



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL  
WOOD COUNTY**

**CERTIFIED MAIL**

Street Address:

122 S. Front Street

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center  
P.O. Box 1049

**Application No: 03-13878**

**DATE: 1/16/2003**

First Solar LLC  
Larry Hicks  
12900 Eckel Junction Road  
Perrysburg, OH 43551

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
236 East Town Street, Room 300  
Columbus, Ohio 43215

Very truly yours,

Michael W. Ahern, Supervisor  
Field Operations and Permit Section  
Division of Air Pollution Control

cc: USEPA

NWDO



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**Permit To Install  
Terms and Conditions**

**Issue Date: 1/16/2003  
Effective Date: 1/16/2003**

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**FINAL PERMIT TO INSTALL 03-13878**

Application Number: 03-13878  
APS Premise Number: 0387040338  
Permit Fee: **\$200**  
Name of Facility: First Solar LLC  
Person to Contact: Larry Hicks  
Address: 12900 Eckel Junction Road  
Perrysburg, OH 43551

Location of proposed air contaminant source(s) [emissions unit(s)]:

**12900 Eckel Junction Road  
Perrysburg, Ohio**

Description of proposed emissions unit(s):

**tin molecular electrodeposition unit.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

## Part I - GENERAL TERMS AND CONDITIONS

### A. Permit to Install General Terms and Conditions

#### 1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

#### 2. Reporting Requirements Related to Monitoring and Recordkeeping Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) 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 appropriate Ohio EPA District Office or local air 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 30, 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.)

#### 3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

#### 4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized

representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

**5. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

**6. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

**7. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

**8. Termination of Permit to Install**

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

**9. Construction of New Sources(s)**

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions

and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

**10. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

**11. Applicability**

This Permit to Install is applicable only to the emissions unit(s) identified in the Permit to Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

**12. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

**13. Source Operation and Operating Permit Requirements After Completion of Construction**

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the emissions unit(s) covered by this permit.

First Solar LLC  
 PTI Application: 03-13878  
 Issued: 1/16/2003

Facility ID: 0387040338

#### 14. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

#### 15. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

### B. Permit to Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)  
 TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
hydrochloric acid (HCl)	0.03
organic compounds (OC)	0.53
particulate emissions (PE)	0.36

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P001 - tin molecular electrodeposition unit with scrubber	OAC rule 3745-31-05(A)(3)	0.007 pound hydrochloric acid (HCl)/hour, and 0.03 ton HCl/year  0.12 pound organic compounds (OC)/hour, and 0.53 ton OC/year  0.082 pound particulate emissions (PE)/hour, and 0.36 ton PE/year  Control Requirements (See A.2.a)
	OAC rule 3745-21-07(G)	See Section B.1.
	OAC rule 3745-17-11(B)	See Section A.2.b
	OAC rule 3745-17-07(A)	Visible PE shall not exceed 20 percent opacity, as a six-minute average, except as otherwise provided by rule.

**2. Additional Terms and Conditions**

- 2.a Best Available Technology (BAT) control requirements for this emissions unit has been determined to be use of a scrubber with a minimum control efficiency of 98 percent for HCl, 80 percent for OC and 92 percent for PE. BAT requirements also include compliance with the terms and conditions of this permit.

- 2.b** The emission limitation established by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- 2.c** This emissions unit is frequently used for research and development activities and, as such, would be exempt from the permitting requirements of Ohio EPA in accordance with OAC rule 3745-31-03(A)(1)(cc). The purpose of this permit is to allow the company to utilize the unit periodically for production runs. The emission limitations and requirements of this permit are applicable when production runs are in progress and not when this unit is designated for research and development use.

## **B. Operational Restrictions**

- 1. The permittee shall not employ any material in this emissions unit which is a photochemically reactive material. "Photochemically reactive material" is defined in OAC rule 3745-21-01(C)(5).
- 2. The pressure drop across the scrubber shall be continuously maintained at a value of not less than 1 inch water gauge at all times while the emissions unit is in operation.
- 3. During all periods of operation of the electrodeposition unit, the scrubber systems water flow rates shall be continuously maintained at not less than 2.5 gallons per minute in the packed column scrubber and 12 gallons per minute in the venturi-educator section of the 2-stage scrubber.

## **C. Monitoring and/or Recordkeeping Requirements**

- 1. The permittee shall maintain the following information each day for this emissions unit:
  - a. the company identification of each material employed; and
  - b. documentation on whether or not each material employed is a photochemically reactive material.
- 2. The permittee shall properly install, operate and maintain equipment to continuously monitor:
  - a. the static pressure drop across the combined venturi-educator and packed column 2-stage scrubber system;
  - b. the water flow rate in the venturi-educator scrubber; and
  - c. the water flow rate in the packed column scrubber.

3. The monitoring devices and any recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals, with any adjustments deemed necessary by the permittee.

The permittee shall collect and record the following information each week:

- a. the pressure drop across the combined venturi-eductor and packed column 2-stage scrubber, in inches of water, on weekly basis;
- b. the water flow rate in the venturi-eductor scrubber, in gallons per minute;
- c. the water flow rate in the packed column scrubber, in gallons per minute;
- d. the operating times for the electrodeposition unit, venturi-eductor/packed column scrubber system, and the pressure and water flow monitoring equipment (this may be one record of time if all parts of the unit, as mentioned, are operational during the time of record);
- e. the purpose during each operating time (e.g., production use, R&D use, cleaning and repair, or testing/maintenance); and
- f. any period of time in which the electrodeposition unit was in operation without the associated 2-stage scrubber system, including the date and length of time of the event.

#### **D. Reporting Requirements**

1. The permittee shall notify the Director (the appropriate Ohio EPA District Office or local air agency) in writing of any daily record showing the use of non-complying materials (i.e., photochemically reactive materials) in this emissions unit. The notification shall include a copy of such record and shall be sent to the Director (the appropriate Ohio EPA District Office or local air agency) within 30 days of the date of the daily record indicating non-compliance.
2. The permittee shall submit quarterly deviation reports that identify all periods of time during which the following scrubber parameters were not maintained at or above the required levels:
  - a. the static pressure drop across the 2-stage scrubber maintained 1 inch of water column;
  - b. the scrubber water flow rate in the venturi-eductor scrubber maintained at 12 gallons per minute; and
  - c. the water flow rate in the packed column scrubber maintained at 2.5 gallons per minute.

3. The permittee shall submit quarterly deviation reports that identify any period of time in which the electrodeposition unit was in operation without the associated 2-stage scrubber system, including the date and length of time of the event.
4. The quarterly deviation reports in the above terms #2 and #3 shall be submitted as required in the General Terms and Conditions, Part I Section A.2.b, except if no deviation has occurred during any calendar quarter, this report shall not be required, as so stated in that section.

#### E. Testing Requirements

1. Compliance with the emission limitations in Section A.1 of the terms and conditions of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation:  
0.007 pound hydrochloric acid (HCl)/hour, 0.03 ton HCl/year

Applicable Compliance Method:

The permittee shall demonstrate compliance with this emission limitation by multiplying the maximum amount of HCl generated during the reactions (0.34 pound/hour) by the removal efficiency of the scrubber (1-0.98). If required, the permittee shall demonstrate compliance with this emission limitation using Method 26, which is located in 40 CFR, Part 60, Appendix A.

The annual emission limitation was developed by multiplying the pound/hour emission limitation by the maximum operating schedule of 8,760 hours/year and dividing by 2000 pounds/ton. Therefore, provided compliance with the hourly limitation is maintained, compliance with the annual limitation shall be ensured.

- b. Emission Limitation:  
0.12 pound organic compounds (OC)/hour, 0.53 ton OC/year

Applicable Compliance Method:

The permittee shall demonstrate compliance with this emission limitation by multiplying the maximum amount of OC-containing material employed (0.6 pound/hour) by the removal efficiency of the scrubber (1-0.80). If required, the permittee shall demonstrate compliance with this emission limitation using Method 18, 21, 24, and/or 25, as appropriate, which are located in 40 CFR, Part 60, Appendix A.

The annual emission limitation was developed by multiplying the pound/hour emission limitation by the maximum operating schedule of 8,760 hours/year and dividing by 2000

pounds/ton. Therefore, provided compliance with the hourly limitation is maintained, compliance with the annual limitation shall be ensured.

- c. Emission Limitation:  
0.082 pound particulate emissions (PE)/hour, 0.36 ton PE/year

**Applicable Compliance Method:**

The permittee shall demonstrate compliance with this emission limitation by multiplying the maximum amount of solid material employed (1.03 pounds/hour) by the removal efficiency of the scrubber (1-0.92). If required, the permittee shall demonstrate compliance with this emission limitation using Method 5, which is located in 40 CFR, Part 60, Appendix A.

The annual emission limitation was developed by multiplying the pound/hour emission limitation by the maximum operating schedule of 8,760 hours/year and dividing by 2000 pounds/ton. Therefore, provided compliance with the hourly limitation is maintained, compliance with the annual limitation shall be ensured.

- d. Emission Limitation:  
visible PE shall not exceed 20 percent opacity, as a six-minute average

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this visible emission limitation through the requirements of OAC rule 3745-17-03(B)(1).

**F. Miscellaneous Requirements**

1. Modeling to demonstrate compliance with the Ohio EPA's "Air Toxic Policy" was not necessary because the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would cause the emissions of any pollutant that has a listed TLV to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.