E. Scope of the Investigation and a Detailed Description of the Subject Merchandise (19 C.F.R. § 351.202(b)(5))

Scope of Investigation

The physical characteristics of the covered products, which define the scope, are as follows:

The merchandise covered by these investigations is crystalline silicon photovoltaic cells, and modules, laminates, and panels, consisting of crystalline silicon photovoltaic cells, whether or not partially or fully assembled into other products, including, but not limited to, modules, laminates, panels and building integrated materials.

These investigations cover crystalline silicon photovoltaic cells of thickness equal to or greater than 20 micrometers, having a p/n junction formed by any means, whether or not the cell has undergone other processing, including, but not limited to, cleaning, etching, coating, and/or addition of materials (including, but not limited to, metallization and conductor patterns) to collect and forward the electricity that is generated by the cell.

Merchandise under consideration may be described at the time of importation as parts for final finished products that are assembled after importation, including, but not limited to, modules, laminates, panels, building-integrated modules, building-integrated panels, or other finished goods kits. Such parts that otherwise meet the definition of merchandise under consideration are included in the scope of the investigations.

Excluded from the scope of the investigations are thin film photovoltaic products produced from amorphous silicon (a-Si), cadmium telluride (CdTe), or copper indium gallium selenide (CIGS).

Also excluded from the scope of the investigations are crystalline silicon photovoltaic cells, not exceeding 10,000 mm^2 in surface area, that are permanently integrated into a consumer good whose function is other than power generation and that consumes the electricity generated by the integrated crystalline silicon photovoltaic cell. Where more than one cell is permanently integrated into a consumer good, the surface area for purposes of this exclusion shall be the total combined surface area of all cells that are integrated into the consumer good.

Additionally, excluded from the scope of the investigations are panels with surface area from 3,450 mm^2 to 33,782 mm^2 with one black wire and one red wire (each of

(final scope deter. and final affirmative deters. of circumvention with respect to Cambodia, Malaysia, Thailand, and Vietnam).

Filed By: tbrightbill@wiley.law, Filed Date: 7/16/25 11:52 PM, Submission Status: Approved

type 22 AWG or 24 AWG not more than 206 mm in length when measured from panel extrusion), and not exceeding 2.9 volts, 1.1 amps, and 3.19 watts. For the purposes of this exclusion, no panel shall contain an internal battery or external computer peripheral ports.

Also excluded from the scope of the investigations are:

1. Off grid CSPV panels in rigid form with a glass cover, with the following characteristics: (A) a total power output of 100 watts or less per panel; (B) a maximum surface area of 8,000 cm^2 per panel; (C) do not include a built-in inverter; (D) must include a permanently connected wire that terminates in either an 8 mm male barrel connector, or a two-port rectangular connector with two pins in square housings of different colors; (E) must include visible parallel grid collector metallic wire lines every 1-4 millimeters across each solar cell; and (F) must be in individual retail packaging (for purposes of this provision, retail packaging typically includes graphics, the product name, its description and/or features, and foam for transport); and

2. Off grid CSPV panels without a glass cover, with the following characteristics: (A) a total power output of 100 watts or less per panel; (B) a maximum surface area of 8,000 cm^2 per panel; (C) do not include a built-in inverter; (D) must include visible parallel grid collector metallic wire lines every 1-4 millimeters across each solar cell; and (E) each panel is 1. permanently integrated into a consumer good; 2. encased in a laminated material without stitching, or 3. has all of the following characteristics: (i) the panel is encased in sewn fabric with visible stitching, (ii) includes a mesh zippered storage pocket, and (iii) includes a permanently attached wire that terminates in a female USB-A connector.

In addition, the following CSPV panels are excluded from the scope of the investigations: off-grid CSPV panels in rigid form with a glass cover, with each of the following physical characteristics, whether or not assembled into a fully completed off-grid hydropanel whose function is conversion of water vapor into liquid water: (A) a total power output of no more than 80 watts per panel; (B) a surface area of less than 5,000 square centimeters (cm^2) per panel; (C) do not include a built-in inverter; (D) do not have a frame around the edges of the panel; (E) include a clear glass back panel; and (F) must include a permanently connected wire that terminates in a twoport rectangular connector.

Additionally excluded from the scope of these investigations are off-grid small portable crystalline silicon photovoltaic panels, with or without a glass cover, with the following characteristics: (1) a total power output of 200 watts or less per panel; (2) a maximum surface area of 16,000 cm^2 per panel; (3) no built-in inverter; (4) an integrated handle or a handle attached to the package for ease of carry; (5) one

Filed By: tbrightbill@wiley.law, Filed Date: 7/16/25 11:52 PM, Submission Status: Approved

or more integrated kickstands for easy installation or angle adjustment; and (6) a wire of not less than 3 meters either permanently connected or attached to the package that terminates in an 8 mm diameter male barrel connector.

Also excluded from the scope of these investigations are off-grid crystalline silicon photovoltaic panels in rigid form with a glass cover, with each of the following physical characteristics, whether or not assembled into a fully completed off-grid hydropanel whose function is conversion of water vapor into liquid water: (A) a total power output of no more than 180 watts per panel at 155 degrees Celsius; (B) a surface area of less than 16,000 square centimeters (cm^2) per panel; (C) include a keep-out area of approximately 1,200 cm^2 around the edges of the panel that does not contain solar cells; (D) do not include a built-in inverter; (E) do not have a frame around the edges of the panel; (F) include a clear glass back panel; (G) must include a permanently connected wire that terminates in a two-port rounded rectangular, sealed connector; (H) include a thermistor installed into the permanently connected wire before the two port connector; and (I) include exposed positive and negative terminals at opposite ends of the panel, not enclosed in a junction box.

Further excluded from the scope of the investigations are:

1. Off grid rigid CSPV panels with a glass cover, with the following characteristics: (A) a total power output of 200 watts or less per panel, (B) a maximum surface area of 10,500 cm2 per panel, (C) do not include a built-in inverter, (D) must include a permanently connected wire that terminates in waterproof connector with a cylindrical positive electrode and a rectangular negative electrode with the positive and negative electrodes having an interlocking structure, (E) must include visible parallel grid collector metallic wire lines every 1–4 millimeters across each solar cell, and (F) must be in individual retail packaging (for purposes of this provision, retail packaging typically includes graphics, the product name, its description and/or features); and

2. Off-grid small portable crystalline silicon photovoltaic panels, with or without a glass cover, with the following characteristics: (A) a total power output of 200 watts or less per panel, (B) a maximum surface area of 16,000 cm2 per panel, (C) no built-in inverter, (D) an integrated handle or a handle attached to the package for ease of carry, (E) one or more integrated kickstands for easy installation or angle adjustment, and (F) a wire either permanently connected or attached to the package terminates in waterproof connector with a cylindrical positive electrode and a rectangular negative electrode with the positive and negative electrodes having an interlocking structure.

Also excluded from the scope of the investigations are:

Filed By: tbrightbill@wiley.law, Filed Date: 7/16/25 11:52 PM, Submission Status: Approved

1. Off grid rigid CSPV panels with a glass cover, with the following characteristics: (A) a total power output of 200 watts or less per panel, (B) a maximum surface area of 10,500 cm2 per panel, (C) do not include a built-in inverter, (D) must include a permanently connected wire that terminates in waterproof connector with a cylindrical positive electrode and a rectangular negative electrode with the positive and negative electrodes having an interlocking structure, (E) must include visible parallel grid collector metallic wire lines every 1–4 millimeters across each solar cell, and (F) must be in individual retail packaging (for purposes of this provision, retail packaging typically includes graphics, the product name, its description and/or features); and

2. Small off-grid panels with glass cover, with the following characteristics: (A) surface area from 3,450 mm2 to 33,782 mm2, (B) with one black wire and one red wire (each of type 22AWG or 28 AWG not more than 350 mm in length when measured from panel extrusion), (C) not exceeding 10 volts, (D) not exceeding 1.1 amps, (E) not exceeding 6 watts, and (F) for the purposes of this exclusion, no panel shall contain an internal battery or external computer peripheral ports.

Additionally excluded from the scope of the investigations are:

1. Off grid rigid CSPV panels with a glass cover, with the following characteristics: (A) a total power output of 175 watts or less per panel, (B) a maximum surface area of 9,000 cm2 per panel, (C) do not include a built-in inverter, (D) must include a permanently connected wire that terminates in waterproof connector with a cylindrical positive electrode and a rectangular negative electrode with the positive and negative electrodes having an interlocking structure; (E) must include visible parallel grid collector metallic wire lines every 1–4 millimeters across each solar cell, and (F) must be in individual retail packaging (for purposes of this provision, retail packaging typically includes graphics, the product name, its description and/or features); and

2. Off grid CSPV panels without a glass cover, with the following characteristics, (A) a total power output of 220 watts or less per panel, (B) a maximum surface area of 16,000 cm2 per panel, (C) do not include a built-in inverter, (D) must include visible parallel grid collector metallic wire lines every 1–4 millimeters across each solar cell, and (E) each panel is encased in a laminated material without stitching.

Also excluded from the scope of these investigations are off-grid CSPV panels in rigid form, with or without a glass cover, permanently attached to an aluminum extrusion that is an integral component of an automation device that controls natural light, whether or not assembled into a fully completed automation device that controls natural light, with the following characteristics:

Filed By: tbrightbill@wiley.law, Filed Date: 7/16/25 11:52 PM, Submission Status: Approved

1. a total power output of 20 watts or less per panel;

2. a maximum surface area of 1,000 cm2 per panel;

3. does not include a built-in inverter for powering third party devices.

Modules, laminates, and panels produced in a third-country from cells produced in a subject country are covered by the investigations; however, modules, laminates, and panels produced in a subject country from cells produced in a third-country are not covered by the investigations.

Also excluded from the scope of these investigations are all products covered by the scope of the antidumping and countervailing duty orders on *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled into Modules, from the People's Republic of China*, 77 Fed. Reg. 73,018 (Dep't Commerce Dec. 7, 2012) (amended final deter. of sales at less than fair value, and antidumping duty order); and *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, from the People's Republic of China*, 77 Fed. Reg. 73,017 (Dep't Commerce Dec. 7, 2012) (countervailing duty order).

Also excluded from the scope of these investigations are all products covered by the scope of the antidumping and countervailing duty orders on *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules From Cambodia, Malaysia, Thailand, and the Socialist Republic of Vietnam*, 90 Fed. Reg. 26,786 (Dep't Commerce June 24, 2025) (antidumping duty orders); *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules From Cambodia, Malaysia, Thailand, and the Socialist Republic of Vietnam* 90 Fed. Reg. 29,843 (Dep't Commerce July 7, 2025) (antidumping duty orders; correction); and *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled Into Modules, From Cambodia, Malaysia, Thailand, and the Socialist Republic of Vietnam*, 90 Fed. Reg. 26,791 (Dep't Commerce June 24, 2025) (countervailing duty orders).

Merchandise covered by the investigations is currently classified in the Harmonized Tariff System of the United States ("HTSUS") under subheadings 8501.61.0000, 8507.20.80, 8541.42.0010, and 8541.43.0010. These HTSUS subheadings are provided for convenience and customs purposes; the written description of the scope of the investigations is dispositive.

Subject merchandise includes products meeting the physical description set forth in the scope language, regardless of the manufacturing technology utilized (*e.g.*, tunnel oxide passivated contact ("TOPCon"), passivated emitter and rear cell ("PERC")). So-called "hybrid" c-Si PV cells

Filed By: tbrightbill@wiley.law, Filed Date: 7/16/25 11:52 PM, Submission Status: Approved

and modules that also contain a layer of thin film are covered by the scope, consistent with the Department's scope rulings in the *Solar I* China case.[20] Tandem solar cells consisting of crystalline silicon and perovskite or other cell material, including but not limited to those produced in serial fashion or by mechanical stacking, are also covered. Also consistent with the Department's *Solar I* scope rulings, c-Si PV cells are created once a wafer is doped and a positive/negative ("p/n junction") is created.[21]

F. Technical Characteristics and Uses

C-Si PV cells, which are made from crystalline silicon, are the building blocks of solar photovoltaic power-generation systems. C-Si PV cells are produced from ultra-refined polysilicon. C-Si PV cells convert the energy of sunlight directly into electricity, by the photovoltaic effect. Specifically, c-Si PV cells have a p/n junction, which is an interface of a p-type semiconductor and an n-type semiconductor that is usually formed by dopant additions to create an intrinsic or extrinsic charge state. The p/n junction can be heterogeneous (*i.e.*, non-uniform dopant distribution, resulting in sections of the substrates responding differently to sunlight); homogeneous (*i.e.*, uniform dopant species or concentrations, resulting in a uniform response to sunlight); or patterned (*i.e.*, alternative dopant species or concentrations to purposefully create either a different response to sunlight or improve the ability to extract current from the cell).

---

[20] *See, e.g.*, Memorandum from Mark Hoadley, Program Manager, AD/CVD Operations, Off. VII, through Edward Yang, Senior Dir., AD/CVD Operations, Off. VII, to Christian Marsh, Deputy Assistant Sec'y for AD/CVD Operations, re: *Crystalline Silicon Photovoltaic Cells, Whether or Not Assembled into Modules, from the People's Republic of China: Final Ruling in the Triex Photovoltaic Cell Scope Inquiry* (June 17, 2016), attached as **Exhibit I-15**.

[21] *See, e.g.*, Memorandum from Peter Shaw, Int'l Trade Compliance Analyst, AD/CVD Operations, through Melissa G. Skinner, Senior Dir., Off. VII, AD/CVD Operations, to James Maeder, Deputy Assistant Sec'y for AD/CVD Operations, re: *Antidumping and Countervailing Duty Orders on Crystalline Silicon Photovoltaic Cells from the People's Republic of China, and Certain Crystalline Silicon Photovoltaic Products from Taiwan: The Solaria Corporation Scope Ruling* (Apr. 8, 2021), attached as **Exhibit I-16**.

Filed By: tbrightbill@wiley.law, Filed Date: 7/16/25 11:52 PM, Submission Status: Approved