

# MATERIAL SAFETY DATA SHEET-9 SECTIONS

## SECTION1-PRODUCT INFORMATION

**Product Name:**BVM7612M-XXX-H-HC-BF-DG

**Product Use:**the cells convert the light energy into electrical energy

**Manufacturer's Name:**Boviet Solar USA, Ltd

**Physical and Mailing Address:**1735 N. 1st Street, Suite 300, San Jose, CA, USA

**Emergency Contact Phone Number:**+ 1 877 253 2858

**WHMIS Classification (optional):**

**Supplier's Name:**

**Physical and Mailing Address:**

**Emergency Contact Phone Number:**

## SECTION 2-HAZARDOUS INGREDIENTS

**Hazardous Ingredients (very specific) :** See the table below for detailed ingredients

COMPONENT	MATERIAL	TOTAL SHARE	REMARK
FRAME	Aluminum	7% – 12%	not hazardous
	Silicone	< 1%	not hazardous, see section 7
LAMINATE	Glass	70% – 85%	not hazardous
	Plastics (EVA, PET, PE, PPE, PC)	5% – 10%	no hazards known
	Silicon	2% – 4%	not hazardous
	Metals (Aluminum, Copper, Tin)	0.5% – 2%	not hazardous
	Lead	< 0,1%	hazardous
	Silver	< 0,05%	not hazardous

## SECTION 3-PHYSICAL DATA

**Physical State (What does it look like? Is it a liquid, gas, or solid?)**

**What happens to it under a variety of circumstances? (i.e. heat, freezing, droppng, etc.) :**

- Physical State: Solid
- Please be advised that voltage increases when modules are connected electrically. Boviet Solar PV modules are certified for up to 1,500 volts. The product data sheets lists the maximum system voltage. When connecting modules in a series, do not exceed the allowed maximum system voltage.
- Weight: Please refer to product datasheet
- Solubility in Water: Modules are insoluble in water.

## SECTION 4-FIRE AND EXPLOSION DATA

**Flammability and how to extinguish. includes a wide variety of details concerning how easily this product will ignite / explode and how to deal with it :**

- Boviet Solar's double-glass PV modules are fire-rated as Class A under IEC and UL 1703. They are rated as Type 29 according to UL 1703.
- Boviet Solar PV modules are tested extensively at our factory to ensure the product's electrical safety.
- Like all electrical devices, PV modules can, rarely, cause a fire when electrical contacts are worn, which can lead to electrical arcing.
- ONLY PROFESSIONAL FIREFIGHTERS SHOULD MANAGE ANY FIRE.
- FIREFIGHTERS SHOULD TAKE PRECAUTIONS PRESCRIBED FOR ELECTRICAL VOLTAGES OF UP TO 1,500 VOLTS (DC).
- PV modules contain potentially combustible components including oxides of carbon, silicon and nitrogen.

## SECTION 5-REACTIVITY DATA

**How stable is this product? How it reacts under various conditions.**

**Incompatibility with other substances. Hazardous Decomposition Products :**

- Boviet Solar PV modules are chemically stable under normal operating conditions
- Modules are tested for salt spray resistance per IEC 61701.
- Modules are tested for ammonia resistance per IEC 62716.
- Modules support ambient operating temperatures ranging from -40 °C to +85 °C (-40 °F to +185 °F).
- Modules should not be installed at altitudes higher than 13.120 ft (4000 m) above sea level.
- PV modules contain potentially combustible components that can burn. These include oxides of carbon, silicon and nitrogen.
- To remove dirt, dust or other matter from the modules, use only a sponge or soft cellulose cloth. Do not use microfleece wool or cotton cloths. Do not scratch to remove dirt. Rinse with lukewarm water.

## SECTION6-TOXICOLOGICAL PROPERTIES

**Information about how the product affects and enters the body. Immediate affect. Long term toxic affect :**

Installed modules do not present any exposure to hazardous chemicals. Residual amounts of methanol from the manufacturing process may be present in the shipping cartons. Shipping cartons should be opened in a well-ventilated location. Wait five minutes before removing the modules from the cartons.

## SECTION 7-PREVENTIVE MEASURES

**Exposure limits. in summary, immediate and long term affects to the human body.**

**Personal Prolective Gear; ventilation, etc.; leak and spill info; waste disposal; handling and storage :**

Read the Boviet Solar Installation and Maintenance Manual thoroughly before installing modules. Failure to follow the procedures outlined in the manual can cause physical injury or death. Only qualified,authorized professionals should handle and install PV modules. The Installation and Maintenance Manual is available from your module distributor or retailer.

- Ensure that all individuals working on and around the PV installation understand and follow accident-prevention and safety regulations and best practices.
- Wear suitable gloves when handling modules.
- Ensure that the modules and all related electrical components are intact. DO NOT INSTALL MODULES THAT APPEAR DAMAGED.
- Never modify the module (for example, by drilling holes in the frame). Do not open the junction box on the back.
- Be sure modules, other components, and tools are dry at all times during installation. All tools should be dry and insulated.
- Module cables should only be connected using the provided plugs. Plugs make a clicking sound when property connected. Be sure plugs are tightly connected.
- During installation, modules should be covered with an opaque material. This includes modules you might be disconnecting.

The silicone used when PV modules are being manufactured releases methanol in the curing stage. After that, methanol is no longer released. However, shipping cartons may contain small amounts of methanol. Therefore, shipping cartons should be opened in a well-ventilated location. Wait five minutes before removing the modules from the cartons. This ensures that the recommended limit for methanol exposure -- 200 ppm eight-hour time-weighted-average (TWA) -- is not exceeded.

## SECTION 8-FIRST AID MEASURES

**Special shipping instructions :**

- Call 911 for an ambulance immediately.
  - Stay away from any sources of high-voltage electricity. Let professionals with the necessary personal protective equipment (PPE) conduct the rescue.
  - Protect yourself by taking all safety precautions so you are not injured.
  - Do not touch any components that might be live.
  - Before attempting rescue, qualified personnel should shut down the PV system to the extent possible. For example, disconnect the modules and the inverter before exposing live electrical wiring and components. High-voltage equipment needs time to discharge. Be sure to wait the specified amount of time after turning the inverter off. Follow OSHA requirements for hazardous energy control, 29 C.F.R. § 1910.147.
  - If contact with live equipment can be prevented, use insulated tools, and only insulated tools, to remove the victim from the power source.
  - Move the injured person away from the live equipment.
  - Check the injured person's heartbeat, breathing and level of consciousness.
  - Apply CPR or other life-saving measures first; address minor injuries later.
  - Even if no injuries are visible, consult a medical professional.
- Other types of injury:
- If skin is burned from contact with hot PV module surfaces, flush the damaged skin with cool water and consult a medical professional.
  - If cuts or other injuries occurred from modules edges or corners or broken glass, treat accordingly and consult a medical professional.
  - Treat other types of injuries appropriately and consult a medical professional.

## SECTION 9-PREPARATION INFORMATION/Who prepared this and contact info

Jien Boviet Solar R&D Product Technician

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