

American Matsushita Electronics, Co.  
Permit to Install 08-3786

Additional Special Terms and Conditions

**A. Emission Control and Capture Efficiency Requirements**

1. Volatile organic compound emissions (toluene and amyl acetate) from emission unit K011 (C-310/311/312) lacquer spraying, equalizing and drying; and emission unit K012 frit coating and drying shall be controlled through the application of a cartridge filter for particulate removal and VOC fume concentrator system followed by a catalytic incinerator.

The overall VOC removal/destruction efficiency for this control system shall be at least 90 percent.

Emissions of volatile organic compounds from emissions unit K011 (C-310/311/312), including cleanup solvent emissions, shall be totally (100%) captured by way of "permanent total enclosure" and vented to the identified emission control system.

Emissions of volatile organic compounds from emissions unit P020, lacquer mixing, shall be totally (100 percent) captured by way of enclosed design with exhaust ducts situated at two levels to "sweep" and collect fugitive emissions and vented to the identified emissions control system.

2. Emission Unit K011 (C-310/311/312), Permanent Total Enclosure

Emission unit K011, consisting, of lacquer spraying, equalizing, and drying shall be equipped with a permanent total enclosure (PTE) which shall be installed and operated in accordance with 40 CFR Part 51, Appendix M, Method 204. The PTE shall meet the following criteria:

- a. any "Natural Draft Opening" (NDO) shall be at least 4 equivalent diameters from each VOC emission point;
- b. the total area of all NDOs shall not exceed 5 percent of the surface area of the enclosure's four walls floor and ceiling;
- c. the average facial velocity (FV) of air through all NDOs shall be at least 3,600 m/hr (200 fpm) which corresponds to a pressure differential of 0.007 inches of water. The direction of air

through all NDOs shall be into the enclosure;

- d. all access doors and windows whose area are not included in paragraph b. are not included in the calculation in paragraph c. and shall be closed during routine operation; and,
- e. all VOC emissions must be captured and contained for discharge through the VOC control device.

By satisfying the criteria above for establishing permanent total enclosure, the total organic compound capture efficiency shall be assumed to be 100 percent.

Definitions for PTE and NDO:

Permanent Total Enclosure (PTE) - A permanently installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for a discharge through a control device.

Natural Draft Opening (NDO) - Any permanent opening in the enclosure that remains open during operation of the facility and is not connected to a duct to which a fan is installed.

**B. Common Stack Allowable Emission Rates**

Emissions of volatile organic compounds (toluene) from the common control system and exhaust stack serving emissions units K001, K002, lacquer spraying and emissions unit P020, lacquer mixing shall not exceed a total combined allowable emission rate of:

	<u>lbs/hr</u>	<u>lbs/day</u>	<u>TPY</u>
K001 (toluene)	1.27	43.48	7.61
K002 (toluene)	1.27	43.48	7.61
P020	<u>0.40</u>	<u>9.65</u>	<u>1.76</u>
<b>Total VOC</b>	2.94	96.61	16.98

[Note: The pound per hour limits are excluding cleanup emissions and the pounds per day and ton per year limits are including cleanup emissions.]

**C. Operational Restrictions**

- 1. Operation of the emission units identified in this permit shall not exceed 24 hours/day, 7 days/week, and 50 weeks/yr.
- 2. Permanent Total Enclosure Operational Restriction

The permanent total enclosure shall be maintained under negative pressure, at a minimum pressure differential of 0.007 inches of water, as a three hour average.

3. Catalytic Incinerator Operational Restriction

The average temperature of the exhaust gases at the inlet to the catalytic incinerator, for any 3-hour block of time, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emissions test that demonstrated the emissions unit was in compliance.

**D. Monitoring and/or Recordkeeping Requirements**

\*\*The pounds/hour limitations specified in this permit were established for PTI purposes to reflect the potential to emit for the emission unit. Therefore, it is not necessary to develop recordkeeping and reporting requirements to ensure compliance with these limitations.\*\*

1. The permittee shall maintain daily records of the following:

a. for the emissions unit K011, lacquer coating:

- i. pounds lacquer and toluene inputs;
- ii. pounds lacquer and toluene reclaim;
- iii. pounds lacquer and toluene waste;
- \*iv. pounds toluene stripped from waste water; and,
- v. pounds cleanup solvent (independent of toluene used for production).

\*This daily factor may be determined by way of a material balance based on the measured amounts of factors i., ii., and iii., K011.

b. for emissions unit P020, lacquer mixing:

- i. pounds of toluene mixed; and
- ii. pounds of solids mixed.

2. Catalytic Incinerator Temperature Monitoring and Recordkeeping Requirements

a. The permittee shall install, operate, and maintain continuous temperature monitors and recorder(s) which measure and record(s) the temperature of the exhaust gases at the inlet (immediately before the catalyst bed) and at the outlet from the catalytic incinerator. Units shall be in degrees Fahrenheit. The continuous monitoring and recording devices shall be capable of accurately

measuring

the desired parameters and the owner or operator shall properly operate and maintain the devices in accordance with the manufacturer's recommendations.

- b. The permittee shall collect and record the following information each day:
  - i. a log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit; and,
  - ii. all three-hour periods of operation during which the average combustion temperature was more than fifty degrees Fahrenheit below the average combustion temperature during the most recent performance test that the emissions unit was in compliance.

3. Permanent Total Enclosure Monitoring and Recordkeeping Requirements

- a. The permittee shall install, maintain and operate monitoring devices and a recorder which continuously measure the pressure inside and outside the permanent total enclosure and record the pressure differential. The monitoring and recording devices shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals. The average differential pressure across the permanent total enclosure for any 3 hour block of time shall not be less than 0.007 inches of water.
- b. The permittee shall record and maintain the following information on a daily basis:
  - i. the difference in pressure between the permanent total enclosure and the surrounding area(s); and,
  - ii. a log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

4. Calculation of Daily Emission Rates

- a. For emissions unit K011, lacquer coating, the daily toluene emission rate shall be determined in

accordance with the following equation:

$$[a(\text{percent toluene, vol.})(7.26) + b(7.26)] - [c(\text{percent toluene, vol.})(7.26) + d(\text{percent toluene, vol.})(7.26)] (1 - x) = y \text{ pounds/day}$$

Where:

- a - gallons of lacquer suspension material
- b - gallons of toluene cleanup
- c - gallons of reclaim lacquer
- d - gallons of waste lacquer
- x - average destruction efficiency determined from the most recent performance test demonstrating the emissions unit was in compliance
- y - pounds/day toluene emission rate

- b. For emissions unit P020, lacquer mixing, the daily toluene emission rate shall be determined in accordance with the following equation:

$$a(0.05)_1(1-0.90)_2 = x \text{ pounds/day}$$

Where:

- a - toluene input (pounds)
- x - pounds/day toluene
- 1 - 5 percent fugitive OC emission loss
- 2 - 90 percent overall OC emission control

#### **E. Reporting Requirements**

1. The permittee shall notify the Regional Air Pollution Control Agency of any daily record showing an exceedance of the daily allowable emission rate for K011 and P020. The notifications shall be in writing and in accordance with the quarterly deviation (excursion) reporting requirement in Term and Condition E.5.
2. The permittee shall submit semi-annual reports which list the total process material usage inputs and the total organic compound emission rate for each month for each of the emissions units K011 and P020. The reports shall be submitted by February 15 and August 15 and shall cover the previous six calendar months (July through December and January through June, respectively.)
3. Catalytic Incinerator Temperature Reporting Requirements

The permittee shall submit temperature deviation

(excursion) reports that identify all 3-hour blocks of time during which the average temperature of the exhaust gases immediately before the catalyst bed does not comply with the temperature limitations specified above.

4. Permanent Total Enclosure Reporting Requirements

The permittee shall submit pressure differential deviation (excursion) reports that identify all 3 hour blocks of time during which the permanent total enclosure was not maintained at or above the required differential pressure of 0.007 inches of water.

5. The permittee shall submit quarterly deviation (excursion) reports in the following manner:

- a. reports of any required monitoring and/or recordkeeping information shall be submitted to the Regional Air Pollution Control Agency; and,
- b. except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursion) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Regional Air Pollution Control Agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 31, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

**F. Testing Requirements**

Compliance with the emission limitations in these terms and conditions shall be determined in accordance with the following method(s):

**For K011**

- a. Emission Limitation-

2.6 lbs/hr OC, excluding cleanup

Applicable Compliance Method-

Compliance shall be determined by multiplying the maximum hourly lacquer coating usage of 3.8 gallons by the VOC content of the lacquer coating, 7.26 pounds VOC/gallon by 95% by weight solvent. The product is then multiplied by a factor of 1 minus the destruction efficiency from the most recent performance test that demonstrated the emissions unit was in compliance. Until additional tests are conducted, the average destruction efficiency of 97.5%, as determined during the March 27, 1997 stack test, shall be used in this calculation.

b. Emission Limitation-

83.3 lbs/day OC, including cleanup

Applicable Compliance Method-

Compliance shall be determined by performing the calculation as specified in Term and Condition D.4.a.

c. Emission Limitation-

15.29 TPY OC, including cleanup

Applicable Compliance Method-

Compliance shall be determined by summing the daily organic compound emission rate calculations, from above, for the calendar year and dividing by 2000 pounds per ton.

**For P020**

a. Emission Limitation-

0.40 lb/hr OC

Applicable Compliance Method-

Compliance shall be determined by multiplying the maximum hourly toluene mixed by the fugitive OC emission loss (0.05) and multiplying the product by a factor of 1 minus the overall control efficiency, 90 percent.

b. Emission Limitation-

9.65 lbs/day OC

Applicable Compliance Method-

Compliance shall be determined by performing the calculation as specified in Term and Condition D.4.b.

c. Emission Limitation-

1.76 TPY OC

Applicable Compliance Method-

Compliance shall be determined by summing the daily organic compound emission rate calculations, from above, for the calendar year and dividing by 2000 pounds per ton.