator shall conduct source test(s) for the pollutant(s) identified below.:

Pollutants to Be tested	Required Test Method(s)	Averaging Time	Test Location
VOC	Approved District Method	District Approved Averaging time	Simultaneous inlet and outlet

The test(s) shall be conducted at least once every five years.
The test shall be conducted no later than February 4, 2016 unless otherwise

approved in writing by the District.

The test shall be conducted to demonstrate compliance with all applicable permit conditions, Rules and Regulations.

The source test shall be conducted while the afterburner is operating at a temperature of not less than the minimum operating temperature specified in this permit. If the operating temperature during the source test is greater that the minimum operating temperature specified in the permit, the minimum operating temperature specified in this permit may be increased to reflect the operating temperature during the source test.

The operator shall comply with administrative conditions Nos. 8, 9, and 10 of Section E of this facility permit.

The operator shall submit two complete copies of the source test report specified in condition No. 9 of Section E of this facility permit to the District Engineering and Compliance Division.

D29.2 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutants to Be tested	Required Test Method	Averaging Time	Test Location
VOC	Approved District Method	Approved District Averaging Time	Simultaneous inlet and Outlet
NOx	Approved District Method	Approved District Averaging Time	Outlet
CO	Approved District Method	Approved District Averaging Time	Outlet

In addition to the source test requirements of Section E of this facility permit, the facility permit holder shall submit the protocol to the AQMD engineer no later than 45 days prior to the proposed test date, and notify the District of the date and time of the test at least 10 days prior to the test.

The test(s) shall be conducted within 90 days after achieving maximum production rate, but no later than 180 days after initial start-up.

The test shall be conducted to verify that the Permanent Total Enclosures (PTE) comply with the requirements under EPA method 204.

The test shall be conducted at the inlet and the exhaust of the RTO for (1) VOC in PPMV and lbs/hr. (2) NOx emissions during startup and normal operation in PPMV and lbs/hr (exhaust only). (3) CO emissions during startup and normal operation in PPMV and lbs/hr (exhaust only). (4) VOC destruction efficiency. (5) VOC collection efficiency. (6) Usage of all VOC-containing materials during the test. (7) Oxygen content. (8) Moisture content. (9) Flow rate. (10) Temperature.

Not withstanding the requirements of Section E conditions, the source test results shall be submitted to the District no later than 60 days after the source test was conducted.

The test shall be conducted to demonstrate compliance with applicable permit conditions, Rules and Regulations.

The test shall be conducted while the afterburner is operating at a temperature of not less than the minimum operating temperature specified in this permit. If the operating temperature during the source test is greater than the minimum operating temperature specified in this permit, the minimum operating temperature specified in this permit may be increased to reflect the operating temperature during the source test.

The operator shall comply with administrative conditions Nos 8, 9, and 10 of section E of this permit.

The operator shall submit two complete copies of the source test report specified in condition no. 9 of section E of this facility permit to the District Engineering and Compliance Division.

E193.1 The operator shall operate and maintain this equipment according to the following requirements:

The operator shall comply with the terms and conditions set forth below:

The combustion chamber temperature shall be maintained at a minimum of 1,500 degrees Fahrenheit whenever the equipment it serves is in operation.

The operator shall operate and maintain a temperature measuring and recording system to continuously measure and record the combustion chamber temperature pursuant to the operation and maintenance requirements specified in 40 CFR Part 64.7. Such a system shall have an accuracy of within 1% of the temperature being monitored and shall be inspected, maintained, and calibrated on an annual basis in accordance with the manufacturer's specifications.

For the purpose of this condition, a deviation shall be defined as when a combustion chamber temperature of less than 1,500 degrees Fahrenheit occurs during normal operation of the equipment it serves. The operator shall review the records of the combustion chamber temperature on a daily basis to determine if a deviation occurs or shall install an alarm system to alert the operator when a deviation occurs.

Whenever a deviation occurs, the operator shall inspect this equipment to identify the cause of such a deviation, take immediate corrective action to maintain the combustion chamber temperature at or above 1,500 degrees Fahrenheit, and keep records of the duration and cause (including unknown cause, if applicable) of the deviation and the corrective action taken.

All deviations shall be reported to the AQMD pursuant to the requirements specified in 40 CFR Part 64.9 and Condition Nos. 22 and 23 in Section K of this permit. The report shall include the total operating time of this equipment and the total accumulated duration of all deviations for each semi-annual reporting period specified in Condition No. 23 in Section K of this permit.

The operator shall submit an application with a Quality Improvement Plan (QIP) in accordance with 40 CFR Part 64.8 to the AQMD if an accumulation of deviations exceeds 5 percent duration of this equipment's total operating time for any semi-annual reporting period specified in Condition No. 23 in Section K of this permit. The required QIP shall be submitted to the AQMD within 90 calendar days after the due date for the semi-annual monitoring report.

The operator shall inspect and maintain all components of this equipment on an annual basis in accordance with the manufacturer's specifications.

The operator shall keep adequate records in a format that is acceptable to the AQMD to demonstrate compliance with all applicable requirements specified in this condition and 40 CFR Part 64.9 for a minimum of five years.

E448.1 The operator shall comply with the following requirements:

Oxidizer C4 shall vent only two of the three coating lines during operation.

E448.2 The operator shall comply with the following requirements:

Oxidizers C28 & C4 shall not be operated simultaneously

PERMIT TO CONSTRUCT
NEW CONSTRUCTION

Equipment Description:

PROCESS 1: FILM COATING					
System 4: Coating line C4					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
COATER, CASTING LINE NO. 4(C4), FAUSTEL COATING HEAD, KNIFE-OVER-ROLL TYPE Reference A/N 532298	D30	C4, C28		HAP: (10) [40CFR 63 Subpart JJJJ, 12-4-2002]; VOC: (9) [RULE 1128, 3-8-1996; RULE 1171, 11-7-2003; *RULE 1171, 5-1-2009*]	A63.1, B59.4, H23.1
OVEN, COATING, COATING LINE NO. 4(C4), ASI , NATURAL GAS FIRED, WITH A 1.35 MMBTU MAXON, OVENPAK LE, LOW NOX BURNER, 24FT W. X 72FT10IN L. X 7FT H.	D31	C4, C28	NOx: PROCESS UNIT	NOX:30 PPMV NATURAL GAS (4) [RULE 2005, *5-6-2005] NOX: 130 LBS/MMSCF NATURAL GAS (1) [RULE 2012, 5-6-2005];* CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; CO: 100 PPMV NATURAL GAS (4) [RULE 1303 (a)(1)-	D29.3, H23.1

Reference A/N 532298				BACT, 12-06-02]; PM: 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981] PM:(9) [RULE 404, 2-7-1986]	

Conditions:

A63.1 The operator shall limit the emissions from this equipment as follows:

CONTAMINANT	EMISSIONS LIMIT		
VOC	LESS THAN	900	LBS IN ANY ONE MONTH

B59.4 The operator shall not use the following materials in this device:

Materials containing any toxic air contaminants identified in Rule 1401, Table 1 with an effective date of Sept 10, 2010 or earlier, except Ethylbenzene (CAS# 100-41-4), Xylene(CAS#1330-20-7), Toluene (CAS#108-88-3), Glycol Ethers (CAS#111-76-2, 110-80-5), Isopropyl Alcohol(CAS# 67-63-0) and Methyl Ethyl Ketone (CAS# 78-93-3)

D29.3 The operator shall conduct source test(s) for the pollutants(s) identified below.

POLLUTANT(S) TO BE TESTED	REQUIRED TEST METHOD(S)	AVERAGING TIME	TEST LOCATION
NOX EMISSIONS	APPROVED DISTRICT METHOD	DISTRICT-APPROVED AVERAGING TIME	OUTLET
CO EMISSIONS	APPROVED DISTRICT METHOD	DISTRICT-APPROVED AVERAGING TIME	OUTLET

In addition to the source test requirements of Section E of this facility permit, the facility permit holder shall submit the protocol to the AQMD engineer no later than 45 days prior to the proposed test date, and notify the District of the date and time of the test at least 10 days prior to the test.

The test(s) shall be conducted within 90 days after achieving maximum production rate, but no later than 180 days after initial start-up.

The test shall be conducted at the the exhaust of the oven for (1) NOx emissions during normal operation in PPMV and lbs/hr . (2) CO emissions during normal operation in PPMV and lbs/hr. (3) Oxygen content. (4) Moisture content. (5) Flow rate. (6) Temperature.

Not withstanding the requirements of Section E conditions, the source test results shall be submitted to the District no later than 60 days after the source test was conducted.

The test shall be conducted to demonstrate compliance with applicable permit conditions, Rules and Regulations.

The operator shall submit two complete copies of the source test report to the District Engineering and Compliance Division.

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	109

PERMIT TO CONSTRUCT
MODIFICATION

Equipment Description:

PROCESS 1: FILM COATING					
System 5: Drum Cleaning					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
CLEANER NO. 1, DRUM, C.B. MILLS, RED HEAD TW-300 SERIES Reference A/N ~~519556~~536828	D16	C4, C28		VOC:(9)[Rule 1171, 11-7-2003; Rule 1171, 5-1-2009]	H23.1, K67.3
STILL, SOLVENT RECOVERY, C. B. MILLS, MODEL NO. RED-HEAD RHS-30, WIDTH: 6 FT 10 IN; LENGTH: 6 FT 2 IN; HEIGHT: 9 FT 7 IN; 30 KW Reference A/N ~~519558~~536826	D17	C4, C28			B59.1, C1.2, C8.3, K67.5

Conditions:

B59.1 The operator shall not use the following material(s) in this device :

Materials containing any toxic air contaminants identified in Rule 1401, Table 1 with an effective date of August 18, 2000 or earlier, except methyl ethyl ketone and xylene.

C1.2 The operator shall limit the material processed to no more than 3120 gallon(s) per month.

C8.3 The operator shall use this equipment in such a manner that the temperature being monitored, as indicated below, is not less than 15 Deg F.

To comply with this condition, the operator shall install and maintain a(n) temperature reading device to accurately indicate the temperature at the condensate

outlet leaving the condenser.

The operator shall maintain the condensate outlet temperature leaving the condenser to be at least 15 deg F below the boiling point of the solvent being recovered.

The operator shall maintain safety interlocks at the condenser to shut down the equipment in the event of excessive condensate temperature.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

H23.1 This equipment is subject to the applicable requirements of the following rule or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	109

K67.3 operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Records of daily solvent usage in this equipment shall be maintained for a period of at least five years after they are recorded and shall be made available to District personnel upon request.

K67.5 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Records to prove compliance with conditions No. C1.2 and B59.1. Such records shall be retained for at least five years and be made available to District personnel upon request.

PERMIT TO OPERATE
CHANGE OF CONDITIONS

Equipment Description:

PROCESS 1: FILM COATING					
System 1: Prime Coating No. 1					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
COATER, PRIME COATING LINE NO.1, FAUSTEL, GRAVURE ROLLER COATER WITH TWO 2 H.P. DRIVES Reference A/N: ~~524696~~532300	D26			HAP: (10) [40CFR 63 Subpart JJJJ, 12-4-2002]; VOC: (9) [RULE 1128, 3-8-1996; RULE 1171, 11-7-2003; *RULE 1171, 5-1-2009*]	B59.3, C1.3, H23.1
OVEN, RADIAN ENERGY, PRIME COATING LINE # 1, 5 FT 8 IN W X 5 FT 4 IN L X 1 FT 4 IN H., 77.5 KW INFRARED HEATER WITH A 2 H.P.	D27			PM: (9) [RULE 404, 2-7-1986]; VOC: (9) [RULE 1128, 3-8-1996; RULE 1171, 11-7-2003; *RULE 1171, 5-1-2009*]	H23.1

SUPPLY BLOWER AND A 2H.P. EXHAUST BLOWER Reference A/N: ~~524696~~532300					

Conditions:

B59.3 The operator shall not use the following material(s) in this device :
Materials containing Volatile Organic Compounds (VOC) exceeding 5 percent by weight.

Clean-up materials containing VOC.

Materials containing any toxic air contaminants identified in Rule 1401, Table 1 with an effective date of September 10, 2010 or earlier, except ~~the following: Materials with maximum~~ triethylamine (CAS # 121-44-8) ~~content of 0.035 pounds per gallon~~.

C1.3 The operator shall limit the material processed to no more than ~~16,560 gallon(s)~~ 580 pounds in any one calendar month.

For the purpose of this condition, material processed shall be defined as ~~material containing~~ triethylamine applied in this equipment.

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	109

ADMIN CHANGE P/C
EXHAUST MODIFICATION
Add Connection

Equipment Description:

PROCESS 1: FILM COATING					
System 2: Coating line C2					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
COATER, ROLL, COATING LINE NO.2 (C2), GOWEN, MODEL NO.CK60, KNIFE-OVER-ROLL TYPE Reference A/N ~~519554~~532829	D13	C4, C28		HAP: (10) [40CFR 63 Subpart JJJJ, 12-4-2002]; VOC: (9) [RULE 1128, 3-8-1996; RULE 1171, 11-7-2003; *RULE 1171, 5-1-2009*]	H23.1
OVEN, COATING, COATING LINE NO. 2 (C2), MODEL BZ, NATURAL GAS, 7 FT - 5 IN W. X 80 FT L. X 6 FT H., THREE ZONES, 4.5 MMBTU/HR	D2	C4, C28	NOx: PROCESS UNIT	**CO**: 2000 PPMV (5) [**RULE 407, 4-2-1982**]; **NOX**: 130 LBS/MMSCF NATURAL GAS (1) [**RULE 2012, 5-6-2005**];	C6.1, H23.1

Reference A/N ~~519554~~532829				**PM**: 0.1 GRAINS/SCF NATURAL GAS (5) [**RULE 409, 8-7-1981**]	

Conditions:

C6.1 The operator shall use this equipment in such a manner that the temperature being monitored, as indicated below, does not exceed 450 Deg F.

To comply with this condition, the operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the oven.

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	109

ADMIN CHANGE P/C
EXHAUST MODIFICATION
Add Connection

Equipment Description:

PROCESS 1: FILM COATING					
System 3: Coating line C3					
Equipment	Device ID	Connected To	Source Type/ Monitoring Unit	Emissions	Equipment Specific Conditions
COATER, ROLL, COATING LINE NO. 3 (C3) Reference A/N ~~519561~~536831	D14	C4, C28		HAP: (10) [40CFR 63 Subpart JJJJ, 12-4-2002]; VOC: (9) [RULE 1128, 3-8-1996; RULE 1171, 11-7-2003; *RULE 1171, 5-1-2009*]	H23.1
OVEN, COATING, COATING LINE NO. 3 (C3), FAUSTEL, NATURAL GAS, 8 FT W. X 100 FT L. X 4 FT. H., 5 MMBTU/HR Reference A/N ~~519561~~536831	D3	C4, C28	NOx: PROCESS UNIT	**CO**: 2000 PPMV (5) [**RULE 407, 4-2-1982**]; **NOX**: 130 LBS/MMSCF NATURAL GAS (1) [**RULE 2012, 5-6-2005**]; **PM**: 0.1 GRAINS/SCF NATURAL GAS (5) [**RULE 409, 8-7-1981**]	H23.1
PRESS, FLEXOGRAPHIC, WOLVERINE, MODEL NO. 66-1, 66 INCH WEB WIDTH Reference A/N ~~519561~~536831	D25	C4, C28		**VOC**: (9) [**RULE 1130, 10-8-1999; RULE 1171, 11-7-2003;** *RULE 1171, 5-1-2009*]	B59.2, H23.1

Conditions:

B59.2 The operator shall not use the following material(s) in this device :

Materials containing any toxic air contaminants identified in Rule 1401, Table 1 with an effective date of March 4, 2005 or earlier, except proplene glycol monomethyl ether (CAS # 107-98-2), ethylene glycol monobutyl ether (CAS # 111-76-2) and sodium hydroxide (CAS # 1310-73-2).

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	109

Background:
Arlon Graphics LLC submitted nine applications to make the following changes to their operations;

Application 532299 was submitted on 2/14/2012 to revise the RECLAIM/Title V facility permit.

Application 532300 was submitted at the same time to change the way triethylamine usage is reported in condition C1.3 under device D26 from a gallons material used per month to pounds of triethylamine used per month. The change will not cause an increase in the amount of triethylamine used. It is simply a different way of recording the amount used.

Application 532302 was submitted to modify the existing afterburner, device C4. Device C4 currently vents coating lines C2, C3, and the drum cleaner. The applicant is proposing to vent the new coating line C4 to a the afterburner and limit the venting so that afterburner C4 will only be allowed to vent any two of the three coating lines when in operation.

Application 532298 was submitted to add a new vinyl film coating line no. C4, devices D30 & D31.

Application 534234 was submitted on 3/21/2012 to add a new RTO, device C28, which will have the capacity to vent all the existing equipment currently vented to afterburner C4 (line C2 devices D13, D2, line C3, devices D14, D3, D25, Drum cleaner D16) plus the new coating line under device D30 & D31 and the solvent still under D17.

Application 536829(Previous a/n 519554) Line C2, Application 536831(Previous a/n 519561) Line C3 and Application 536828 (Previous a/n 519556) Drum cleaner were submitted on 05/04/2012 as an admin change to connect coating lines C2, C3 and drum cleaner D16 to the new RTO, C28. These lines and drum cleaner are currently vented to control device C4. The facility would like to use control device C4 as a back-up to control device C28 so that C4 will be able to vent any two coating lines C2, C3 or C4(new). Therefore, all operations vented by control device C4 will be connected to both control devices C4 and C28, with C28 being the primary control device.

Application 536826(previous a/n 519558) was submitted on 05/04/2012 as a modification to vent the existing solvent still to the new RTO C28

All operations are conducted within a Permanent Total Enclosure(PTE).

There are no notices of violation, notices to comply or complaints issued against this facility over the past two years as of May 23, 2012.

This is a RECLAIM /Title V facility. The proposed project is considered as a "de minimus" significant permit revision to this facility title V permit.

Thermal Oxidizer device C28, Capacity Evaluation: a/n 534234

Burner Capacity Check

Check list

1. Combustion Chamber Temperature – 1500^0f
2. Combustion Chamber dimensions – 49in H x 636in L x 153in W – 2759.31 cuft
3. Combustion Chamber inlet temperature – 425^0F
4. Exhaust temperature 195^0F
5. Inlet Combustion flow rate 57,500 scfm
6. Start-up burner @ 14.45 mmbtu/hr
7. Natural gas injection rate7500 cfh – 7.50 mmbtu/hr
8. VOC inlet estimated lbs/hr – 109 lbs/hr

Inlet CFM = 57,500 ft^3/min

Inlet Temp. - 70^0F

Outlet Temp - 195^0F

Combustion Temp - 1500^0F

% Heat Recovery:

$$\frac{(1500F - 195^0F)}{(1500F - 70^0F)}(100) = 91.25\%$$

Inlet Air Temp. - 1500F(0.9125) = 1367F

Enthalpy @ 1500^0F = 28.24btu/scf (Table D4, Appendix D, AP40)

1450^0F = 25.63 btu/scf (Table D4, Appendix D, AP40)

Net Enthalpy = 2.61 BTU/scf (28.24-25.63)

Total Exhaust Flow Rate = 57,500 scfm

Net Heat (Q_{net})

= (57,500 ft3/min)(60min/hr)(2.61BTU/scf) = 9,004,500 BTU/hr

The start-up burner has a 14.45mmbtu/hr capacity which will be sufficient heat the RTO

= 9,004,500 btu/hr)/(1050 btu/cft) = 8,575.7 cfh Nat gas input

Retention Time Check

Volume of gases in RTO

Combustion Air;

(8,575.7 ft^3 nat gas/hr)(10.36 ft^3/ft^3nat gas)/(60min/hr) = 1,480.7ft^3/min

Products of Combustion;

(8,575.7 ft^3 nat gas/hr)(11.45 ft^3/ft^3nat gas)/(60min/hr) =1,636.5ft^3/min

Total Volume of Gases through RTO

57,500 ft^3/min – 1,480.7 ft^3/min +1,636.5 ft^3/min = 57,655.8 ft^3/min

Volume at 1500^0F

(57,655.8ft^3/min)(1960^0R)/((60sec/min)(520^0R)) =3,622.0 ft^3/sec

Velocity through RTO;

(3,622.0 ft3/sec)/(52.06ft2)= 69.57 ft/sec

Chamber length; 636in (53.0 ft)

Residence time

(53.0 ft)/(69.57 ft/sec) = 0.760 sec

Therefore, the minimum retention time of 0.3 sec is met.

Thermal Oxidizer device C4, Capacity Evaluation: a/n 532302

Device C4' exhaust is being modified to include D30 & D31 so that it may vent any two coating lines (C2, C3 & C4(new))in the event the new RTO is shut down. The existing afterburner has a limited exhaust capacity and is conditioned such that it may not exceed 25,000 cfm. It is also conditioned to meet a destruction efficiency of 98.5% and all coating operations vented to this device are operated within the permanent total enclosures(PTE).

Currently, coating line C2 and line C3 are operated within separate PTE's. Line C2 has a 10,800 scfm exhaust and line C3 has a 6,640 scfm. The PTEs have been verified under these current exhaust flows. The new coating line C4 will be constructed within the same PTE housing coating line C2. Coating line C4 has a venting requirement of 7,993 scfm. The total scfm will be 25,433 scfm. Since the new coating line C4 will be constructed within the same PTE as C2 and no change will be made to the PTE, the new RTO will have the exhaust capacity to vent all three lines, and continue to meet the PTE requirements originally established under the existing afterburner. The existing afterburner will be able to vent any two coating lines such as lines C2 & C3 with an exhaust capacity of 10,800scfm + 6,640scfm = 17,440 scfm. C2 and C4 will have an exhaust requirement of 10,800scfm + 7,993scfm = 18,793scfm. It would not be feasible for Arlon to vent all three lines through the existing afterburner since that would exceed its exhaust capacity though it would still maintain the PTEs, the VOC concentration could accumulate with the PTE causing a hazardous condition.

This device will be source tested to ensure its destruction efficiency and that all PTEs continue to comply with the requirements of EPA method 204, PTE determination.

Combustion Emissions:

The original Afterburner under application no. 519602 has an 8,000,000 btu/hr burner. This new RTO has a start-up burner of 14.45 mmbtu/hr with a natural gas injection rate of 7.50 mmbtu/hr. The new RTO is equipped with a low-nox burner which will emit less than 30 ppm NOx.

The previous afterburner was a direct flame which would have generated a substantial amount of NOx. The new RTO will have a reduced NOx concentration since the start-up burner is a low-nox burner.

Operating Schedule: 24hr/day, 7day/wk, 52 wk/yr

Existing Afterburner C4, a/n 532302

Burner Rating: 8,000,000 btu per hour

7.619x10E-3mmcuft/hr

Combustion Emissions

	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Emissions lbs/day	Annual Emissions lbs/yr	30 day average* lbs/day
ROG	7.0	0.0533	1.28	465.92	1.28
NOX	130	0.99	23.77	8,652.8	23.8
SOX	0.83	0.006	0.152	55.24	0.15
CO	35	0.267	6.4	2,329.6	6.4
PM10	7.5	0.0571	1.371	499.2	1.371

Start-up Operating Schedule: 5 hrs/day, 1day/month, 12 months/yr

New RTO C28, a/n 534234

Burner Rating: 14,450,000 btu per hour

1.376x10E-2mmcuft/hr

Combustion Emissions @ 5 hrs/day, 1day/week, 52 wk/yr

Start-up	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Emissions lbs/day	(delta) 30 day average* lbs/day
ROG	7.0	0.0963	0.482	0.482
NOX	38.87	0.535	2.675	2.675
SOX	0.83	0.011	0.055	0.06
CO	35	0.48	2.4	2.4
PM10	7.5	0.103	0.515	0.52

Heat required to maintain 1500^0F - 9,004,500 btu/hr

8.576E-03mmcuft/hr

Combustion Emissions

Start-up @ 5hrs/day

Normal operation @ 19 hrs/day

	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Start-up lbs/day	Daily Normal lbs/day	Total Startup/normal lbs/day
ROG	7.0	0.06	0.482	1.14	1.62
NOX	2.0 ppmv	0.83	2.675	15.77	18.45
SOX	0.83	0.007	0.055	0.135	0.19
CO	2.0 ppmv	0.509	2.4	9.67	12.07

PM10	7.5	0.064	0.515	1.22	1.74

Heat required to maintain 1500^{0}F - 9,004,500 btu/hr
8.576E-03mmcuft/hr
Combustion Emissions
Normal operation @ 24 hrs/day

Start-up	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Maintenance lbs/day	Daily Start-up lbs/day	
ROG	7.0	0.06	1.44	1.62	
NOX	2.0	0.83	19.92	18.45	
SOX	0.83	0.007	0.171	0.19	
CO	2.0	0.509	12.22	12.07	
PM10	7.5	0.064	1.54	1.74	
Nox	normal Operation	0.83	17.76	6,464.6	17.76
CO	normal Operation	0.51	17.76	6,464.6	17.76

Actual emissions will be determined by source test.

Nox/CO emissions during normal operation has been shown to be approximately 2.0 ppm.
Exhaust flow 57,500 ft^3/min

NOx emission;
(2.0 part NOx/10^6)(57,500 ft3/min)(7.27)
= 0.83lbs NOx/hr
CO emission:
(2.0 part CO/10^6)(57,500 ft3/min)(4.43)
= 0.509 lbs CO/hr

@ 24 hrs/day, 7 days/week, 52 weeks/yr refer to table above for emissions summary.

Contaminant	Daily Start-up	Daily Normal Operation	29 day Normal Operation	Total Monthly	30day average	Oven 30day average	Total 30 day average
ROG	1.62	1.44	41.76	43.38	1.45	0.216	1.66
NOx	18.45	19.92	577.68	596.13	19.87	1.20	21.07
Sox	0.19	0.171	4.959	5.15	0.170	0.03	0.20
CO	12.07	12.22	354.38	366.45	12.22	2.288	14.49
PM10	1.74	1.54	44.66	46.40	1.55	0.231	1.78

VOC Emissions:
Facility Cap 931 lbs VOC per day

<u>New C4 Vinyl Coating Line, Application No. 532298</u>
Operating Schedule; 24 hrs/day, 7days/week, 52 weeks/year
Maximum uncontrolled estimated VOC usage (Supplied by the applicant) – 816,183 lbs/yr
Permitted control efficiency 98.5%

Hourly:
R1 = (816,183 lbs VOC/yr)/((52 weeks/yr)(7 day/week)(24 hrs/day)) = 93.43 lbs VOC/hr
R2 = 93.43 lbs VOC/hr(1-0.985)= 1.401 lbs VOC/hr

Daily:
R1 = 93.43 lbs VOC/hr(24 hrs/day) = 2,264.16 lbs VOC/day
R2 = 1.401 lbs VOC/hr(24hrs/day) = 33.6 lbs VOC/day

The new coating line should be able to operate under the facility VOC cap of 931 lbs/day. Also, the facility agreed to limit the new line to 30 lbs/day of VOC emissions.

Coating Line Oven Combustion Emissions:
30ppm NOx
100 ppm CO
Burner Rating: 1,350,000 btu per hour
1.2857x10E-3mmcuft/hr
Combustion Emissions

	Emission Factor lbs/mmcft	Hourly Emissions lbs/hr	Daily Emissions lbs/day	Annual Emissions lbs/yr	delta 30 day average* lbs/day
ROG	7.0	0.009	0.216	78.62	0
NOX	38.87	0.05	1.20	436.59	1.0
SOX	0.83	0.001	0.03	9.32	0
CO	77.39	0.0995	2.288	869.24	2.0
PM10	7.5	0.010	0.231	84.24	0

<u>Prime Coating Line & Oven D26 & D27, Application No. 532300</u>
Change of Condition to change the way Triethylamine(TEA) is reported. There will be no change in operation or increase in emissions.

Under the original permit evaluation, the maximum monthly volume of material containing TEA was based on a TEA concentration of 0.035 lbs TEA/gal. The TEA emission levels of 0.81 lbs/hr (@ 24hrs/day) and 7,097 lbs/year were below the Rule 1401 table 1-A screening levels of 2.8 lbs/hr and 17,300 lbs/year. It was determined that a limit of 16,560 gallons per month of material with a TEA concentration not to exceed 0.035 lbs TEA per gallon would be applied to the prime coating line under condition C1.3. Condition C1.3 will be changed to 580 pounds TEA per month based on the following:

16,560 gallons/month(0.035 lbs TEA/gal) = 579.6 lbs TEA/month

@ 8hrs/day, 30 day monthly average(worst case instead of 24 hrs/day)
580 lbs/month/(30 days/month)/(8 hrs/day) = 2.42 lbs/hr
12 month/yr
580 lbs/month(12 month/yr) = 6,960 lbs TEA/yr

Condition no. C1.3 will be limited to 580 lbs TEA per month and condition no. B59.3 will be changed to reference the Rule 1401 amendment date of September 10, 2010 with the exception of Triethylamine. The content restriction of 0.035 pounds per gallon will be removed.

Contaminant	C28 RTO 30 day average	C4 coating 30 day average	C4 afterburner 30 day average	Delta
ROG*	0	0.216	0	0
NOx	19.87	1.20	23.8	-2.73
Sox	0.17	0.03	0.15	+0.05
CO	12.21	2.288	6.4	+8.09
PM10	1.54	0.231	1.371	+0.4

*the facility operates under a VOC cap and the operation of the new line will be kept under the facility VOC limit.

Risk Assessment:

Application 534232 Device C28 (new RTO)

This equipment passes Tier 2 Screen Risk Assessment for the combustion emissions from the new RTO with the following results:

Tier 2 results:

MICR	Residential	Commercial
	ASI	ASI
	1.25E-08	1.04 E-08
	Passes	Passes

The Hazard Index had no cumulative impact that exceeded 1.0 for the target organs for Acute or Chronic.

Application 532302 Device C4 (existing Afterburner)

This equipment is having its exhaust modified to accommodate the new C4 coating line. It is limited to 25,000 cfm and will not see an increased capacity. C4 will be conditioned so that it can only vent two lines at anytime. The modification will not cause an increase in toxic emissions and is exempt from the requirements of Rule 1401 pursuant to 1401(g)(1)(B) ”Modifications with no increase in risk.”

Application 532300 Device D26 & D27 (existing Prime Coating Line)

This application has been submitted as a change of condition to change the reporting method for triethylamine(TEA) usage. Originally the facility reported total gallons of material that included a diluted concentrated which contained TEA. They are requesting to report only TEA usage. Condition C1.3 will change from 16,560 gallons per month of materials containing TEA to 580 pounds per month of TEA. The content restriction of TEA in B59.3 will be removed. There will be no increase in TEA therefore this change of condition is exempt from the requirements of Rule 1401 pursuant to 1401(g)(1)(B).

Application 534234 Device D30 & D31 (New Vinyl Coating Line C4)

The new coating line will use the following hazardous materials:

Contaminant	Annual Controlled	Hourly
Ethylbenzene	3.0 lbs/yr	3.434E-04
Xylene	6,337	0.725

Toluene	1517	0.174
Glycol Ether	921	0.105
MEK	810	0.093
IPA	326	0.037

This equipment passes Tier 2 Screen Risk Assessment with the combustion emissions from the new oven with the following results:

Tier 2 results:

MICR	Residential	Commercial
	ASI	ASI
	4.44E-09	1.32 E-08
	Passes	Passes

The Hazard Index had no cumulative impact that exceeded 1.0 for the target organs for Acute or Chronic.

RULE EVALUATION

Rule 212 (c)(1):This section requires a public notice for all new or modified permit units that emit air contaminants located within 1,000 feet from the outer boundary of a school.

No public notice is required since no school is located within 1,000 ft from the above site.

Rule 212 (c)(2):This section requires a public notice for all new or modified facilities that have on-site emission increases exceeding any of the daily maximums as specified by Rule 212(g).

The proposed project will result in an emission increase. A Rule 212(c) (2) notice will not be triggered since the equipment is subject to a facility VOC emission cap and no increase above the daily maximum specified in Rule 212(g) will occur.

Rule 212(c)(3):This section requires a public notice for all new or modified permit unit with increases in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in MICR greater than 1E-6 per permit unit or greater than 10E-6 per facility.

The proposed project will result in an emission increase of toxic emissions by the addition of the new vinyl coating line. The risk has been calculated assuming these new devices are considered a new source. The facility is limited to an existing VOC facility cap. An actual toxic increase may be limited with the existing VOC cap. There is an increase in toxics associated with combustion since the new RTO has a much bigger start-up burner but is only operated during start-up. Since the existing afterburner will function as a back-up, the change in risk associated with the control equipment is essentially the same with no increase. The additions of the new RTO and coating line C4 will not cause an increased MICR in excess of one in million nor cause the hazard index to exceed

1.0 for any targeted organs. Therefore, Public Notice is not required under this section of the rule.

Rule 212(g): This section requires a public notice for all new or modified sources that result in emission increases exceeding any of the daily maximums as specified by Rule 212(g).

The emission increase due to the addition of the new coating line & RTO will have an emission increase as summarized below:

	Maximum Daily Emissions					
	ROG	NO_x	PM_{10}	SO_2	CO	Pb
Emission increase	<30	-2.73	0.40	0.05	8.09	0
MAX Limit (lb/day)	**30**	**40**	**30**	**60**	**220**	**3**
Compliance Status	Yes	Yes	Yes	Yes	Yes	Yes

A public notice is not required since the emission increase is below the VOC thresholds.

Rule 401: Visible emissions are not expected with the proper maintenance and operation of this equipment.

Rule 402: With proper maintenance and operation, this equipment is not expected to create a nuisance.

Rule 1128: This facility complies with the requirements of this rule by operating all processes within a permanent total enclosure and venting the process emissions to an air pollution control device which has an overall control efficiency of 98.5 percent. Compliance with this rule is expected.

REG XIII

Rule 1303(a): The NOx BACT requirements will be satisfied with the installation of the low-NOx burners in the new oven and the start-up burner for the RTO. All VOC emissions from the coating lines C2 & C4 will be captured within a PTE and exhausted to an RTO with a destruction efficiency of at least 98.5%. Compliance with the VOC BACT requirements is expected.

Rules 1303(b)(1) modeling:

The afterburner and the oven are equipped with a 30ppmv Low-Nox burner. The hourly emission rate compared with the Table A-1 screening levels are as follows:

Mmbtu/hr	Table A-1	NOx	CO	PM10
>2 <5		0.31	17.1	1.9
Oven 1.35		0.05	0.1	0.01
>10<20		0.86	47.3	5.2

RTO	0.535	0.48	0.1

Modeling is not required for VOC. Compliance is expected.

Rule 1303(b)(2) Offsets:

No offsets are required for this operation. The facility has a 932 lbs VOC/day facility cap and no emission increase is requested. The NOx emissions are subject to RECLAIM since this is a NOx RECLAIM facility. The PM10 emissions increase is negligible and will not require emission offsets.

Rule 1303(b)(4): The facility is expected to be in full compliance with all applicable rules and regulations of the District.

Rule 1401: Toxics: Rule 1401 contains the following requirements:

1) *(d)(1) MICR and Cancer Burden* - The cumulative increase in MICR which is the sum of the calculated MICR values for all toxic air contaminants emitted from the new, relocated or modified permit unit will not result in any of the following:
   (A) an increased MICR greater than one in one million (1.0×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT;
   (B) an increased MICR greater than ten in one million (1.0×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT;
   (C) a cancer burden greater than 0.5.

2) *(d)(2) Chronic Hazard Index* - The cumulative increase in total chronic HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

3) *(d)(3) Acute Hazard Index* - The cumulative increase in total acute HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

The addition of the new coating line C4 and the new RTO pass the Tier 2 screening as follows:
Coating Line C4;
This equipment passes Tier 2 Screen Risk Assessment with the combustion emissions from the new oven and RTO with the following results:
Tier 2 results:

MICR	Residential	Commercial
	ASI	ASI
	4.74E-08	1.22 E-07
	Passes	Passes

The Hazard Index had no cumulative impact that exceeded 1.0 for the target organs for Acute or Chronic.
Compliance with this rule is expected.

RULE 2005: Arlon Graphics is a NOx RECLAIM facility. The proposed project will result in NOx emission decrease due to the installation of the RTO. The RTO is equipped with a low-NOx burner and it will be used as the primary control device at the facility. In addition, the proposed oven in new line C4 will also be equipped with a low-NOx burner, emitting less than 30 ppmv NOx. Compliance with this rule is expected.

40 CFR63 subpart JJJJ:

63.3320 Emission standard with use of an oxidizer requires no greater than 20 parts per million by volume (ppmv) by compound on a dry basis and 100% capture efficiency. The Facility will comply with this regulation by operating the coating operations within a Permanent Total Enclosure(PTE) and have a destruction efficiency of at least 98.5%. Compliance with this regulation is expected.

REGULATION XXX:

This facility is in the RECLAIM program. The proposed project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants to the RECLAIM/Title V permit for this facility.

Non-RECLAIM Pollutants or HAPs

Rule 3000(b)(6) defines a "de minimis significant permit revision" as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or HAPs from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NOx*	40
PM_{10}	30
SOx*	60
CO	220

* Not applicable if this is a RECLAIM pollutant

To determine if a project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the 1st permit revision to the Title V renewal permit issued to this facility on February 4, 2012. The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued:

Revision	HAP	VOC	NOx*	PM10	SOx	CO
1st Permit Revision: Addition of New RTO, A/N 534234, C28, to vent all existing coating lines C2 C3 and printing press, D16, and solvent still, D17. Addition of New Coating line C4, a/n 532299, D30, D31. Change of condition to line C1, a/n 532300 to report Triethylamine usage.	0	0	-2.73	0.4	0	8.09
Cumulative Total	0	0	0*	0	0	0
Maximum Daily	30	30	40*	30	60	220

* RECLAIM pollutant, not subject to emission accumulation requirements

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs and a “minor permit revision” for RECLAIM pollutants.

RECOMMENDATION

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision” it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not raise any objections within the review period, a revised Title V permit will be issued to this facility.

Conclusion:

This equipment will operate in compliance with all District Rule and Regulations. A Permit to Operate is recommended for application number 532300 subject to preceding conditions.
Permit to Construct is recommended for application numbers 532299, 534234, 532302, 536826, 536828, 536829 & 536831 subject to preceding conditions.