



PHONO

575-595w

Draco Module Series

N-Type HIGH EFFICIENCY MONO 144-16BB-W-WG

Bloomberg
NEW ENERGY FINANCE

Tier1



Extraordinary Product Performance

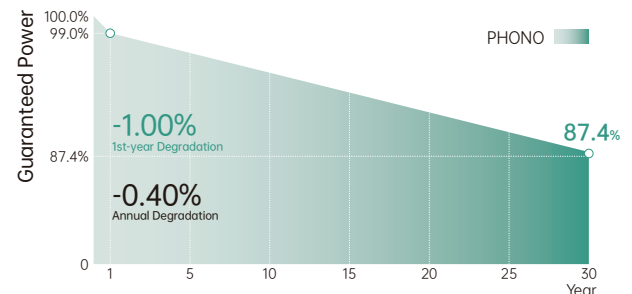
- Up to 30% additional power yield benefited from bifacial technology and up over 80% cell bifaciality
- Competitive high-temperature performance with ameliorated temperature coefficient
- Better weak illumination response, higher power generation with N-Type technology

Higher Quality Reliability

- N-type with lower LID and LeTID
- Industry-leading cell processing technology and dual glass contributes to excellent anti-PID characteristic
- First-year degradation is less than 1.0%, with linear degradation of 0.4% per year for 30 years

Wider Application Conditions

- BIPV, vertical installation, snowfield, high-humid area, windy and dusty area
- Safer and easier handling during transportation and installation



15-year
Product Warranty

30-year
Linear Performance Warranty

MANAGEMENT SYSTEM CERTIFICATES

IEC 61215, IEC 61730, UL 61730

ISO 9001
2015 / Quality management system

ISO 14001
2015 / Standards for environmental management system

ISO 45001
2018 / International standards for occupational health & safety



Electrical Typical Values

Model	1000V	PS575M8GF-24/TNH		PS580M8GF-24/TNH		PS585M8GF-24/TNH		PS590M8GF-24/TNH		PS595M8GF-24/TNH	
	1500V	PS575M8GFH-24/TNH		PS580M8GFH-24/TNH		PS585M8GFH-24/TNH		PS590M8GFH-24/TNH		PS595M8GFH-24/TNH	
Testing Condition		STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Rated Power (Pmpp)		575	440	580	444	585	448	590	452	595	456
Rated Current (Imp)		13.36	10.76	13.42	10.81	13.48	10.86	13.54	10.91	13.60	10.95
Rated Voltage (Vmp)		43.04	40.92	43.22	41.09	43.40	41.26	43.58	41.43	43.75	41.59
Short Circuit Current (Isc)		14.04	11.31	14.11	11.36	14.18	11.42	14.25	11.48	14.32	11.53
Open Circuit Voltage (Voc)		51.97	49.76	52.20	49.98	52.44	50.21	52.68	50.44	52.92	50.67
Module Efficiency (%)		22.26		22.45		22.65		22.84		23.03	

STC(Standard Testing Conditions): Irradiance 1000W/m², AM 1.5, Cell Temperature 25°C

NOCT (Nominal Operation Cell Temperature): Irradiance 800W/m², Ambient Temperature 20°C , Spectra at AM1.5, Wind at 1m/s

BNPI

Maximum Power (Pmax)	633	639	644	650	655
Optimum Operating Current (Imp)	14.71	14.97	14.84	14.92	14.98
Optimum Operating Voltage (Vmp)	43.04	43.22	43.40	43.58	43.75
Short Circuit Current (Isc)	15.49	15.58	15.62	15.70	15.75
Open Circuit Voltage (Voc)	51.97	52.20	52.44	52.68	52.92

BNPI:Front Side Irradiation 1000W/m², Back Side Reflection Irradiation 135W/m² , AM 1.5, Ambient Temperature 25°C

Mechanical Characteristics

Cell Type	N Type Monocrystalline
Dimension (L × W × H)	Length: 2278mm (89.69 inch)
	Width: 1134mm (44.65 inch)
	Height: 30mm (1.18 inch)
Weight	32.0kg (70.55 lbs)
Glass	2.0mm/2.0mm Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
Cable (Including Connector)	12AWG(UL)4mm ² (IEC), (+): 450mm,(-): 250mm or Customized Length
Junction Box	IP 68 Rated

Temperature Ratings

Voltage Temperature Coefficient	-0.25%/°C
Current Temperature Coefficient	+0.04%/°C
Power Temperature Coefficient	-0.29%/°C
Power Tolerance	0~+3%
NOCT	42±2°C
Bifaciality	80±5%

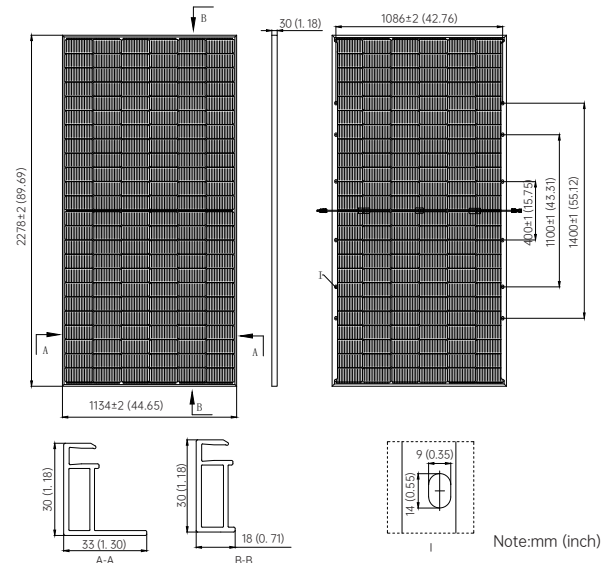
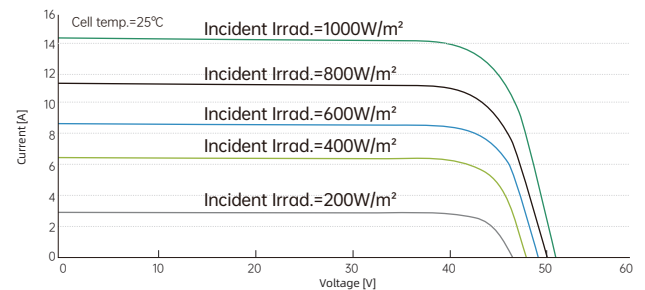
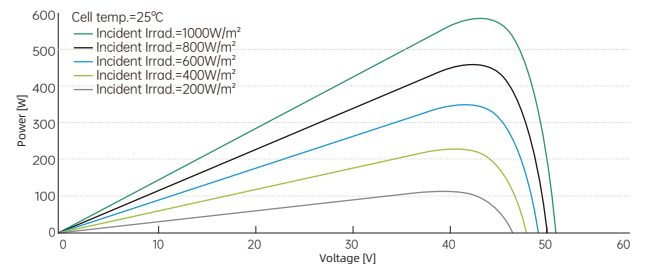
Absolute Maximum Rating

Operating Temperature	From -40 to + 85°C
Hail Diameter @ 80km/h	Up to 25mm
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Maximum Series Fuse Rating	30A
PV Module Classification	II
Fire Rating (UL 61730)	Type29
Maximum System Voltage	DC 1000V/1500V

Packing Configuration

Container	20' GP	40' HQ
Pieces/Container	180	720
Pcs/Pallet	36	36
Pallets/Container	5	20

Electrical Characteristics



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-122464-1
Client Project/Site: Solar Module TCLP

For:
SUMEC Energy Holdings Co. Ltd.
No.1 Xinghuo Road
Nanjing Hi-tech Zone
Nanjing, China 210061

Attn: Mr. Chester Chen



Authorized for release by:
12/3/2019 7:25:49 PM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Job ID: 240-122464-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: SUMEC Energy Holdings Co. Ltd.

Project: Solar Module TCLP

Report Number: 240-122464-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The sample was received on 11/18/2019 11:10 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 13.8° C.

TCLP METALS (ICP)

Sample SOLAR PANEL (240-122464-1) was analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Methods 1311/6010B. The sample was leached on 11/25/2019, prepared on 11/26/2019 and analyzed on 11/27/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP MERCURY

Sample SOLAR PANEL (240-122464-1) was analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The sample was leached on 11/25/2019, prepared on 11/26/2019 and analyzed on 11/27/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
1311	TCLP Extraction	SW846	TAL CAN
3010A	Preparation, Total Metals	SW846	TAL CAN
7470A	Preparation, Mercury	SW846	TAL CAN
Part Size Red	Particle Size Reduction Preparation	None	TAL CAN

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-122464-1	SOLAR PANEL	Solid	11/14/19 00:00	11/18/19 11:10	

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Detection Summary

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Client Sample ID: SOLAR PANEL

Lab Sample ID: 240-122464-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	4.3		0.050		mg/L	1		6010B	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Client Sample ID: SOLAR PANEL

Lab Sample ID: 240-122464-1

Date Collected: 11/14/19 00:00

Matrix: Solid

Date Received: 11/18/19 11:10

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050		mg/L		11/26/19 14:00	11/27/19 10:08	1
Barium	ND		0.50		mg/L		11/26/19 14:00	11/27/19 10:08	1
Cadmium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 10:08	1
Chromium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 10:08	1
Lead	4.3		0.050		mg/L		11/26/19 14:00	11/27/19 10:08	1
Selenium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 10:08	1
Silver	ND		0.050		mg/L		11/26/19 14:00	11/27/19 10:08	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		11/26/19 14:00	11/27/19 18:19	1

QC Sample Results

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-412722/2-A

Matrix: Solid

Analysis Batch: 412928

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 412722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:59	1
Barium	ND		0.50		mg/L		11/26/19 14:00	11/27/19 09:59	1
Cadmium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:59	1
Chromium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:59	1
Lead	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:59	1
Selenium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:59	1
Silver	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:59	1

Lab Sample ID: LCS 240-412722/3-A

Matrix: Solid

Analysis Batch: 412928

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 412722

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	2.15		mg/L		108	50 - 150
Barium	2.00	2.00		mg/L		100	50 - 150
Cadmium	1.00	1.05		mg/L		105	50 - 150
Chromium	1.00	1.01		mg/L		101	50 - 150
Lead	1.00	0.900		mg/L		90	50 - 150
Selenium	2.00	2.13		mg/L		106	50 - 150
Silver	0.100	0.107		mg/L		107	50 - 150

Lab Sample ID: LB 240-412574/1-B

Matrix: Solid

Analysis Batch: 412928

Client Sample ID: Method Blank

Prep Type: TCLP

Prep Batch: 412722

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:54	1
Barium	ND		0.50		mg/L		11/26/19 14:00	11/27/19 09:54	1
Cadmium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:54	1
Chromium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:54	1
Lead	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:54	1
Selenium	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:54	1
Silver	ND		0.050		mg/L		11/26/19 14:00	11/27/19 09:54	1

Lab Sample ID: 240-122464-1 MS

Matrix: Solid

Analysis Batch: 412928

Client Sample ID: SOLAR PANEL

Prep Type: TCLP

Prep Batch: 412722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		5.00	5.46		mg/L		109	75 - 125
Barium	ND		50.0	51.9		mg/L		103	75 - 125
Cadmium	ND		1.00	1.12		mg/L		112	75 - 125
Chromium	ND		5.00	5.38		mg/L		108	75 - 125
Lead	4.3		5.00	9.84		mg/L		110	75 - 125
Selenium	ND		1.00	1.14		mg/L		114	75 - 125
Silver	ND		1.00	1.07		mg/L		107	75 - 125

Eurofins TestAmerica, Canton

QC Sample Results

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 240-122464-1 MSD

Matrix: Solid

Analysis Batch: 412928

Client Sample ID: SOLAR PANEL

Prep Type: TCLP

Prep Batch: 412722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		5.00	5.59		mg/L		112	75 - 125	2	20
Barium	ND		50.0	54.0		mg/L		108	75 - 125	4	20
Cadmium	ND		1.00	1.14		mg/L		114	75 - 125	2	20
Chromium	ND		5.00	5.43		mg/L		109	75 - 125	1	20
Lead	4.3		5.00	9.95		mg/L		112	75 - 125	1	20
Selenium	ND		1.00	1.16		mg/L		116	75 - 125	2	20
Silver	ND		1.00	1.09		mg/L		109	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-412725/2-A

Matrix: Solid

Analysis Batch: 413058

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 412725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		11/26/19 14:00	11/27/19 18:15	1

Lab Sample ID: LCS 240-412725/3-A

Matrix: Solid

Analysis Batch: 413058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 412725

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00549		mg/L		110	80 - 120

Lab Sample ID: LB 240-412574/1-D

Matrix: Solid

Analysis Batch: 413058

Client Sample ID: Method Blank

Prep Type: TCLP

Prep Batch: 412725

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		11/26/19 14:00	11/27/19 18:13	1

Lab Sample ID: 240-122464-1 MS

Matrix: Solid

Analysis Batch: 413058

Client Sample ID: SOLAR PANEL

Prep Type: TCLP

Prep Batch: 412725

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00500	0.00564		mg/L		113	80 - 120

Lab Sample ID: 240-122464-1 MSD

Matrix: Solid

Analysis Batch: 413058

Client Sample ID: SOLAR PANEL

Prep Type: TCLP

Prep Batch: 412725

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00563		mg/L		113	80 - 120	0	20

Eurofins TestAmerica, Canton

QC Association Summary

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Metals

Processed Batch: 412195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-122464-1	SOLAR PANEL	TCLP	Solid	Part Size Red	
240-122464-1 MS	SOLAR PANEL	TCLP	Solid	Part Size Red	
240-122464-1 MSD	SOLAR PANEL	TCLP	Solid	Part Size Red	

Leach Batch: 412574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-122464-1	SOLAR PANEL	TCLP	Solid	1311	412195
LB 240-412574/1-B	Method Blank	TCLP	Solid	1311	
LB 240-412574/1-D	Method Blank	TCLP	Solid	1311	
240-122464-1 MS	SOLAR PANEL	TCLP	Solid	1311	412195
240-122464-1 MSD	SOLAR PANEL	TCLP	Solid	1311	412195

Prep Batch: 412722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-122464-1	SOLAR PANEL	TCLP	Solid	3010A	412574
LB 240-412574/1-B	Method Blank	TCLP	Solid	3010A	412574
MB 240-412722/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-412722/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-122464-1 MS	SOLAR PANEL	TCLP	Solid	3010A	412574
240-122464-1 MSD	SOLAR PANEL	TCLP	Solid	3010A	412574

Prep Batch: 412725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-122464-1	SOLAR PANEL	TCLP	Solid	7470A	412574
LB 240-412574/1-D	Method Blank	TCLP	Solid	7470A	412574
MB 240-412725/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-412725/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-122464-1 MS	SOLAR PANEL	TCLP	Solid	7470A	412574
240-122464-1 MSD	SOLAR PANEL	TCLP	Solid	7470A	412574

Analysis Batch: 412928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-122464-1	SOLAR PANEL	TCLP	Solid	6010B	412722
LB 240-412574/1-B	Method Blank	TCLP	Solid	6010B	412722
MB 240-412722/2-A	Method Blank	Total/NA	Solid	6010B	412722
LCS 240-412722/3-A	Lab Control Sample	Total/NA	Solid	6010B	412722
240-122464-1 MS	SOLAR PANEL	TCLP	Solid	6010B	412722
240-122464-1 MSD	SOLAR PANEL	TCLP	Solid	6010B	412722

Analysis Batch: 413058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-122464-1	SOLAR PANEL	TCLP	Solid	7470A	412725
LB 240-412574/1-D	Method Blank	TCLP	Solid	7470A	412725
MB 240-412725/2-A	Method Blank	Total/NA	Solid	7470A	412725
LCS 240-412725/3-A	Lab Control Sample	Total/NA	Solid	7470A	412725
240-122464-1 MS	SOLAR PANEL	TCLP	Solid	7470A	412725
240-122464-1 MSD	SOLAR PANEL	TCLP	Solid	7470A	412725

Lab Chronicle

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Client Sample ID: SOLAR PANEL

Lab Sample ID: 240-122464-1

Date Collected: 11/14/19 00:00

Matrix: Solid

Date Received: 11/18/19 11:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Processed	Part Size Red			412195	11/22/19 08:42	POP	TAL CAN
TCLP	Leach	1311			412574	11/25/19 16:55	DRJ	TAL CAN
TCLP	Prep	3010A			412722	11/26/19 14:00	MRL	TAL CAN
TCLP	Analysis	6010B		1	412928	11/27/19 10:08	WKD	TAL CAN
TCLP	Processed	Part Size Red			412195	11/22/19 08:42	POP	TAL CAN
TCLP	Leach	1311			412574	11/25/19 16:55	DRJ	TAL CAN
TCLP	Prep	7470A			412725	11/26/19 14:00	MRL	TAL CAN
TCLP	Analysis	7470A		1	413058	11/27/19 18:19	SLD	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: SUMEC Energy Holdings Co. Ltd.
Project/Site: Solar Module TCLP

Job ID: 240-122464-1

Laboratory: Eurofins TestAmerica, Canton

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State Program	2927	02-23-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Solid	Mercury

13.1/13.8
SUMEC

SUMEC ENERGY HOLDINGS CO.,LTD.
江苏苏美达能源控股有限公司

致TO Eurofins TestAmerica

4101 Shuffel Street NW, North Canton, OH 44720, USA

发票编号 INV.NO. SUMEC-EUROFINS-20191114

日期 DATE 2019/11/14

发 票
COMMERCIAL INVOICE

L/C NO.

唛头及编号 Mark && Numbers	品名 Descriptions	数量 Quantities	单价 Unit Price	总价 Amount
N/M			USD	USD
	raw material sample of solar module	2 SET	5.00	10
		2 SET		10.00

TOTAL:PACKED IN: 1 CARTON
G/W: 1 KGS
N/W: 0.9 KGS

SUMEC ENERGY HOLDINGS CO.,LTD.
NO.1 XINGHUO ROAD, NATIONAL LEVEL NANJING
HI-TECH ZONE, NANJING, 210061 P.R. CHINA

江苏苏美达能源控股有限公司
SUMEC ENERGY HOLDINGS CO.,LTD

王健。

Accepted by Lab 11/18/19

7/108 ETA 1110



240-122464 Chain of Custody

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Canton Facility		Login # : <u>122464</u>
Client <u>Sumec Energy Holdings Inc</u> Site Name _____		Cooler unpacked by: <u>Ryan Cribler</u>
Cooler Received on <u>11-18-19</u> Opened on <u>11-18-19 1110</u>		
FedEx: 1 st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other <u>DHL</u>		
Receipt After-hours: Drop-off Date/Time _____ Storage Location _____		
TestAmerica Cooler # _____ Foam Box _____ Client Cooler <u>Box</u> Other _____ Packing material used: Bubble Wrap _____ Foam <u>Plastic Bag</u> None _____ Other _____ COOLANT: Wet Ice _____ Blue Ice _____ Dry Ice _____ Water <u>None</u>		
1. Cooler temperature upon receipt <input type="checkbox"/> See Multiple Cooler Form IR GUN# IR-10 (CF +0.7°C) Observed Cooler Temp. <u>13.1</u> °C Corrected Cooler Temp. <u>13.8</u> °C IR GUN# IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C		
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>1</u> Yes <u>No</u> -Were the seals on the outside of the cooler(s) signed & dated? Yes <u>No</u> NA -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes <u>No</u> -Were tamper/custody seals intact and uncompromised? Yes <u>No</u> NA		
3. Shippers' packing slip attached to the cooler(s)? Yes <u>No</u> 4. Did custody papers accompany the sample(s)? Yes <u>No</u> 5. Were the custody papers relinquished & signed in the appropriate place? Yes <u>No</u> 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes <u>No</u> 7. Did all bottles arrive in good condition (Unbroken)? Yes <u>No</u> 8. Could all bottle labels be reconciled with the COC? Yes <u>No</u> 9. Were correct bottle(s) used for the test(s) indicated? Yes <u>No</u> 10. Sufficient quantity received to perform indicated analyses? Yes <u>No</u> 11. Are these work share samples? Yes <u>No</u>		
If yes, Questions 12-16 have been checked at the originating laboratory. 12. Were all preserved sample(s) at the correct pH upon receipt? Yes <u>No</u> NA pH Strip Lot# <u>HC995364</u> 13. Were VOAs on the COC? Yes <u>No</u> 14. Were air bubbles >6 mm in any VOA vials? <u>Yes</u> Larger than this. Yes <u>No</u> NA 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes <u>No</u> 16. Was a LL Hg or Me Hg trip blank present? Yes <u>No</u>		
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____ Concerning _____		

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES <u>Will log ID as "Solar Panel" sample date w/ 11/14/19 (date at top of COC/letter), no sample time. Will log TCEP metals w/ PSR per PM.</u>	Samples processed by: _____
18. SAMPLE CONDITION Sample(s) _____ were received after the recommended holding time had expired. Sample(s) _____ were received in a broken container. Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)	
19. SAMPLE PRESERVATION Sample(s) _____ were further preserved in the laboratory. Time preserved: _____ Preservative(s) added/Lot number(s): _____ VOA Sample Preservation - Date/Time VOAs Frozen: _____	