

**APPLICATION PROCESSING AND CALCULATION**

Regal Cultured Marble  
1239 & 1275 E. Franklin Ave.  
Pomona, CA 91766  
ID#: 149241

**EQUIPMENT DESCRIPTION****A/N 503254 (New Construction-P/C)**

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. REGENERATIVE THERMAL OXIDIZER, TELLKAMP SYSTEMS, MODEL NO. 10 ROXIDIZER RTO, 10,000 CFM, 14'-6" W. x 31'-6" L. x 12'-8" H. (OVERALL DIMENSIONS), TWO CERAMIC MEDIA ADSORPTION BEDS, WITH A 500,000 BTU/HR NATURAL GAS-FIRED MAXON LOW NO<sub>x</sub> KINEDIZER 1 1/2" BURNER, A 3 H.P. COMBUSTION BLOWER, AND NATURAL GAS INJECTION.
2. SPRAY BOOTH NO. 1, POLYESTER RESIN OPERATION, FLOOR DRY FILTER TYPE, BLEEKER BROS., MODEL NO. 14-7-7, 14'-0" W. x 10'-6" D. x 7'-0" H., WITH THIRTY-TWO 20" x 20" x 3" EXHAUST FILTERS AND A 3 H.P. EXHAUST FAN (PREVIOUS P/O F85751, A/N 460367).
3. SPRAY BOOTH NO. 2, POLYESTER RESIN OPERATION, FLOOR DRY FILTER TYPE, BLEEKER BROS., MODEL NO. 14-7-7, 14'-0" W. x 10'-6" D. x 7'-0" H., WITH THIRTY-TWO 20" x 20" x 3" EXHAUST FILTERS AND A 3 H.P. EXHAUST FAN (PREVIOUS P/O F85752, A/N 460368).
4. EXHAUST SYSTEM CONSISTING OF ONE 75 HP EXHAUST BLOWER (10,000 CFM) WITH THREE LAYERS OF SIX 24" x 24" x 4" FINAL FILTERS, VENTING SPRAY BOOTH NOs. 1 AND 2 AND OVEN NOs. 1 AND 2.

**A/N 503253**

Title V Permit Revision – De minimis significant

**A/N 512875 (Modification – P/C, current permit no. F85747, appl. no. 460312)**

OVEN NO. 1, 6'-0" W. X 95'-0" L. X 3'-2" H., WITH A REZNOR FURNACE, MODEL XA-350, NATURAL GAS FIRED, 280,000 BTU/HR, AND TWO 1/3 H.P. BLOWERS.

Modification by venting to new RTO.

**A/N 512876 (Modification – P/C, current permit no. F85748, appl. no. 460364)**

OVEN NO. 2, 6'-0" W. X 95'-0" L. X 3'-2" H., WITH A REZNOR FURNACE, MODEL XA-350, NATURAL GAS FIRED, 280,000 BTU/HR, AND TWO 1/3 H.P. BLOWERS.

Modification by venting to new RTO.

A/N 512877 (Change of condition – P/C, current permit no. F85753, appl. no. 460369)

SPRAY BOOTH NO. 3, POLYESTER RESIN OPERATION, FLOOR DRY FILTER TYPE, BLEEKER BROS., MODEL NO. 14-7-7, 14'-0" W. X 6'-2" D. X 7'-0" H., WITH THIRTY-TWO 20" X 20" X 3" EXHAUST FILTERS AND A 3 H.P. EXHAUST FAN.

A/N 512878 (Change of condition –P/C, current permit no. F85754, appl. no. 460370)

SPRAY BOOTH, FLOOR TYPE, BLEEKER BROS., 14'-0" W. X 10'-0" D. X 7'-0" H. WITH THIRTY-TWO 20" X 20" EXHAUST FILTERS AND A 3 H.P. EXHAUST FAN.

A/N 512870 (Change of condition – P/C, current permit no. F85755, appl. no. 460371)

SPRAY BOOTH, FLOOR TYPE, BLEEKER BROS., 14'-0" W. X 10'-0" D. X 7'-0" H. WITH THIRTY-TWO 20" X 20" EXHAUST FILTERS AND A 3 H.P. EXHAUST FAN.

A/N 512872 (Change of condition –P/C, current permit no. F85756, appl. no. 460372)

SOLID SURFACE POST CURING OVEN, CUSTOM MADE, ELECTRICALLY HEATED, 21 KW.

A/N 512873 (Change of condition –P/C, current permit no. F85757, appl. no. 460373)

BOWL GELCOAT CURING OVEN, CUSTOM MADE, 200,000 BTU/HR NATURAL GAS FIRED.

A/N 512871 (Change of condition – P/C, current permit no. F85758, appl. no. 460374)

OPEN SPRAY SYSTEM CONSISTING OF:

1. ONE SPRAY GUN WITH NON-ATOMIZED IMPINGEMENT TECHNOLOGY TYPE TIP.
2. TWO PUMPS.

A/N 512874 (Change of condition – P/C, current permit no. F85759, appl. no. 460375)

MATRIX POST CURING OVEN, CUSTOM MADE, 200,000 BTU/HR NATURAL GAS FIRED.

**CONDITIONS FOR A/N 503254 - RTO**

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.  
[RULE 204]
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.  
[RULE 204]
3. THE SPRAY BOOTHS SHALL NOT BE OPERATED UNLESS ALL EXHAUST AIR PASSES THROUGH FILTER MEDIA AT LEAST TWO INCHES THICK, THE FINAL FILTERS, AND THE REGENERATIVE THERMAL OXIDIZER WHICH IS IN FULL OPERATION.  
[RULE 1303(a)(1)-BACT. 1303(b)(2)-OFFSET]

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4. GAUGES SHALL BE INSTALLED AND MAINTAINED TO INDICATE, IN INCHES OF WATER, THE STATIC PRESSURE DIFFERENTIAL ACROSS EACH SET OF SPRAY BOOTH EXHAUST FILTERS AND THE FINAL FILTERS. IN OPERATION, THE PRESSURE DIFFERENTIAL SHALL NOT EXCEED 0.25 INCH OF WATER FOR THE SPRAY BOOTH EXHAUST FILTERS AND 1.0 INCH OF WATER FOR THE FINAL FILTERS.  
[RULE 1303(a)(1)-BACT]
5. MATERIALS USED IN THIS EQUIPMENT SHALL NOT CONTAIN ANY TOXIC AIR CONTAMINANTS IDENTIFIED IN RULE 1401, TABLE I, EXCEPT STYRENE (CAS # 100-42-5), WITH AN EFFECTIVE DATE OF JUNE 5, 2009, OR EARLIER.  
[RULE 1401]
6. THE OPERATOR SHALL OPERATE AND MAINTAIN THE REGENERATIVE THERMAL OXIDIZER ACCORDING TO THE FOLLOWING REQUIREMENTS:
  - A. THE COMBUSTION CHAMBER TEMPERATURE SHALL BE MAINTAINED AT A MINIMUM OF 1,500 DEGREES FAHRENHEIT WHENEVER THE EQUIPMENT IT SERVES IS IN OPERATION.
  - B. 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. THE TEMPERATURE INDICATING AND RECORDING SYSTEM SHALL BE IN OPERATION WHENEVER THE EQUIPMENT IT SERVES IS IN OPERATION.
  - C. 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.
  - D. 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.
  - E. 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.

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- F. 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% 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.
- G. THE OPERATOR SHALL INSPECT AND MAINTAIN ALL COMPONENTS OF THIS EQUIPMENT ON AN ANNUAL BASIS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
- H. THE OPERATOR SHALL KEEP ADEQUATE RECORDS IN A FORMAT WHICH 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.  
[RULE 1303(a)(1)-BACT, 40CFR PART 64]
7. THE REGENERATIVE THERMAL OXIDIZER SHALL BE MAINTAINED AND OPERATED AT A MINIMUM VOC DESTRUCTION EFFICIENCY OF 95%, A MINIMUM VOC COLLECTION EFFICIENCY OF 90% AND A MINIMUM OVERALL VOC CONTROL EFFICIENCY (DESTRUCTION AND COLLECTION) OF 90% WHEN THE EQUIPMENT IT SERVES IS IN OPERATION.  
[RULE 1303(a)(1)-BACT, 1303(b)(2)-OFFSET]
8. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL CONDUCT A SOURCE TEST UNDER THE FOLLOWING CONDITIONS:
- A. THE SOURCE TEST SHALL BE CONDUCTED NO LATER THAN 180 DAYS AFTER THE INITIAL START-UP OF THE REGENERATIVE THERMAL OXIDIZER UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT.
- B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO DISTRICT ENGINEER, TODD IWATA, NO LATER THAN 60 DAYS AFTER THE INITIAL START-UP OF THE REGENERATIVE THERMAL OXIDIZER UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT. THE TEST PROTOCOL SHALL BE APPROVED IN WRITING BY THE DISTRICT BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE COMPLETED DISTRICT FORMS ST-1 AND ST-2 SPECIFYING THE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, THE IDENTITY OF THE TESTING LABORATORY, A STATEMENT FROM THE TESTING LABORATORY CERTIFYING IT MEETS THE CRITERIA IN DISTRICT RULE 304(k), AND A DESCRIPTION OF THE SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.
- C. THE TEST SHALL CONSIST OF, BUT MAY NOT BE LIMITED TO, A TEST OF THE INLET AND EXHAUST OF THE REGENERATIVE THERMAL OXIDIZER WHEN THE TWO POLYESTER RESIN SPRAY BOOTHS ARE IN OPERATION SIMULTANEOUSLY FOR:

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- (1) VOLATILE ORGANIC COMPOUND (VOC) IN PPMV AND LBS/HR
  - (2) OXIDES OF NITROGEN (NO<sub>x</sub>) IN PPMV AND LBS/HR (OXIDIZER EXHAUST ONLY)
  - (3) CARBON MONOXIDE (CO) IN PPMV AND LBS/HR (OXIDIZER EXHAUST ONLY)
  - (4) VOC DESTRUCTION EFFICIENCY
  - (5) VOC-COLLECTION EFFICIENCY
  - (6) OXYGEN CONTENT
  - (7) MOISTURE CONTENT
  - (8) FLOW RATE
  - (9) TEMPERATURE
- D. THE SOURCE TEST SHALL BE CONDUCTED DURING NORMAL OPERATION WHILE THE OXIDIZER IS OPERATING AT A TEMPERATURE OF NOT LESS THAN THE MINIMUM OPERATING TEMPERATURE SPECIFIED IN THIS PERMIT. THE OPERATING TEMPERATURE IN THE COMBUSTION CHAMBER SHALL BE RECORDED DURING THE ENTIRE TESTING PERIOD AND INCLUDED IN THE SOURCE TEST REPORT. IF THE OPERATING TEMPERATURE DURING THE SOURCE TEST IS GREATER THAN THE MINIMUM OPERATING TEMPERATURE SPECIFIED IN THIS PERMIT, THE MINIMUM OPERATING TEMPERATURE MAY BE INCREASED AT THE TIME A PERMIT TO OPERATE IS ISSUED TO REFLECT THE OPERATING TEMPERATURE DURING THE SOURCE TEST. IN ADDITION, THE USAGE OF ALL VOC-CONTAINING MATERIALS (GEL COAT, SOLVENTS, COATINGS, ETC.) IN THE EQUIPMENT VENTED TO THIS EQUIPMENT SHALL BE RECORDED DURING THE TEST.
- E. IN ADDITION TO THE TEST DURING NORMAL OPERATION, A SOURCE TEST FOR NO<sub>x</sub> AND CO EMISSIONS SHALL ALSO BE CONDUCTED DURING THE START-UP OF THE OXIDIZER BEFORE THE PROCESS AIR STREAM FROM THE TWO POLYESTER RESIN SPRAY BOOTHS AND OVENS IS INTRODUCED INTO THE OXIDIZER.
- F. A WRITTEN NOTICE OF THE SOURCE TEST SHALL BE SUBMITTED TO THE DISTRICT ENGINEER, TODD IWATA, AT LEAST 14 DAYS PRIOR TO THE SOURCE TESTING DATE SO THAT AN OBSERVER FROM THE DISTRICT MAY BE PRESENT.
- G. TWO COMPLETE COPIES OF THE SOURCE TEST REPORT SHALL BE SUBMITTED TO THE DISTRICT ENGINEER, TODD IWATA, WITHIN 45 DAYS AFTER THE SOURCE TESTING DATE. THE SOURCE TEST REPORT SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, ALL TESTING DATA REQUIRED BY THIS CONDITION.
- H. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD IN THE REQUIRED TEST METHODS FOR CRITERIA POLLUTANTS TO BE MEASURED, AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THE TESTS.
- I. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217. [RULES 1147, 1303(a)(1)-BACT]
9. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL SUBMIT THE RESULTS OF ALL TESTS (INCLUDING PRELIMINARY TESTS) THAT ARE CONDUCTED ON THIS EQUIPMENT FOR INFORMATIONAL PURPOSES TO THE DISTRICT ENGINEER, TODD IWATA, WITHIN 45 DAYS AFTER THE TESTING DATE. [RULE 1303(a)(1)-BACT]

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10. THE OWNER OR OPERATOR SHALL CONDUCT A SOURCE TEST TO DETERMINE AN EMISSION FACTOR(S), IN POUNDS OF VOC PER POUND OF RESIN, FOR THE UNPERMITTED RESIN CASTING EQUIPMENT OPERATED AT THIS FACILITY UNDER THE FOLLOWING CONDITIONS:
- A. THE SOURCE TEST SHALL BE CONDUCTED TO CONVERT THE FACILITY-WIDE VIRGIN RESIN USAGE LIMIT TO AN EQUIVALENT MONTHLY VOC EMISSION LIMIT USING THE EMISSION FACTOR(S) DERIVED FROM THE SOURCE TEST.
  - B. A SOURCE TEST PROTOCOL SHALL BE SUBMITTED TO DISTRICT ENGINEER, TODD IWATA. THE TEST PROTOCOL SHALL BE APPROVED IN WRITING BY THE DISTRICT BEFORE THE TEST COMMENCES. THE TEST PROTOCOL SHALL INCLUDE COMPLETED DISTRICT FORMS ST-1 AND ST-2 SPECIFYING THE PROPOSED OPERATING CONDITIONS OF THE EQUIPMENT DURING THE TEST, THE IDENTITY OF THE TESTING LABORATORY, A STATEMENT FROM THE TESTING LABORATORY CERTIFYING IT MEETS THE CRITERIA IN DISTRICT RULE 304(k), AND A DESCRIPTION OF THE SAMPLING AND ANALYTICAL PROCEDURES TO BE USED.
  - C. THE SOURCE TEST SHALL BE CONDUCTED DURING NORMAL OPERATION OF THE RESIN CASTING EQUIPMENT WHICH INCLUDES AT A MINIMUM, MIXING, CASTING, MOLDING AND DEMOLDING. THE TOTAL QUANTITY OF ALL MATERIALS USED IN THE RESIN CASTING EQUIPMENT DURING THE TEST SHALL BE RECORDED.
  - D. A WRITTEN NOTICE OF THE SOURCE TEST SHALL BE SUBMITTED TO THE DISTRICT ENGINEER, TODD IWATA, AT LEAST 14 DAYS PRIOR TO THE SOURCE TESTING DATE SO THAT AN OBSERVER FROM THE DISTRICT MAY BE PRESENT.
  - E. TWO COMPLETE COPIES OF THE SOURCE TEST REPORT SHALL BE SUBMITTED TO THE DISTRICT ENGINEER, TODD IWATA, WITHIN 45 DAYS AFTER THE SOURCE TESTING DATE. THE SOURCE TEST REPORT SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, ALL TESTING DATA REQUIRED BY THIS CONDITION.
  - F. A TESTING LABORATORY CERTIFIED BY THE CALIFORNIA AIR RESOURCES BOARD IN THE REQUIRED TEST METHODS FOR CRITERIA POLLUTANTS TO BE MEASURED, AND IN COMPLIANCE WITH DISTRICT RULE 304 (NO CONFLICT OF INTEREST) SHALL CONDUCT THE TESTS.
  - G. SAMPLING FACILITIES SHALL COMPLY WITH THE DISTRICT GUIDELINES FOR CONSTRUCTION OF SAMPLING AND TESTING FACILITIES, PURSUANT TO RULE 217. [RULE 1303(a)(1)-BACT]
11. THE OWNER OR OPERATOR OF THIS EQUIPMENT SHALL SUBMIT THE RESULTS OF ALL TESTS (INCLUDING PRELIMINARY TESTS) THAT ARE CONDUCTED ON THIS EQUIPMENT FOR INFORMATIONAL PURPOSES TO THE DISTRICT ENGINEER, TODD IWATA, WITHIN 45 DAYS AFTER THE TESTING DATE. [RULE 1303(a)(1)-BACT]

**Periodic Monitoring:**

12. THE OPERATOR SHALL CONDUCT SOURCE TEST(S) IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
- A. THE TEST SHALL BE CONDUCTED AT LEAST ONCE DURING THE LIFE OF THE PERMIT.
  - B. THE TEST SHALL BE CONDUCTED NO LATER THAN NOVEMBER 22, 2011 UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT.
  - C. THE TEST SHALL BE CONDUCTED TO DETERMINE THE VOC EMISSIONS USING AN APPROVED DISTRICT METHOD TO DEMONSTRATE COMPLIANCE WITH ALL APPLICABLE PERMIT CONDITION(S), RULES AND REGULATIONS.
  - D. THE SOURCE TEST SHALL BE CONDUCTED WHILE THE OXIDIZER 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.
  - E. THE OPERATOR SHALL COMPLY WITH ADMINISTRATIVE CONDITIONS NOS. 8, 9, AND 10 OF SECTION E OF THIS FACILITY PERMIT.
  - F. 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. THE ENGINEERING COPY OF THE REPORT SHALL BE SENT TO: SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, COATING, PRINTING, AEROSPACE & METAL FINISHING OPERATIONS, ATTN: AIR QUALITY AND COMPLIANCE SUPERVISOR, 21865 COPLEY DRIVE, DIAMOND BAR, CA 91765. THE COMPLIANCE COPY OF THE REPORT SHALL BE SENT TO: SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, P.O. BOX 4941, DIAMOND BAR, CA 91765
- [RULE 3004(a)(4)]

**Emissions and Requirements:**

13. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:
- VOC: RULE 109
  - VOC: RULE 1162, SEE APPENDIX B FOR EMISSION LIMITS
  - VOC: RULE 1171, SEE APPENDIX B FOR EMISSION LIMITS
  - PM: RULE 481
  - PM: 0.1 GR/SCF, RULE 409
  - PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS
  - PM: RULE 405, SEE APPENDIX B FOR EMISSION LIMITS
  - CO: 2000 PPMV, RULE 407
  - NOx: RULE 1147
  - HAP: 40 CFR 63 SUBPART WWW, SEE SECTION J FOR REQUIREMENTS

**FACILITY CONDITIONS**

1. EXCEPT FOR OPEN ABRASIVE BLASTING OPERATIONS, THE OPERATOR SHALL NOT DISCHARGE INTO THE ATMOSPHERE FROM ANY SINGLE SOURCE OF EMISSIONS WHATSOEVER ANY AIR CONTAMINANT FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR WHICH IS:
  - A. AS DARK OR DARKER IN SHADE AS THAT DESIGNATED NO. 1 ON THE RINGLEMANN CHART, AS PUBLISHED BY THE UNITED STATES BUREAU OF MINES; OR
  - B. OF SUCH OPACITY AS TO OBSCURE AN OBSERVER'S VIEW TO A DEGREE EQUAL TO OR GREATER THAN DOES SMOKE DESCRIBED IN SUBPARAGRAPH (A) OF THIS CONDITION. [RULE 401]
2. UNTIL THE REGENERATIVE THERMAL OXIDIZER (RTO) IS INSTALLED AND IN FULL OPERATION, THE TOTAL QUANTITY OF VIRGIN (NEAT) RESIN USED AT THIS FACILITY IN HAND-LAY-UP/CASTING OPERATIONS SHALL NOT EXCEED 253,436 POUNDS IN ANY ONE CALENDAR MONTH. [RULE 1303(b)(2)-OFFSET]
3. UNTIL THE RTO IS INSTALLED AND IN FULL OPERATION, THE TOTAL QUANTITY OF GEL COAT USED AT THIS FACILITY OUTSIDE OF THE SPRAY BOOTHS AND PERMITTED OPEN SPRAY SYSTEM SHALL NOT EXCEED 7,582 POUNDS IN ANY ONE CALENDAR MONTH. [RULE 1303(b)(2)-OFFSET]
4. AFTER THE RTO IS INSTALLED AND IN FULL OPERATION, THE TOTAL QUANTITY OF VOLATILE ORGANIC COMPOUNDS (VOC) EMISSIONS DISCHARGED TO THE ATMOSPHERE FROM THIS FACILITY SHALL NOT EXCEED 6,657 POUNDS IN ANY CALENDAR MONTH. WITHIN 14 CALENDAR DAYS AFTER THE END OF EACH CALENDAR MONTH, THE OPERATOR SHALL TOTAL AND RECORD VOC EMISSIONS FOR THE CALENDAR MONTH FROM ALL EQUIPMENT AND OPERATIONS AT THE FACILITY THAT ARE REQUIRED TO HAVE WRITTEN PERMITS OR ARE EXEMPT FROM WRITTEN PERMITS PURSUANT TO RULE 219. [RULE 1303(b)(2)-OFFSET]
5. TO MAINTAIN EXEMPTION FROM THE RULE 1132 REQUIREMENTS, THE TOTAL QUANTITY OF VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS FROM THIS FACILITY SHALL NOT EXCEED 20 TONS (40,000 POUNDS) IN ANY EMISSION INVENTORY YEAR. WITHIN 14 CALENDAR DAYS AFTER THE END OF EACH MONTH, THE FACILITY OPERATOR SHALL TOTAL AND RECORD VOC EMISSIONS FROM ALL EQUIPMENT AND OPERATIONS THAT ARE REQUIRED TO HAVE WRITTEN PERMITS OR ARE EXEMPT FROM WRITTEN PERMITS PURSUANT TO RULE 219. THE EMISSION INVENTORY YEAR SHALL BE THE ANNUAL EMISSION REPORTING PERIOD BEGINNING FROM JULY 1 OF THE PREVIOUS YEAR THROUGH JUNE 30 OF A GIVEN YEAR. BY JULY 15, 2005, AND JULY 15 OF EVERY YEAR THEREAFTER, THE OPERATOR SHALL TOTAL AND RECORD VOC EMISSIONS FROM THE FACILITY FOR THE EMISSION INVENTORY YEAR. IF THE TOTAL FACILITY VOC EMISSIONS FROM THE MONTHLY RECORDS FOR THE EMISSION INVENTORY YEAR EXCEED THE EMISSION CAP OF THIS CONDITION, THE OPERATOR SHALL SUBMIT APPROPRIATE APPLICATIONS AND ACHIEVE COMPLIANCE PURSUANT TO THE

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REQUIREMENTS SPECIFIED IN RULE 1132. EXCEEDANCE OF THE VOC EMISSION LIMIT OF THIS CONDITION SHALL NOT SUBJECT THIS FACILITY TO NEW SOURCE REVIEW REQUIREMENTS IF THE OPERATOR COMPLIES WITH THE USAGE LIMITS SPECIFIED IN FACILITY WIDE CONDITIONS NOs. 2 AND 3, AND ANY OTHER VOC EMISSION OR USAGE LIMITS FOR EQUIPMENT OR GROUPS OF EQUIPMENT SPECIFIED IN THIS PERMIT.  
[RULE 1132]

6. TO ENSURE COMPLIANCE WITH THE EMISSION LIMITS OF THIS PERMIT, THE OPERATOR SHALL:
  - A. IN ADDITION TO THE RECORDKEEPING REQUIREMENTS OF RULE 109, KEEP ADEQUATE RECORDS FOR THIS EQUIPMENT AND THIS FACILITY TO VERIFY CALENDAR MONTHLY VOC EMISSIONS IN POUNDS AND THE VOC CONTENT OR APPROPRIATE VOC EMISSION RATE FOR EACH MATERIAL AS APPLIED (INCLUDING WATER AND EXEMPT COMPOUNDS).
  - B. VOC EMISSIONS FROM THE USE OF POLYESTER RESIN MATERIALS IN: (1) PERMITTED EQUIPMENT SHALL BE CALCULATED USING UNIFIED EMISSION FACTORS LISTED IN RULE 1132, ATTACHMENT A AND (2) UNPERMITTED EQUIPMENT (CASTERS, OPEN MOLDERS AND HAND LAY-UP) USING AN EMISSION FACTOR OF 0.0136 LB VOC/LB NEAT RESIN. FOR EQUIPMENT THAT IS VENTED TO AIR POLLUTION CONTROL (APC) EQUIPMENT, VOC EMISSIONS SHALL BE CALCULATED USING THE REQUIRED OVERALL CONTROL EFFICIENCY SPECIFIED IN THE PERMIT FOR THE APC EQUIPMENT.
  - C. WITHIN 14 CALENDAR DAYS AFTER THE END OF EACH MONTH, TOTAL AND RECORD VOC EMISSIONS FOR THE MONTH FROM ALL EQUIPMENT AND OPERATIONS THAT ARE REQUIRED TO HAVE WRITTEN PERMITS OR ARE EXEMPT FROM WRITTEN PERMITS PURSUANT TO RULE 219. THE RECORDS SHALL INCLUDE ANY PROCEDURES USED TO ACCOUNT FOR CONTROL DEVICE EFFICIENCIES AND/OR WASTE DISPOSAL. IT SHALL BE SIGNED AND CERTIFIED FOR ACCURACY BY THE HIGHEST RANKING INDIVIDUAL RESPONSIBLE FOR COMPLIANCE WITH DISTRICT RULES.
  - D. MAINTAIN A SINGLE LIST WHICH INCLUDES ONLY THE NAME AND ADDRESS OF EACH PERSON FROM WHOM THE FACILITY ACQUIRED VOC-CONTAINING MATERIAL REGULATED BY THE DISTRICT THAT WAS USED OR STORED AT THE FACILITY DURING THE PRECEDING 12 MONTHS.
  - E. RETAIN ALL PURCHASE INVOICES FOR ALL VOC-CONTAINING MATERIAL USED OR STORED AT THE FACILITY AND ALL WASTE MANIFESTS FOR ALL WASTE VOC-CONTAINING MATERIAL REMOVED FROM THE FACILITY FOR FIVE YEARS.  
[RULE 109, RULE 1303(b)(2)-OFFSET]
7. MATERIAL SAFETY DATA SHEETS FOR ALL MATERIALS USED AT THIS FACILITY AND SUBJECT TO DISTRICT RULES SHALL BE KEPT CURRENT AND MADE AVAILABLE TO THE EXECUTIVE OFFICER OR HIS REPRESENTATIVE UPON REQUEST.  
[RULE 109, RULE 1303(b)(2)-OFFSET]
8. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE PREPARED IN A FORMAT WHICH IS ACCEPTABLE TO THE DISTRICT, RETAINED AT THE FACILITY FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO ANY DISTRICT REPRESENTATIVE UPON REQUEST.  
[RULE 109, RULE 1303(b)(2)-OFFSET]

## **BACKGROUND**

Regal Cultured Marble (Regal) manufactures custom bathroom fixtures such as sinks, bowls, countertops, back splashes, shower pans and wall panels. They operate equipment in two buildings located at 1239 & 1275 E. Franklin Ave. in Pomona. Building no. 1 (1275 E. Franklin Ave.) contains three gel coat spray booths (permit nos. F85751, F85752 and F85753) and one open spray gun (permit no. F85758). The three spray booths are each limited to 22 lb/day of VOC emissions while the three spray booths and the open spray gun are collectively limited to 68 lb/day of VOC emissions. Building no. 2 (1239 E. Franklin Ave.) has two spray booths (permit nos. F85754 and F85755) both operating under a combined VOC emission limit of 39 lb/day.

Regal operates another facility located outside of the Basin. They would like to close that facility and consolidate its operation and production into the Pomona facility. This will cause an increase in VOC emissions and to avoid increasing current emission limits, Regal would like to install and operate a regenerative thermal oxidizer (RTO) to reduce VOC emissions from spray booth nos. 1 and 2 (permit nos. F85751 and F85752) and oven nos. 1 and 2 (permit nos. F85747 and F85748) operated in building no. 1. Since the RTO will allow Regal to use more gel coat, they consequently wish to increase resin usage.

Regal applies resin to gel-coated molds using Rule 219-exempt resin mixing and casting equipment (autocaster and Hobart machines). They have a facility-wide neat resin usage limit of 253,456 lb/month. They want to convert this usage limit to a VOC emission limit. Regal used an independent source testing company (Advanced Environmental Compliance) to perform a preliminary test to determine an emission factor for the casting operation of 0.0075 lb VOC/lb resin. AQMD reviewed the test results and calculated a revised emission factor of

0.0136 lb VOC/lb resin which includes both hand resin application and post curing emissions. Using this emission factor, the usage limit is converted to a preliminary VOC emission limit of 3,447 lb/month (253,436 lb/month x 0.0136 lb VOC/lb resin). Since a complete source test was not performed, Regal will have to perform a source test with an AQMD-approved test protocol. If the emission factor is different, the emission limit will be adjusted accordingly.

The resin-based VOC emission limit is added with the monthly-equivalent VOC emission limits of building no. 1, 2,040 lb/month (68 lb/day) and building no. 2, 1,170 lb/month (39 lb/day) to form a new facility-wide VOC emission limit of 6,657 lb/month (3,447 + 2,040 + 1,170). In building no. 1, the 22 lb/day VOC individual equipment limits for booths 1 and 2 is eliminated. The 22 lb/day limit for booth 3 is retained and the open spray gun acquires a VOC limit of 66 lb/day so BACT is not triggered. The two spray booths in building no. 2 retain their collective cap of 39 lb/day. Regal also had a facility usage cap of gel coat used outside the spray booths and permitted open spray system of 7,582 lb/month. Since they no longer use gel coat in this manner, this condition will be removed. Regal is also exempt from Rule 1132 by operating

under the existing annual facility-wide VOC cap of 20 ton/yr. In summary, Regal will have the following VOC emission limits:

- 20 ton/yr facility-wide for Rule 1132 exemption
- 6,657 lb/month facility-wide from all permitted and unpermitted equipment
- 66 lb/day for the open spray gun operated in building no. 1
- 39 lb/day for both spray booths in building no. 2
- 22 lb/day for spray booth no. 3 in building no. 1

Regal submitted permit applications to modify the two associated drying ovens (#1 and #2) to vent to the RTO and to change the VOC emission and resin usage limits for all of their VOC-emitting equipment.

Regal is a Title V facility. An initial Title V permit was issued to this facility on November 22, 2006. Regal has proposed to revise their Title V permit with application no. 503253. This permit revision is considered as a “de minimis significant permit revision” to the Title V permit, as described in the Regulation XXX evaluation. Below is a summary of the applications in this project.

A/N	Equipment	Previous		Action
		P/O	A/N	
503254	APC – RTO & 2 spray booths (Bldg 1)	F85751	460367	P/C – install new RTO venting 2 existing spray booths (#1 and #2), remove individual S/B VOC caps of 22 lb/day*
		F85752	460368	
512875	Oven #1 (Bldg 1)	F85747	460312	P/C – modify by venting to new RTO*
512876	Oven #2 (Bldg 1)	F85748	460364	P/C – modify by venting to new RTO*
512877	Spray Booth #3 (Bldg 1)	F85753	460369	P/C – change conditions* (remove 68 lb/day VOC group cap, retain 22 lb/day VOC equipment cap)
512878	Spray Booth (Bldg 2)	F85754	460370	P/C – change conditions* (retain 39 lb/day VOC combined cap)
512870	Spray Booth (Bldg 2)	F85755	460371	
512871	Open Spray System (Bldg 1)	F85758	460374	P/C – change conditions by removing 69 lb/day VOC group cap & adding equipment VOC cap of 66 lb/day*
512872	Solid Surface Post Curing Oven	F85756	460372	P/C – change conditions*
512873	Bowl Gelcoat Curing Oven	F85757	460373	P/C – change conditions*
512874	Matrix Post Curing Oven	F85759	460375	P/C – change conditions*

\*change of conditions for all applications is to convert the facility neat resin usage limit of 253,456 lb/month for hand lay-up/casting operations to a preliminary VOC emission limit of 3,447 lb/month, to be finalized upon additional approved source tests, and combine with existing group VOC caps of 68 lb/day (2040 lb/mo) and 39 lb/day (1170 lb/mo) = 3447 + 2040 + 1170 = 6657 lb/mo for the entire facility.

## **PROCESS DESCRIPTION**

Regal manufactures custom bathroom fixtures such as sinks, bowls, countertops, backsplashes, shower pans and wall panels. The production begins as molds are sprayed with either a white or clear gel coat in one of the three gel coat booths in building no. 1. After spraying, the molds are allowed to cure in 95' long permitted drying tunnels that are connected directly with the gel coat booths. During cooler days, the burners of the tunnels are fired to maintain a temperature of around 100 deg F while during the warmer days, the burners are not fired at all. The drying tunnels of gel coat booth nos. 1 and 2 will be vented to the RTO.

As the molds are gel coated, resin (25%) is closed mixed with calcium carbonate (75%) in the autocaster. After the mixing is nearly complete, methyl ethyl ketone peroxide (catalyst) is added (0.05 – 0.37%) to assist in curing. Once catalyzed, the mixture is applied to the gel coated molds on vibrating tables. The vibrating helps distribute the mixture evenly over the molds and eliminates bubbles and voids. Some products are molded with a marble-like design using resin mixtures from Rule 219-exempt Hobart machines. After the mixture is cured in the molds, the items are demolded, trimmed, finished, polished, packaged and shipped.

## **RTO DESIGN ANALYSIS**

Two gel coat booths and their associated ovens will be vented directly to the RTO. The RTO is designed to control VOC emissions with an overall control efficiency of 90%. The system consists of a combustion chamber and two heat exchange beds filled with ceramic media. Below each media bed is an air plenum that directs flow through the beds.

As the process air (VOC-laden) flows through the first bed, heat is transferred from the media to the incoming air. The temperature of the air increases rapidly and as the heated air enters the combustion chamber, combustion occurs with the abundant oxygen content of the process gas and the high temperature of the chamber. The temperature of the combustion chamber is maintained at around 1500 deg F. In the combustion chamber, hydrocarbons are oxidized to carbon dioxide and water vapor. The process air flows from the first bed to the second bed where it releases heat back into the media. At controlled intervals, the air flow through the oxidizer is changed by two pneumatic poppet valves to maintain stable media temperature profiles.

The entire system is designed with 95% primary heat recovery. With a sufficient concentration of solvents in the incoming process air, the heat energy from the solvent should be enough so that the destruction of VOC's will be nearly self-sustaining. If additional heat energy is required to maintain temperature, it will be provided by the standby natural gas injection system which will inject natural gas into the combustion chamber.

The RTO is equipped with a 500,000 Btu/hr natural gas-fired low NO<sub>x</sub> burner. The burner will be used to initially heat the media inside the heat exchange beds. The burner will operate for approximately one hour during the initial bed heating process. The following calculations are based on the design criteria for the RTO system.

### Supplied Data

Design VOC destruction efficiency = 95%

Heat recovery = 95%

Volume of air contaminants = 10,000 cfm

Process air temp = 85 deg F (ambient gel coat booths and drying tunnels)

Combustion chamber temp = 1500 deg F

Incoming VOC emission rate = 20 lb/hr

Density of contaminated gas = 0.076 lbm/ft<sup>3</sup>

Specific heat at constant pressure (C<sub>p</sub>) = 0.2402 Btu/lbm-F

Solvent Heating Load (Q<sub>solvent</sub>) = 18,000 Btu/lb \* 25 lb/hr = 450,000 Btu/hr

### Supplementary heat requirement (Q<sub>supp</sub>)

$$Q_{\text{supp}} = Q_{\text{required}} - Q_{\text{solvent}}$$

$$Q_{\text{required}} = Q_{\text{air}} + Q_{\text{loss}}$$

$$T_{\text{in}} \Rightarrow T_{\text{comb}} \Rightarrow T_{\text{out}}$$

$$70 \Rightarrow 1500 \Rightarrow T_{\text{out}}$$

$$\frac{T_{\text{comb}} - T_{\text{out}}}{T_{\text{comb}} - T_{\text{in}}} = 95\% \text{ energy efficiency}$$

$$\frac{1500 - T_{\text{out}}}{1500 - 85} = 0.95$$

$$T_{\text{out}} = 156 \text{ deg F}$$

$$Q_{\text{air}} = \text{Flow} * C_p * (T_2 - T_1)$$

$$Q_{\text{air}} = 10,000 \text{ ft}^3/\text{min} * 60 \text{ min/hr} * 0.076 \text{ lbm/ft}^3 * 0.2402 \text{ Btu/lbm-F} * (156 - 75)$$

$$Q_{\text{air}} = 887,203 \text{ Btu/hr}$$

**APPLICATION PROCESSING AND CALCULATION**

$$Q_{\text{loss}} = Q_{\text{air}} * 5\% \text{ loss} = 887,203 * 0.05 = 44,360 \text{ Btu/hr}$$

$$Q_{\text{required}} = Q_{\text{air}} + Q_{\text{loss}} = 887,203 \text{ Btu/hr} + 44,360 \text{ Btu/hr} = 931,563 \text{ Btu/hr}$$

$$Q_{\text{solvent}} = 450,000 \text{ Btu/hr}$$

$$Q_{\text{supp}} = Q_{\text{required}} - Q_{\text{solvent}} = 931,563 \text{ Btu/hr} - 450,000 \text{ Btu/hr} = 481,563 \text{ Btu/hr}$$

**Residence Time**

$$\text{Flow rate} = 10,000 \text{ ft}^3/\text{min} \div 60 \text{ sec/min} = 167 \text{ ft}^3/\text{sec}$$

$$\text{Corrected volume} = 167 \text{ ft}^3/\text{sec} \times 1960/545 = 600 \text{ ft}^3/\text{sec} \text{ (1500 }^\circ\text{F to 85 }^\circ\text{F)}$$

$$\text{Combustion zone volume} = 481 \text{ cubic feet}$$

$$\text{Residence time} = 600 \div 481 = 1.2 \text{ sec} \quad (\text{greater than 0.3 sec recommended})$$

**EMISSION ESTIMATES**

$$\text{Proposed VOC facility cap} = 6657 \text{ lb/mo} \div 30 = 222 \text{ lb/day}$$

Spray Booths #1 and #2 were limited to 22 lb/day VOC each (44 lb/day total). The post-modification PTE will be 222 lb/day after control. White or clear gelcoat is used in these spray booths with a maximum of 35% styrene and 10% methyl methacrylate (MMA) (in clear); the corresponding UEF is 336 lb styrene/ton gelcoat or 0.168 lb styrene/lb gelcoat and 150 lb MMA/ton gelcoat or 0.075 lb MMA/lb gelcoat. The total VOC emission factor is  $0.168 + 0.075 = 0.243 \text{ lb VOC/lb gelcoat}$ .

$$\text{At 44 lb/day VOC} \div 0.243 \text{ lb VOC/lb gelcoat} = 181 \text{ lb gelcoat/day could be sprayed}$$

Assume 50% solids, 65% transfer efficiency, 90% filter efficiency for spray booth filters and  $\text{PM}_{10} = 50\% \text{ PM}$

**Pre-modification**

$$\text{PM Max. } R_1 = (181 \text{ lb/day gelcoat})(50\% \text{ lb solids})(1-0.65) \\ = 31.7 \text{ lb-PM/day}$$

$$\text{PM Max. } R_2 = 31.7 (1-0.90) = 3.2 \text{ lb-PM/day}$$

$$\text{PM}_{10} \text{ Max } R_1 = 31.7 \text{ lb PM/day} \times 50\% = 15.8 \text{ lb/day}$$

$$\text{PM}_{10} \text{ Max } R_2 = 3.2 \text{ lb PM/day} \times 50\% = 1.6 \text{ lb/day}$$

Post-modification

With the RTO expected to reduce VOC from the 2 gelcoat booths by at least 90%, and the equipment VOC caps removed and changed to a facility VOC cap of 222 lb/day, the gelcoat usage could increase. According to the consultant, approximately 5-7 times more resin is used than gelcoat. Assume 7 lb neat resin used for every lb of gelcoat. Let G = max lb/day gelcoat, and R = max lb/day resin, then  $R = 7G$ :

$$7G \text{ lb resin/day}(0.0136 \text{ lb VOC/lb resin}) + 0.243G \text{ lb gelcoat/day} = 222 \text{ lb/day}$$

$$G = 656 \text{ lb/day gelcoat}$$

$$\begin{aligned} \text{PM Max. } R_1 &= (656 \text{ lb/day gelcoat})(50\% \text{ lb solids})(1-0.65) \\ &= 115 \text{ lb-PM/day} \end{aligned}$$

$$\text{PM Max. } R_2 = 115 (1-0.90) = 11.5 \text{ lb-PM/day}$$

$$\text{PM}_{10} \text{ Max } R_1 = 115 \text{ lb PM/day} \times 50\% = 57.5 \text{ lb/day}$$

$$\text{PM}_{10} \text{ Max } R_2 = 11.5 \text{ lb/day} \times 50\% = 5.75 \text{ lb/day}$$

Regal Cultured Marble RTO A/N 503254

with Low NOx Burner

	<u>maximum</u>	<u>normal</u>		
<u>hr/dy</u>	24	1	<u>max heat input</u>	5.00E+05 (BTU/hr)
<u>dy/wk</u>	7	6	<u>gross heating value</u>	1050 (BTU/scf)
<u>wk/yr</u>	52	52		
<u>load</u>	100%	100%		

	<u>Emission</u>	<u>MAX</u>	<u>AVE</u>	<u>MAX</u>	<u>30-DAY</u>	<u>MAX</u>	<u>MAX</u>
	<u>Factors</u>	(lb/hr)	(lb/hr)	(lb/dy)	(lb/dy)	(lb/yr)	(ton/yr)
SO <sub>2</sub> (R1)	0.83	0.000	0.000	0.009	NA	3	0.002
SO <sub>2</sub> (R2)	0.83	0.000	0.000	0.009	0.009	3	0.002
NO <sub>2</sub> (R1)	130	0.062	0.062	1.486	NA	541	0.270
NO <sub>2</sub> (R2)	38.94	0.019	0.019	0.445	0.445	162	0.081
CO (R1)	35	0.017	0.017	0.400	NA	146	0.073
CO (R2)	39.51	0.019	0.019	0.452	0.452	164	0.082
PM, PM <sub>10</sub> (R1=R2)	7.5	0.004	0.004	0.086	0.086	31	0.016
TOC (R1=R2)	7	0.003	0.003	0.080	0.080	29	0.015
acetaldehyde	0.0043	2.0E-06	2.0E-06	4.9E-05	NA	1.79E-2	8.94E-6
acrolein	0.0027	1.3E-06	1.3E-06	3.1E-05	NA	1.12E-2	5.62E-6
ammonia	3.2	1.5E-03	1.5E-03	3.7E-02	NA	1.33E+1	6.66E-3
benzene	0.008	3.8E-06	3.8E-06	9.1E-05	NA	3.33E-2	1.66E-5
ethyl benzene	0.0095	4.5E-06	4.5E-06	1.1E-04	NA	3.95E-2	1.98E-5
formaldehyde	0.017	8.1E-06	8.1E-06	1.9E-04	NA	7.07E-2	3.54E-5
hexane	0.0063	3.0E-06	3.0E-06	7.2E-05	NA	2.62E-2	1.31E-5
naphthalene	0.0003	1.4E-07	1.4E-07	3.4E-06	NA	1.25E-3	6.24E-7
PAH's	0.0001	4.8E-08	4.8E-08	1.1E-06	NA	4.16E-4	2.08E-7
propylene	0.731	3.5E-04	3.5E-04	8.4E-03	NA	3.04E+0	1.52E-3
toluene	0.0366	1.7E-05	1.7E-05	4.2E-04	NA	1.52E-1	7.61E-5
xylene	0.0272	1.3E-05	1.3E-05	3.1E-04	NA	1.13E-1	5.66E-5
NO <sub>2</sub> @ 3% excess O <sub>2</sub> ----->>>		<b>30.00</b>	(ppmv)		SO <sub>2</sub> @ 3% excess O <sub>2</sub> ----->>>	<b>0.46</b>	(ppmv)
CO @ 3% excess O <sub>2</sub> ----->>>		<b>50.00</b>	(ppmv)		PM @ 12% CO <sub>2</sub> ----->>>	<b>5.5E-09</b>	(grain/ft <sup>3</sup> )

There will be no emission increase in VOC emissions from the facility as a result of this modification. There is a potential increase in PM<sub>10</sub> emissions from the two gelcoat booths since Regal could increase production with the installation of this RTO (5.75-1.6 = 4.15 lb/day increase + 0.09 lb/day from combustion of natural gas = 4.24 lb/day), and an increase in NOx and CO emissions (< 0.5 lb/day) from the combustion of natural gas in the RTO.

**RISK ASSESSMENT:**

The combustion of natural gas in the RTO and the styrene in the resin will result in a some toxic air contaminant emissions. A Rule 1401 Tier 1 Risk Assessment was performed and the results indicate that there will not be a cancer risk equal or greater than one in a million nor an acute/chronic health hazard risk greater than one. The analysis was based on a residential receptor distance of 116 meters and an off-site worker receptor distance of 33 meters. The results are included in the application folders.

**RULE ANALYSIS**

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. The facility is not located within 1,000 feet of the outer boundary of a school. The closest school is Simmons Middle School which is 0.5 miles from the facility. A public notice is not required by this section.

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). There is no emission increase in VOC from the facility as a result of this project. The combustion emissions from the burning of natural gas in the RTO are less than 0.5 lb/day for CO, NO<sub>x</sub> and PM<sub>10</sub>. A public notice is not required by this section.

Rule 212(c)(3): This section requires a public notice for all new or modified permit units with increases in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in a cancer risk equal or greater than one in a million. There will be a small increase in toxic emissions from the combustion of natural gas in the RTO, however the cancer risk is well below one in a million. A public notice is not required by this section.

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). With the addition of the RTO, the existing VOC limits (22 lb/day) of the two gel coat booths will be removed. The proposed facility VOC cap is 6657 lb/mo (222 lb/day), therefore the increase in potential to emit from these booths is  $222 - 44 = 178$  lb/day which exceeds 30 lb/day, though there will not be a facility-wide emission increase. There will be a potential increase in PM<sub>10</sub> from the two gelcoat booths, but is less than the 212 threshold of 30 lb/day. A public notice is required due to the VOC increase.

	Maximum Daily Emissions					
	ROG	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>2</sub>	CO	Pb
Emission increase	178	<0.5	4.24	0	<0.5	0
MAX Limit (lb/day)	<b>30</b>	<b>40</b>	<b>30</b>	<b>60</b>	<b>220</b>	<b>3</b>
Public Notice?	<b>Yes</b>	No	No	No	No	No

RULES 401 & 402: AQMD database has no records of visible emissions or nuisance complaints against this facility. Compliance with these requirements is expected with the proper operation of the equipment.

Rule 404: The particulate matter concentration emitted from the RTO will not exceed the limits of this rule. Calculations are as follows:

$$\text{Total PM emissions} = 11.6 \text{ lb/day} \div 24 \text{ hr/day} = 0.483 \text{ lb/hr}$$

$$\text{Total exhaust gas flowrate} = 10,000 \text{ scfm}$$

$$\text{gr PM/scf} = (0.483 \text{ lbs/hr})(7,000 \text{ gr/lb})(\text{hr}/60 \text{ min})(\text{min}/10,000 \text{ scf}) = 0.0056 \text{ gr PM/scf}$$

From Rule 404 Table 404(a), the interpolated particulates emission concentration limit at 10,000 scfm is equal to 0.079 gr/scf. Therefore, the expected PM emission concentration of 0.0056 gr PM/scf is within this max limit.

Rule 407: Operation of the RTO will not result in the release of CO emissions exceeding 2,000 ppm. Although compliance is expected, a source test will determine actual CO concentrations to verify compliance.

Rule 409: PM emissions from the proposed RTO is expected to be less than 0.1 gr/scf. Compliance is expected.

Rule 1162: Regal sprays gel coats which have styrene monomer contents that range from 25 to 35% by wt., below the limits of 40% by wt. (marble resin) and 44% by wt. (other resins). The styrene monomer content in their resin (neat) is 29.5% by wt., below the limit of 35% by wt. The gel coats are applied in the spray booths and the resins are applied using non-atomizing equipment (autocaster and Hobart). Compliance with this rule is achieved.

Rule 1171: Regal uses acetone for cleaning purposes. Acetone is an exempt compound and complies with Rule 1171.

Rule 1303:

(a): The RTO system is air pollution control equipment for the basic equipment (spray booths and ovens) that it serves. This system is expected to operate with an overall control efficiency of 90% (95% destruction efficiency and 90% collection efficiency). A source test will be performed to verify efficiencies. The RTO is fitted with a low-NO<sub>x</sub> burner (30 ppm @ 3% O<sub>2</sub>) which is BACT for NO<sub>x</sub>. BACT for VOC is met for the two spray booths and ovens since they are vented to the RTO. BACT is not triggered for the change of condition applications or for the two ovens vented to RTO .

(b)(1): Hourly emissions of NO<sub>x</sub>, CO and PM<sub>10</sub> are below Table A-1 allowable emissions of this rule and modeling for the project is not required. Modeling is not required for VOC.

<b>Pollutant</b>	<b>Estimated Emissions (lb/hr)</b>	<b>Modeling Threshold Emission Limit (lb/hr)</b>
NO <sub>x</sub>	0.019	0.2
CO	0.019	11.0
PM <sub>10</sub>	0.18	1.2

(b)(2): Emission offsets are not required. There are no VOC emission increases from the facility as a result of this project. The NO<sub>x</sub> and CO emission increases from the new RTO facility are less than 1 lb/day. There is a potential increase in PM<sub>10</sub> emissions from the two gelcoat booths vented to the RTO of 4.24 lb/day. The current PM<sub>10</sub> PTE for the facility is 7 lb/day; with the increase of 4.24 lb/day, the post- modification PTE is 11.24 lb/day which is below 4 tpy, so it meets the Rule 1304(d)(2) offset exemption.

(b)(4)/(b)(5): The facility is expected to be in full compliance with all applicable rules and regulations of the District.

Rule 1401: There is no increase of toxic emissions from the facility except due to the combustion of natural gas in the RTO. Compliance is expected, see RISK ASSESSMENT section of this report.

### **REGULATION XXX:**

This facility is not in the RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” to the Title V permit for this facility.

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 hazardous air pollutants (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 (lb/day)
HAP	30
VOC	30
NO <sub>x</sub>	40
PM <sub>10</sub>	30
SO <sub>x</sub>	60
CO	220

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 first permit revision to the initial Title V permit issued to this facility on November 22 26, 2006. 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”. The following table summarizes the cumulative emission increases resulting from all permit revisions since the initial Title V permit was issued:

Revision	HAP	VOC	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	CO
1 <sup>st</sup> Permit Revision: Add regenerative thermal oxidizer (RTO) venting 2 existing spray booths, modify two ovens to vent to the new RTO, and change permit conditions on 3 spray booths, 3 ovens and an open spray system	0	0	0	4	0	0
Cumulative Emission Total	0	0	0	4	0	0
Maximum Daily	30	30	40	30	60	220

### **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 and after completion of the Rule 212 public notice period, a revised Title V permit will be issued to this facility with Permits to Construct for all applications.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

**Engineering and Compliance**

**APPLICATION PROCESSING AND CALCULATION**

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**Appl. no.** Below

**Processed by** Todd Iwata

**Checked by**

**Date:** 8/3/2010

*Regal cultured marble – RTO 503254+*