

**Client Name:** Zhejiang Aiko Solar Technology Co., Ltd.  
**Client Address:** No.655, Haopai Road, Suxi Town, Yiwu 322009 Zhejiang, P.R.China

**Sample Name:** photovoltaic modules  
**Tested Basic Model No.:** AIKO-G645-MCH72Mw  
**Client Ref. Information:** AIKO-Gxxx-MCH72Mw  
AIKO-Axxx-MAH72Mw  
AIKO-Axxx-MAE72Mw  
AIKO-Axxx-MDH72Mw  
AIKO-Axxx-MDE72Mw  
AIKO-Axxx-MAH54Mw  
AIKO-Axxx-MAH54Mb  
AIKO-Axxx-MCH54Mw  
AIKO-Axxx-MCE54Mw  
AIKO-Axxx-MCH54Mb  
AIKO-Axxx-MCE54Mb  
AIKO-Axxx-MAH60Mw  
AIKO-Axxx-MCE60Mw  
AIKO-Axxx-MAH60Mb  
AIKO-Axxx-MCE60Mb  
AIKO-Gxxx-MCH60Mw  
AIKO-Gxxx-MCH60Mb

The above sample(s) and information were provided by the client.

**THIS REPORT IS TO SUPERSEDE TEST REPORT NO.TAOEC24002229903\_2, DATE: May 15, 2024.**

**SGS Job No.:** TIC1020240411141955KS0K  
**Sample Receiving Date:** Apr 15, 2024  
**Verification Period:** Apr 15, 2024 ~ Apr 24, 2024  
**Verification Requested:** Select test(s) as requested by the client.  
**Verification Method(s):** Please refer to next page(s).  
**Verification Result(s):** Please refer to next page(s).

**Test Result Summary:**

Signed for and on behalf of  
SGS-CSTC Standards Technical Services (Qingdao) Co., Ltd.



Alice Sun  
Approved Signatory

scan to see the report



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Test Items	Conclusion
Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass

**Verification Method(s):**

1. With reference to IEC 62321-2:2021, disassembly and disjointment were performed for the submitted samples.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report.
  - (1) With reference to IEC 62321-3-1:2013, screening by EDXRF spectroscopy.
  - (2) Wet chemical test method: With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-12:2023, IEC 62321-6:2015 and IEC62321-8:2017 , analyzed by ICP-OES,UV-Vis and GC-MS.



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**Verification Part Description:**

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	TAO24-0022299-0001.C001	Silvery metal
SN2	A2	TAO24-0022299-0001.C002	Silvery plastic(label)
SN3	A3	TAO24-0022299-0001.C003	Silvery plastic(label)
SN4	A4	TAO24-0022299-0001.C004	Transparent glass
SN5	A5	TAO24-0022299-0001.C005	Black plastic
SN6	A6	TAO24-0022299-0001.C006	Black solid
SN7	A7	TAO24-0022299-0001.C007	White adhesive
SN8	A8	TAO24-0022299-0001.C008	Black plastic
SN9	A9	TAO24-0022299-0001.C009	Black plastic
SN10	A10	TAO24-0022299-0001.C010	White adhesive
SN11	A11	TAO24-0022299-0001.C011	Black plastic
SN12	A12	TAO24-0022299-0001.C012	Copper-colored metal
SN13	A13	TAO24-0022299-0001.C013	Silvery metal
SN14	A14	TAO24-0022299-0001.C014	Red rubber
SN15	A15	TAO24-0022299-0001.C015	Silvery metal
SN16	A16	TAO24-0022299-0001.C016	Silvery metal(inner core)
SN17	A17	TAO24-0022299-0001.C017	Black plastic
SN18	A18	TAO24-0022299-0001.C018	Black plastic
SN19	A19	TAO24-0022299-0001.C019	Black plastic
SN20	A20	TAO24-0022299-0001.C020	Silvery metal
SN21	A21	TAO24-0022299-0001.C021	Black plastic
SN22	A22	TAO24-0022299-0001.C022	Black plastic



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**Verification Result(s):**

(Unless otherwise specified, the unit is mg/kg).

Test Item(s)	A1	A2	A3	A4	A5	A6	A7	A8
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	BL	BL	BL	BL
PBB	---	BL	BL	BL	BL	BL	BL	BL
PBDE	---	BL	BL	BL	BL	BL	BL	BL
DBP	---	BL	BL	---	BL	BL	BL	BL
BBP	---	BL	BL	---	BL	BL	BL	BL
DEHP	---	BL	BL	---	BL	BL	BL	BL
DIBP	---	BL	BL	---	BL	BL	BL	BL
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A9	A10	A11	A12	A13	A14	A15	A16
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	BL	BL	ND	BL
PBB	BL	BL	BL	---	---	BL	---	---
PBDE	BL	BL	BL	---	---	BL	---	---
DBP	BL	BL	BL	---	---	BL	---	---
BBP	BL	BL	BL	---	---	BL	---	---
DEHP	BL	BL	BL	---	---	BL	---	---
DIBP	BL	BL	BL	---	---	BL	---	---
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A17	A18	A19	A20	A21	A22
Cd	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	BL	BL
PBB	BL	BL	BL	---	BL	BL
PBDE	BL	BL	BL	---	BL	BL
DBP	BL	BL	BL	---	BL	BL
BBP	BL	BL	BL	---	BL	BL
DEHP	BL	BL	BL	---	BL	BL
DIBP	BL	BL	BL	---	BL	BL
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS



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**Notes:**

(1) Interpretation of screening results by X-ray fluorescence spectrometry (XRF):

(a) Screening limits in mg/kg for regulated elements in various matrices according to IEC 62321-1:2013 Annex A as below table.

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	Not applicable	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

(b) If the maximum allowed level restricts PBB/PBDE and Cr(VI) rather than Br and Cr, the exceptions are the XRF determinations of Br and Cr. If the quantitative results for the elements Br and/or Cr are higher than the limit (for Br calculated based on the stoichiometry of Br in the most common congeners of PBB/PBDE), the sample is "inconclusive".

(c) Results are obtained by EDXRF for primary screening, LOD = Limit of Detection, BL = Below Limit, OL= Over Limit, IN (The symbol X marks the region)=Inconclusive, where further investigation is necessary, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBB/PBDE) are recommended to be performed.

(d) The EDXRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

(2) Screening results of Phthalates (PHTH) are for primary screening, and further chemical testing by GC-MS (for DBP, BBP, DEHP and DIBP) are recommended to be performed if the concentration exceeds the below warning value (unit: mg/kg).

Test Items	CAS No.	Polymer/ Composite Materials
Dibutyl phthalate (DBP)	84-74-2	$BL \leq 600 < X$
Butyl benzyl phthalate (BBP)	85-68-7	$BL \leq 600 < X$
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	$BL \leq 600 < X$
Diisobutyl phthalate (DIBP)	84-69-5	$BL \leq 600 < X$

(3) Interpretation of results by chemical tests:

(a) mg/kg = 0.0001%, MDL=Method detection Limit, ND = Not Detected (<MDL), --- = Not Applicable.

(b) Unit and MDL in wet chemical test

Test Items	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	10	10	10	100	100	100	100

The MDL for single compound of PBB and PBDE is 100 mg/kg,  
MDL of Cr(VI) for polymer, composite and leather sample is 10 mg/kg.  
MDL of Cr(VI) for metal sample is 0.10 µg/cm<sup>2</sup>.

(c) ▼ =Metal sample

a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm<sup>2</sup>. The sample coating is considered to contain Cr(VI).

b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm<sup>2</sup>). The coating is considered a non-Cr(VI) based coating

c. The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> is considered to be inconclusive-unavoidable coating variations may influence the determination



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Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

- (4) The maximum permissible limit is quoted from the client requirement.
- (5) IEC 62321 series is equivalent to EN 62321 series.
- (6) Only selected parts in sample photos were tested and drew the conclusion.

Note: This report updates Client Name, test requirement and Client Ref. Information

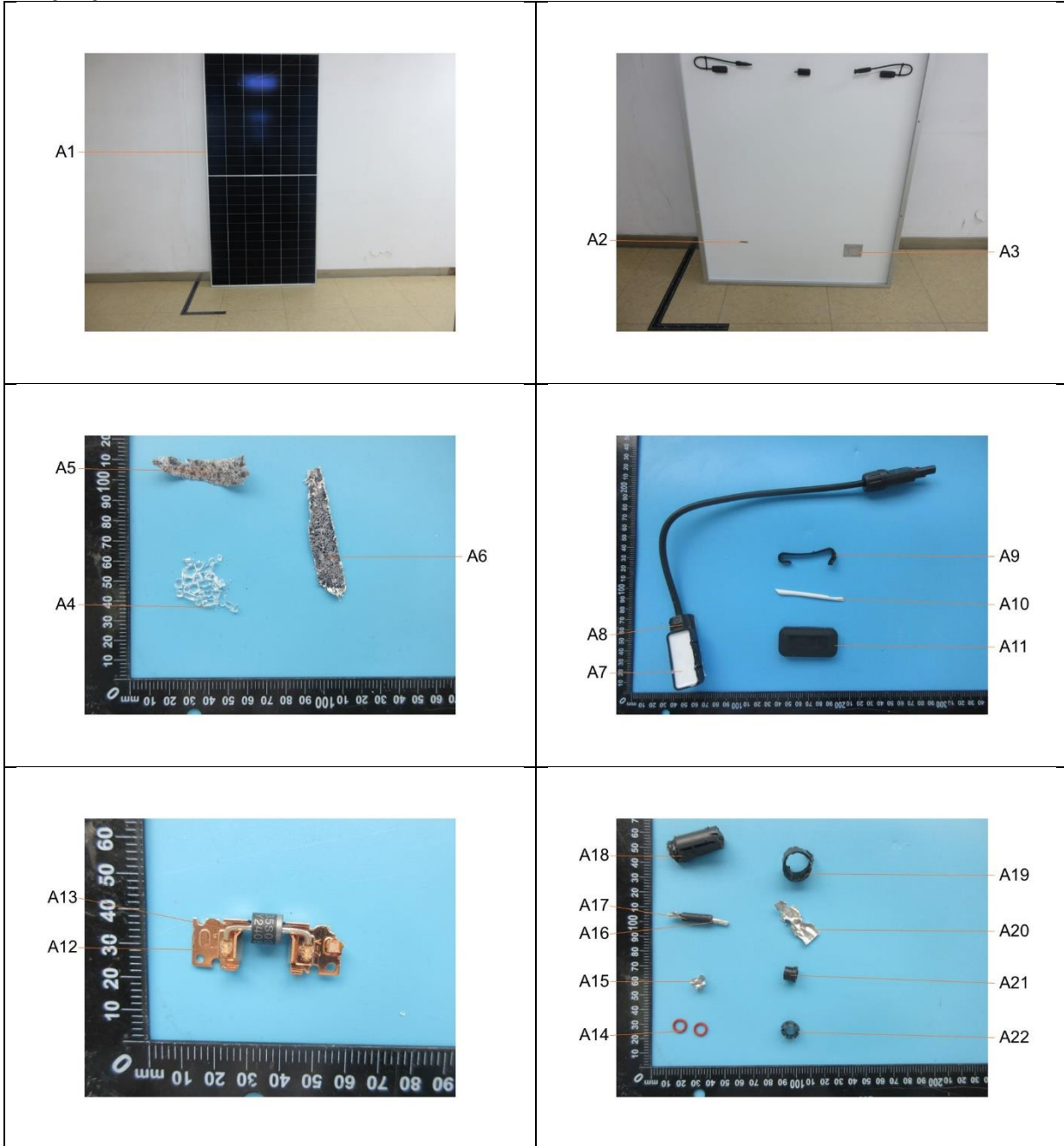
Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ( $w=0$ ) stated in ILAC-G8:09/2019.



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Sample photos:



SGS authenticate the photo on original report only  
 \*\*\* End of Report \*\*\*



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