

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

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APPLICANT'S NAME: ARLON GRAPHICS LLC

FACILITY PERMIT ID# 167066

CONTACT PERSON: Robert Nicholson

MAILING ADDRESS: 2811 South Harbor Blvd.
Santa Ana, CA 92704

EQUIPMENT ADDRESS: Same

Title V/RECLAIM Permit Revision:
Application No. 545866

**PERMIT TO CONSTRUCT
Change of Condition/Modification**

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 <u>532298547409</u>	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. Reference A/N <u>532298547409</u>	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)-BACT, 12-06-02]; PM: 0.1 GRAINS/SCF NATURAL GAS (5) [RULE 409, 8-7-1981] PM:(9) [RULE 404, 2-7-1986]	D29.3, H23.1

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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.

Device 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

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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.

Notwithstanding 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:

<u>Contaminant</u>	<u>Rule</u>	<u>Rule/Subpart</u>
VOC	District Rule	109

Background:

The company applies adhesive to vinyl decorative films for the graphic industries. They operate four coating and drying lines, two mixing booths, a flexographic printing press, and a drum cleaning operation which includes a solvent reclamation system. The emissions from most of this equipment are vented to two Regenerative Thermal Oxidizers (RTO). The prime coating line, solvent reclamation system and the two vinyl blending booths are not vented to the RTO.

On July 10, 2012, a permit to construct was issued to the new coating line C4 and a new regenerative thermal oxidizer. Line C4 was limited to 900 pounds per month of VOC emissions.

Arlon Graphics LLC submitted application number 547409 to remove the current usage limitation on line 4, device D30 & D31, of 900 pounds VOC per month. The facility has a facility VOC cap of 931 lbs VOC per day which is distributed among all the operations at this facility. All coating operations that are vented to the oxidizers 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 March 28, 2013.

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This is a RECLAIM /Title V facility. The proposed project is considered as a de-minimis significant permit revision to this facility title V permit and will require public notice.

VOC Emissions:

Facility Cap 931 lbs VOC per day

New C4 Vinyl Coating Line, Application No. 532298

Operating Schedule; 24 hrs/day, 7 days/week, 52 weeks/year

Maximum uncontrolled estimated VOC usage based on design specs supplied by applicant:

Dryer has a maximum line speed of 60 feet per minute

Maximum web width is 64 inches

Coatings applied at 54% solids, 70.7 gm/m² dried

Total coating applied:

$$X = 70.7 \text{ gm/m}^2 / (0.54) = 130.93 \text{ gm/m}^2 \text{ coatings applied}$$

Solvent(VOC) applied

$$130.93 \text{ gm/m}^2 (1-0.54) = 60.22 \text{ gmVOC.m}^2 \text{ applied}$$

Application rate:

$$60 \text{ feet/min} (64 \text{ in}/12 \text{ in}) = 320 \text{ ft}^2/\text{min}, 29.73 \text{ m}^2/\text{min}$$

$$29.73 \text{ m}^2/\text{min} (60.22 \text{ gm/m}^2) = 1,790.34 \text{ gm/min}, 3.947 \text{ lbs/min}$$

$$3.947 \text{ lbs/min} (60 \text{ min/hr}) = 236.82 \text{ lbs VOC/hr uncontrolled.}$$

$$236.82 \text{ lbs VOC/hr} (1-0.985) = 3.55 \text{ lbs VOC/hr controlled}$$

@ 24hrs/day

$$3.55 \text{ lbs VOC/hr} (24 \text{ hrs/day}) = 85.26 \text{ or } 90 \text{ lbs VOC/day}$$

Line C4 has a maximum line speed that would be able to emit after control up to 90 lbs VOC per day. This will be used to determine the Risk associated with the previous risk assessment based on 30 lbs VOC per day.

Coating Line Oven Combustion Emissions will not change and are included for reference. The permit to construct was calculated based on a 24 hour per day schedule.

30 ppm NO_x, 100 ppm CO

Burner Rating: 1,350,000 btu per hour

1.2857x10E-3mmcft/hr

Combustion Emissions

	Emission Factor	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

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

The initial Risk emissions were based on an annual controlled VOC emission of 10,202. The maximum capacity of the line could have a controlled emission of up to 90 lbs VOC per day or 32,760 lbs VOC per year. The increased emission would be 3.21 times the initial estimate.

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With the change in voc limits, this coating line has the potential to use the following hazardous materials at a higher rate as given in the last column:

Contaminant	Annual Controlled	Hourly	New MaxHourly
Ethylbenzene	3.0 lbs/yr	3.434E-04	1.1103E-03
Xylene	6,337	0.725	2.328
Toluene	1517	0.174	0.559
Glycol Ether110-80-5 *	650	0.0744	0.239
Glycol Ether111-76-2 *	270	0.031	0.0992
MEK	810	0.093	0.299
IPA	326	0.037	0.119

*The previous risk used the incorrect glycol ether, 109-86-4. Upon review of the MSDS, the correct glycol ethers have been used for the risk assessment. Condition B59.4 has the correct glycols listed.

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

Tier 2 results:

MICR	Residential ASI	Commercial ASI
	4.90E-08	1.30 E-07
	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 not result in an emission increase from the facility. Therefore, a public notice will not be required under this section of the rule.

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.

The proposed project will result in an emission increase of toxic emissions by allowing this line, D30 & D31, to run at maximum capacity. The risk has been calculated assuming a maximum designed thru-put. The facility is limited to an

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existing VOC facility cap. **An actual toxic increase has been limited with the existing VOC cap.** The increased HAP usage by allowing this line to run at maximum capacity 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 change of permit condition will have an emission increase as summarized below:

	Maximum Daily Emissions					
	<u>ROG</u>	<u>NO_x</u>	<u>PM₁₀</u>	<u>SO₂</u>	<u>CO</u>	<u>Pb</u>
Emission increase	60	0	0	0	0	0
MAX Limit (lb/day)	30	40	30	60	220	3
Compliance Status	No	Yes	Yes	Yes	Yes	Yes

A public notice is required since the emission increase is above 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 the coating line 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): All VOC emissions from the coating line 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 requirement is expected.

Rules 1303(b)(1) modeling:

Modeling is not required for VOC emissions. Compliance is expected.

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Rule 1303(b)(2) Offsets:

No offsets are required for the proposed change of permit condition. The facility has a 931 lbs VOC/day facility cap and no emission increase is requested.

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.

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

Tier 2 results:

MICR	Residential ASI 4.90E-08 Passes	Commercial ASI 1.30 E-07 Passes
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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 not result in NOx emission increase. The NOx emissions from the oven were calculated based on maximum firing rate and operating hours during the PC evaluation in July 2012. Compliance with this rule is expected.

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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 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 “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
NO _x *	40
PM ₁₀	30
SO _x *	60
CO	220

* Not applicable if this is a RECLAIM pollutant

To determine if a project is considered as a “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 2nd 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	NO _x *	PM10	SO _x	CO
2 nd Permit Revision: Remove the equipment VOC emission limit on line C4 and limit it to the facility VOC cap.	0	0	0	0	0	0
Cumulative Total	0	0	0*	0	0	0
Maximum Daily	30	30	40*	30	60	220

* RECLAIM pollutant, not subject to emission accumulation requirements

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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 emissions.

RECLAIM Pollutants

Rule 3000(b)(12)(A)(v) defines a “minor permit revision” as any Title V permit revision that does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process.

Since NOx is a RECLAIM pollutant for this facility, a separate analysis shall be made to determine if the proposed permit revision is considered a “minor permit revision” for RECLAIM pollutants. The proposed change of permit condition will not impact NOx emissions from the oven. The oven emissions were accounted for during the original PC evaluation in July 2012. As a result, this proposed project is considered as 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 Construct is recommended for application number 547409 subject to preceding conditions.