

# MSDS REPORT

## MATERIAL SAFETY DATA SHEET

### SECTION 1- PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: *Crystalline silicon PV module*

Company Identification: *Trina Solar Energy Co., Ltd.*

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### SECTION2- COMPOSITION, INFORMATION ON INGREDIENTS

#### INGREDIENTS CONTENT:

Material Item	Chemical Name of Composition	CAS NO.	Concentration % (w/w)
<i>Metal Frame</i>	<i>Aluminum</i>	<i>7429-90-5</i>	<i>0~10</i>
	<i>Magnesium</i>	<i>7439-95-4</i>	<i>0~0.1</i>
	<i>Silicon</i>	<i>7440-21-3</i>	<i>0~0.1</i>
	<i>Iron</i>	<i>7439-89-6</i>	<i>0~0.05</i>
<i>Plastic Frame</i>	<i>Fiberglass</i>	<i>65997-17-3</i>	<i>0~10</i>
	<i>Polyurethane</i>	<i>51852-81-4</i>	<i>0~3</i>
Cell	Silicon	<i>7440-21-3</i>	<i>1.5~3</i>
	Argentum	<i>7440-22-4</i>	<i>0.01~0.05</i>
	Aluminum	<i>7429-90-5</i>	<i>0~0.1</i>
Junction-Box	Polyphenylene oxide ( PPO)	<i>31533-76-3</i>	<i>0.05~0.2</i>

	Tin	7440-31-5	<0.01
	<i>Plumbum</i>	7439-92-1	<0.01
	Copper	7440-50-8	0.05~1
	Polyethylene (PE)	9002-88-4	0.05~0.5
	Polycarbonate (PC)	25037-45-0	<0.01
	<i>Polyamide (PA)</i>	63428-83-1	<0.01
Glass	<i>Silicon dioxide</i>	7631-86-9	30~60
	<i>Sodium oxide</i>	1313-59-3	6~12
	<i>Magnesium oxide</i>	1309-48-4	1.5~3.5
	<i>Calcium oxide</i>	1305-78-8	4~9
Silica gel	<i>Polydimethylsiloxane</i>	70131-67-8	0.25~0.75
	<i>Calcium carbonate</i>	471-34-1	0.25~0.75
	<i>Aluminium hydroxide</i>	21645-51-2	0.01~0.05
	<i>Silicon dioxide</i>	7631-86-9	0.01~0.05
Bus bar	Copper	7440-50-8	1~5
	Tin	7440-31-5	0.1~0.5
	<i>Plumbum</i>	7439-92-1	0.1~0.5
Back sheet	Polyvinylidene fluoride (PVDF)	24937-79-9	0~0.4
	Polyethylene terephthalate (PET)	25038-59-9	0~4
	<i>Fluorocarbon resin (FEVE)</i>	9010-75-7	0~0.4
Encapsulating material	<i>Ethylene-vinyl acetate copolymer (EVA)</i>	24937-78-8	0~15
	<i>Ethylene-octene copolymer (POE)</i>	6221-73-8	0~15
	<i>Titanium dioxide</i>	12065-65-5	0~2
<i>Nameplate</i>	<i>Polyethylene terephthalate (PET)</i>	25038-59-9	<0.01

## SECTION3- HAZARDS IDENTIFICATION

Emergency Overview: warning, non-demolition, not exposed to flame or fire. There is the risk of explosion and burn under fire conditions.

Do not short-circuit, squeezing, burning, or removing the module.

Potential health hazards

Risk Categories: None

Invasive Ways: None

Environmental Hazards: None

Health Hazards: None

Explosion Hazard: Tempered glass has a 1/10000 explosion risk.

The inverter device does not meet the provision, the flaws on system design, the quality problem of the junction box, the hot spot effect will be the reason of spontaneous combustion of this product.

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## SECTION4- FIRST AID MEASURES

Eye contact: No damage found on eye contact, no special provisions.

Skin contact: No skin contact injury found. It is proposed to wash hands before and after touch back sheet. If molten polymer contacts skin, immediately cool it with cold water, and do not directly peel them from the skin, go to hospital for treatment by burns drugs.

Ingestion: No damage found, no special provisions.

Inhalation: No damage found, no special provisions. If you have overheating or fire hazard, be away from heat. Go to hospital if any discomfort.

## SECTION5- FIRE FIGHTING MEASURES

In general: during normal operation, this product is not prone to burning.

Hazardous Combustion Products: CO, HF.

Extinguishing Media: The hydrogen produced under the using of water may be mixed with air to form an explosive mixture if the module is burning. For small fires, carbon dioxide, dry powder or foam extinguishing agent are preferred medium. But they may not work to the burning module until the combustion module will be completely burned out. LITH-X (powdered graphite) or copper powder extinguisher, sand, dried, pulverized dolomite or soda ash can also be used, and these materials can be used as a smothering agent.

Extinguishing Note: transfer people to a safe area in the upwind air, wear respirators, protective gloves and fire fighting clothing. If large amounts are inhaled, give emergency medical treatment.

#### SECTION6- ACCIDENTAL RELEASE MEASURES

Emergency treatment: solid normally, NA.

#### SECTION7- HANDLING AND STORAGE

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Handling Precautions:

Outline

- 1, In strict accordance with the requirements of the user manual to install modules, and are not free to install, maintain. 2, Do not strongly illuminate module artificially(artificial sunlight is unavailable)
- 3, The system DC voltage exceeds 100V, operation must be done by specialized electrician.
- 4, It is potentially dangerous to contact a voltage of 30V or above.
- 5, Junction boxes, cables, brackets, etc should be matched with modules during installation of electrical systems.
- 6, Installation of all accessories must follow safe working practices (other accessories must also comply with the security provisions of operation)
- 7, The installation should be in accordance with local, national and international standards.
- 8, Module installation should be operated by professionals.

Safe handling

- 1, Properly packed before installation of modules.
- 2, Do not directly holding the junction box to handle the modules
- 3, Not drop modules or obstacles fall on it.
- 4, Handle it gently, especially angular point.
- 5, Do not disassemble the modules and move any part of the modules or label after installation.
- 6, Do spray paint or stick other items on the back of the modules.
- 7, Do not drill on the glass and module border.
- 8, Do not place the module without bracket or not an unsafe place
- 9, The module cannot be used after glass is broken.
- 10, To operate with dry tool in the clean environment.

### Install security

- 1, Do not allow the children to close during installation.
- 2, Module cannot be installed in high winds.
- 3, Appropriate Installation methods and safety equipment should be used in the installation site to prevent the falling of modules.
- 4, To avoid current generation during installation, the components should be completely covered
- 5, Do not touch the wire or connection port when the installation of the modules or the modules are exposed to the sunlight.
- 6, Do not wear metal jewelry during the installation.
- 7, Do not disconnect the line or unplug the connection plug when circuit is working.

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### Fire safety

- 1, Roof structures and installations that may affect the fire safety of the entire building, unreasonable installation will aggravate to the severity of the fire.
- 2, The modules should be installed on the fire isolation layer, in order to improve security
- 3, Module installation on the rooftop and ground should be the same, with insurance device and circuit fuse.
- 4, Do not install the modules near the storage equipment and place of flammable gas.

### Electrical Installation

- 1, Avoid the risk of electric shock during installation, wiring, module operating.
- 2, The module of different specifications cannot used in the same array.
- 3, The open circuit voltage of module is less than the maximum voltage of standard system.
- 4, All of the modules no matter how much voltage should be grounding.
- 5, The cable is to be placed where the children and animals cannot touch.
- 6, Cables and junction boxes may overheat at high current.
- 7, Make sure junction box and wire can go through the short-circuit current.
- 8, Make sure the positive and negative polarity of the cable and terminal during connection.
- 9, Grounding line is provided.

### Mechanical Installation

- 1, Fix the modules with the installation tools and special bracket to support modules
- 2, Make sure the module can still work carrying a certain load, which is not affected by the impact of the snow load or thermal expansion and contraction

3, Make sure that the modules can still work in the ambient temperature within the variable range of -40 to +80 °C/ -40 to 176 °F

4, Off-grid power generation system installed in large areas of snow, require module position lower and bracket narrower

5, Providing install mounting holes for frame modules which can withstand a certain degree of mechanical strength. 6, All four position holes on the module are used for installation.

7, Be well-ventilated behind the module. (5 cm / 2 inch gap)

8, Be away from the other items behind the modules.

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Storage:

Use wooden boxes (carton) packaging and store it in a cool, well-ventilated place, be away from heat and fire sources.

#### SECTION8-EXPOSURE CONTROLS/PERSONAL PROTECTION EQUIPMENT

Engineering Controls: NA

Eye protection: NA

Skin contact: NA under normal conditions, if the module is damaged, please wear appropriate protective gloves.

Clothing: NA under normal conditions, if the module is on fire and burst, please wear appropriate protective clothing.

Respirator: NA under normal conditions.

#### SECTION9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Odor: None

Voltage: different specifications, different voltage

Weight: **15~45 kg**

Solubility in water: insoluble in water

#### SECTION10- STABILITY AND REACTIVITY

Stability: Stable under normal storage and operating conditions.

Conditions to avoid: fire, high temperature, high humidity, salt spray

Substances to be avoided: strong oxidizing agents.

Hazardous decomposition products: fire conditions may produce hazardous decomposition products.

Hazardous Polymerization: No information available.

#### SECTION11- TOXICOLOGICAL INFORMATION

Acute poisoning: under normal conditions, the product will not cause any abnormal emergency injury.

Irritation: None

#### SECTION12- ECOLOGICAL INFORMATION

Ecological toxicity: the proper use and disposal of the module will not cause harm to the environment. Disposal of waste modules, be away from the water, rain and snow.

#### SECTION13- DISPOSAL

Disposal: Should refer to national and local laws and regulations before disposal.

#### SECTION14- TRANSPORT INFORMATION

Dangerous Goods Code: No information

UN Number: information

Packing mark: no information

Packaging category: Z01

Packing method: No information available.

Transportation Note: Package should be complete before transportation, and loading should be safe. To ensure that the container does not leak, not fall, not damaged during transportation. Do not be together with oxidizing agents, alkalis, food chemicals. Goods should be anti-exposure, rain, anti-high temperature during transportation.

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#### SECTION15- REGULATORY INFORMATION

Regulatory Information: Refer to local, domestic, EU / international regulations

#### SECTION16-OTHER INFORMATION

MSDS Preparation date: **April 23, 2023**

The information of this MSDS is just based on our current related information, which have been prepared only for the description of the goods health, safety and environmental requirements, to enable all interested parties to better understand and trust this product. This information is only available to you for consideration, study and confirmation. Some description of hazard prevention measures is not unique. Without any implied guarantees, description or expression to use this information, *Trina Solar Energy Co., Ltd.* does not assume any liability of this MSDS. So this MSDS cannot guarantee any particular purpose of this product. The users have the responsibility to complete this product security and other aspects of the test in advance, to judge whether it meets your intended use.

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