



PV Committee China TC Chapter
PV Materials Committee China TC Chapter
Joint Meeting Summary and Minutes

China Fall Standards Meeting 2019

October 25th, 2019, 09:00-17:30

NAURA Multi-function Room, No.8 Wenchang Avenue, Beijing, China.

TC Chapter Announcements

Next TC Chapter Meeting

China Spring Standards Meeting 2020

TBD, 2020, 09:00-17:30

Shanghai, China

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Guangchun Zhang (CSI)

SEMI Staff: Daniel Qi – SEMI China, Isadora Jin – SEMI China, Emma Liu – SEMI China, Ein Wu (SEMI China)

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
SERIS	Han	Qiang	TÜV Rheinland	Liu	Wei
Canadian Solar	Zhang	Guangchun	Canadian Solar	Dong	Jingbing
CPVT	He	Li	Edwards	Tian	Shengcong
Lightway	Li	Huilong	JYT	Guo	Dawei
Gain Solar	Zhao	Weiwei	Gain Solar	Ma	Ming
GCL	Wan	Yuepeng	Borealis	Zhu	Zhaohua
NAURA	Li	Buzhong	NAURA	Cao	Yongyou
JA Solar	Li	Shouwei	JA Solar	Xu	Desheng
JA Solar	Chen	Hongyue	JA Solar	Huang	Xinming
JA Solar	Huang	Shuwen	JA Solar	Wang	Zhi
Linton	Li	Zhixin	Linton	Zhang	Shuli
Linton	Liu	Erfei	Risen	Hu	Ziyun
Hanergy	Tian	Tao	Hanergy	Wu	Zhenyu
Hanergy	Bai	Yan	Hanergy	Zhang	Zhiying
Hohai University	Zhang	Zhen	JNU	Wu	Shaohang
Red Solar	Cai	Xianwu	Sunland	Zhu	Jingbing
Sunport Power	Gong	Haidan	Talesun	Lian	Weifei
CPVT	Wang	Meijuan	CPVT	Zhu	Xiaogang
CPVT	Lu	Jiayan	CPVT	Wang	Zhi
Rutech	Ouyang	Jieyu	Henkel	Zhang	Jiayun
IAWBS	Lu	Min	Xinyang Normal University	Lu	Xiaoman



<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
GCL	Hu	Dongli	GCL	Lin	Qiangxiang
GCL	Lu	Wenfeng	GCL	Wang	Taoxia
GCL	Wang	Bin	LDK	Cheng	Xiaojuan
LONGi	Zhou	Rui	LONGi	Huang	Hua
LONGi	Ren	Gaigai	LONGi	Tian	Huiwu
LONGi	Liu	Songmin	LONGi	Wu	Linyong
LONGi	Fu	Nannan	DASOLAR	Liu	Yong
SINOSICO	Yan	Dazhou	SINOSICO	Chu	Dongxu
Safest	Tao	Yingxiang	Safest	Liu	Xiaoxia
Jinergy	Li	Huayang	Jinergy	Zheng	Jing
Jinko Solar	Li	Ning	Jinko Solar	Huang	Jide
Cantechs	Li	Xianbang	Saratogatek	Tony	Tong
SEMILAB	Huang	Li	Rietech Solar	Sun	Peiya
Jingrui Chem	Jin	Bingsheng	Yiduyiqi	Wang	Wendong
Yiduyiqi	Xie	Xiaoliang	Yiduyiqi	Zhang	Kai
Trina Solar	Zhou	Wei	Trina Solar	Zhong	Junjie
Trina Solar	Yan	Ping	Trina Solar	Jin	Yunhong
Runergy	Chen	Rulong	Staubli	Zhou	Chao
CETC-48th	Long	Hui	GGSolar	Wu	Xiexiang
YINGLI	Song	Dengyuan	YINGLI	Ni	Jianxiong
YINGLI	Li	Yingye	SUNCHINE	Wang	Tong
Cybrid	Dai	Jianfang	Semicon Ho	Zhang	Xuenan
Xinte Energy	Liu	Guoxia	Astronergy	Wang	Shipeng
Sim Ac	Shi	Qiang	Sim Ac	Wu	Jingqiu
Chnenergy	Dang	Wenhui	CPIA	Jiang	Hua
CPIA	Ye	Xing	CPIA	Qiang	Yanzheng
CESI	Pei	Huichuan	CESI	Zhang	Junhua
Sunshine	Zhang	Ning		Lv	Jinbiao

Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader</i>	<i>New Leader</i>
<i>Photovoltaic</i>		
None		
<i>Photovoltaic Materials</i>		
PV Silicon Wafer Task Force	Yuepeng Wan (GCL) Jinggang Lu (HT-TECH) Liangping Deng (LONGi)	Yuepeng Wan (GCL) Dongli Hu (GCL) Rui Zhou (LONGi)

Table 3 Committee Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
<i>Photovoltaic</i>	
None	
<i>Photovoltaic Materials</i>	
None	

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
<i>Photovoltaic</i>		
6070E	New Standard: Guide for Identifying Cell Defects in Crystalline Silicon PV Modules by Electroluminescence (EL) Imaging	Passed with editorial changes.
5983C	New Standard: Test Method for In-line Sheet Resistance Inspection	Failed and return to TF for re-work and rebalot.
6191	New Standard: Guide for the Design of Testing and Sorting Equipment for Crystalline Silicon Solar Cells	Passed with Technical Changes. Ratification ballot to be issued.
5842D	New Standard: Test Method for Metal-Wrap-Through Solar Cell Via Resistance	Passed with Technical Changes. Ratification ballot to be issued.
<i>Photovoltaic Materials</i>		
6458	New Standard: Specification for Silicon Powder Used in Polysilicon Production	Failed and return to TF for re-work and rebalot.

#1 **Passed** ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

#2 **Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting or abandoning.

Table 5 Activities Approved by the GCS between meetings of the TC Chapter

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
<i>Photovoltaic</i>			
	SNARF	Crystalline Silicon Solar Cell TF	Revision to PV54-0514, Specification for Silver Paste, Used to Contact with N+ Diffusion Layer of Crystalline Silicon Solar Cells
<i>Photovoltaic Materials</i>			
None			

Table 6 Authorized Activities

Listing of all revised or new SNARF(s) approved by the Originating TC Chapter.

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
<i>Photovoltaic</i>			
	SNARF	PV Module TF	Revision to PV86-1018, Specification for Crystalline Silicon Photovoltaic Module Dimensions



Table 6 Authorized Activities

Listing of all revised or new SNARF(s) approved by the Originating TC Chapter.

#	Type	SC/TF/WG	Details
<i>Photovoltaic Materials</i>			
	SNARF	PV Silicon Wafer TF	Revision to PV22-0817, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells

#1 SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARE>

Table 7 Authorized Ballots

#	When	TF	Details
<i>Photovoltaic</i>			
6541	Cycle 9-2019 / 1-2020	BIPV TF	New Standard: Classification of Building Integrated Photovoltaic (BIPV)
<i>Photovoltaic Materials</i>			
6458	Cycle 1-2020	PV Silicon Raw Materials TF	New Standard: Specification for Silicon Powder Used in Polysilicon Production
	Cycle 9-2019	PV Silicon Wafer TF	Revision to PV22-0817, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells

Table 8 SNARF(s) Granted a One-Year Extension

#	TF	Title	Expiration Date
<i>Photovoltaic</i>			
5842	Crystalline Silicon Solar Cell TF	New Standard: Test Method for Metal-Wrap-Through Solar Cell Via Resistance	2020/3/17
5983	PV Diffusion Furnace Test Methods TF	New Standard: Test Method for In-line Sheet Resistance Inspection	2020/3/15
6070	PV Module TF	New Standard: Guide for Identifying Cell Defects In Crystalline Silicon PV Modules By Electroluminescence (EL) Imaging	2020/7/29
6113	PV Module TF	New Standard: Test Method for Abrasion Resistance of the Polymer Backsheet of Crystalline Silicon Solar Modules	2020/11/25
<i>Photovoltaic Materials</i>			
None			

Table 9 SNARF(s) Abolished

#	TF	Title
<i>Photovoltaic</i>		
5661	PV Module TF	New standard: Test Method for Electrical Parameters of Bifacial Solar Module
6073	PV Module TF	New Standard: Specification for Crystalline Silicon PV Modules with Integrated Power Optimizer
<i>Photovoltaic Materials</i>		
None		



Table 10 Standard(s) to receive Inactive Status

<i>Standard Designation</i>	<i>Title</i>
<i>Photovoltaic</i>	
None	
<i>Photovoltaic Materials</i>	
None	

Table 11 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
China PV-1025-01	PV Committee members	Create PV Equipment TF which can assemble original PV Diffusion Furnace Test Methods TF, Multi-wire Saws TF and Testing Equipment TF

Table 12 Previous Meeting Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
China PV-0426-01	SEMI Staff	Share 2019 critical dates
China PV-0426-02	SEMI Staff	Share SEMI Style Manual and SEMI Procedure Manual
China PV-0426-03	Task Force leaders	Develop more collaboration and communication.

1 Welcome, Reminders, and Introductions

Committee co-chair Guangchun Zhang chaired the meeting and welcomed all attendees. All the attendees introduced themselves. SEMI Staff called the meeting to order at 09:00AM. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed.

Agenda was reviewed.

Attachment: 1. Chinese SEMI Standard Meeting Reminders

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion: To approve the minutes of the previous meeting as written

By / 2nd: Yuepeng Wan (GCL)/ Zhixin Li (Linton)

Discussion: None

Vote: 55Y - 0 N, (Total 55 companies.) Motion Passed.

Attachment: 2. China PV&PVM TC Joint Spring Meeting Minutes 20190426

3 Liaison Reports

3.1 PV Materials North America TC Chapter

Isadora Jin (SEMI) reported for the PV Materials North America TC Chapter. Of note:

Action Item: Next meeting –SEMICON West. San Francisco CA, Wednesday, July 10, 2019

- The Co-chair of North America PV Materials TC is Hugh Gotts (Air Liquide).

- Ballot Results
 - Doc. 6367, Reapproval of SEMI PV49-0613, Test Method for the Measurement of Elemental Impurity Concentrations in Silicon Feedstock for Silicon Solar Cells by Bulk Digestion, Inductively Coupled-Plasma Mass Spectrometry **Passed** as balloted.
 - Doc. 6368, Reapproval of SEMI PV43-0113, Test Method for the Measurement of Oxygen Concentration in PV Silicon Materials for Silicon Solar Cells by Inert Gas Fusion Infrared Detection Method **Passed** as balloted.
 - Doc. 6369, Reapproval of SEMI PV37-0912, Guide for Fluorine (F2), Used in Photovoltaic Applications **Passed** as balloted.
- Ballot authorized for review at SEMICON Europa
 - Reapproval of
 - PV17-1012, Specification for Virgin Silicon Feedstock Materials for Photovoltaic Applications
 - PV34-0213, Practice for Assigning Identification Numbers to PV Si Brick, Wafer and Solar Cell Manufacturers
 - PV39-0513, Test Method for In-Line Measurement of Cracks in PV Silicon Wafers by Dark Field Infrared Imaging
 - PV40-0513, Test Method for In-Line Measurement of Saw Marks on PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments
 - PV41-0912, Test Method for In-Line, Noncontact Measurement of Thickness and Thickness Variation of Silicon Wafers for PV Applications Using Capacitive Probes
 - PV46-0613, Test Method for In-Line Measurement of Lateral Dimensional Characteristics of Square and Pseudo-Square PV Silicon Wafers
 - PV48-0613, Specification for Orientation Fiducial Marks for PV Silicon Wafers
 - Abolished SNARF(s)
 - 5801, New Standard: Guide for the Planning, Implementing and Analyzing data from a Round Robin used to verify a Test Method – *Lack of interest; SNARF retired*

Attachment: 3 PVMaterials NA TC Chapter Liaison Report July 2018

3.2 PV Materials Europe TC Chapter

Isadora Jin (SEMI) reported for the PV Materials Europe TC Chapter. Of note:

Action Item: Next meeting – Berlin, Germany. May 21, 2019.

- The Co-chairs of Europe PV Materials TC are C. Hagendorf (Fraunhofer Center for Solar Photovoltaics) and P. Wagner (Self).
- Ballot Results: All passed.
 - Doc. 6416, Reapproval of SEMI PV32-0312 Specification for Marking of PV Silicon Brick Face and PV Wafer Edge
 - Doc. 6417, Reapproval of SEMI PV34-0213 Practice for Assigning Identification Numbers to PV Si Brick, Wafer and Solar Cell Manufacturers
 - Doc. 6418, Reapproval of SEMI PV39-0513 Test Method for In Line Measurement of Cracks in PV Silicon Wafers by Dark Field Infrared Imaging
 - Doc. 6419, Reapproval of SEMI PV40-0513 Test Method for In Line Measurement of Saw Marks on PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments
 - Doc. 6420, Reapproval of SEMI PV41-0912 Test Method for In Line, Noncontact Measurement of Thickness and Thickness Variation of Silicon Wafers for PV Applications Using Capacitive Pro

- Doc. 6421, Reapproval of SEMI PV46-0613 Test Method for In Line Measurement of Lateral Dimensional Characteristics of Square and Pseudo Square PV Silicon Wafers
- Doc. 6422, Reapproval of SEMI PV48-0613 Specification for Orientation Fiducial Marks for PV Silicon Wafers
- Doc. 6426, Reapproval of SEMI PV17-1012 Specification for Virgin Silicon Feedstock Materials for Photovoltaic Applications
- Status of draft: Test Method for Silicon PV Materials for light-induced degradation (LID)
 - 90% ready, undergoing final discussions
 - To be authorized for ballot at next TC meeting, May 2019

Attachment: 4. EU PV Materials Liaison Report March 2019 v1

3.3 PV and PV Materials Japan Joint TC Chapter

Isadora Jin (SEMI) reported for the PV and PV Materials Japan Joint TC Chapter. Of note:

Action Item: Next meeting: November 5, 2019, 13:30 – 16:00 at SEMI Japan Office, Tokyo, Japan

- The Co-chairs of Japan PV TC are Kazuhiko Kashima (Consultant) and Masaaki Yamamichi (RTS Corporation).
- The Co-chairs of Japan PV Materials TC are Kazuhiko Kashima (Consultant), Takashi Ishihara (Mitsubishi Electric) and Tetsuo Fukuda (AIST).
- Ballot Results
 - 6286: Line Items Revision to SEMI PV79-0817: Test Method for Exposure Durability of PV Cells to Acetic Acid Vapor
Line Item1: To replace the subfigure b: AC Equivalent Circuit in Figure 3: AC Impedance Characteristics
Passed as balloted.
- Five-Year Review
 - SEMI PV60-0115, Test Method for Measurement of Cracks in Photovoltaic (PV) Silicon Wafers in PV Modules by Laser Scanning
 - SEMI PV79-0818, Test Method for Exposure Durability of Photovoltaic (PV) Cells to Acetic Acid Vapor

Attachment: 5 190617_LiaisonReport_JA_PVPVM_v1.0

3.4 Photovoltaic Taiwan TC Chapter

Isadora Jin (SEMI) reported for the PV Taiwan TC Chapter. Of note:

Action Item: Next Meeting – April 10, 2020 at Taiwan Spring Meetings

- The Co-chairs of Taiwan PV TC are T.C. Wu (CMS/ITRI), C.C.Lin (PV Guider) and Ray Sung (UL TWN)
- Changes of Task Force Leaders
 - PV Reliability Test Method TF: H.S. Wu (ITRI) is changed to Yu Tai Li (ITRI)
- Committee Structure Changes
 - None
- Ballot results:
 - 6297 Failed, and return to TF for re-work
- Authorized Ballots:

- None
- Authorized SNARFs
 - None
- Abolished SNARF(s)
 - None
- Five-Year Review
 - None

Attachment: 6 20191004_TW PV Liaison Report

3.5 SEMI Staff Report

Isadora Jin (SEMI) gave the SEMI Staff Report. Of note:

Action Item:

- SEMI Standards Overview
- SEMI Global 2019 Calendar of Events
- 2019 Critical Dates for SEMI Standards Ballots
- 2020 Critical Dates for SEMI Standards Ballots
- SEMI Standards Publications
- A&R SC Membership Update
- Organization chart for China PV&PV Materials Committee
- China Photovoltaic TC Update
- Enhance Task Force Management
- Necessary Info. from Website

Attachment: 7 SEMI Staff Report 20191025

3.6 Other SDO (Standards Development Organization) Update

3.6.1 IEC TC 82 Update

- IEC TC82 Scope
- IEC TC82 Summary
- TC82 Working Groups
- TC82 Motivation
- ‘PVQAT Effect’ on TC82
- System Certifications
- ‘Certifiable’ Standards
- Important New Efforts

Attachment: 8 TC82 for SEMI oct19

3.6.2 China Electronics Standardization Institute (CESI) Update

- 协会标委会介绍
- 标准工作现状
- 标准应用实施
- 下一步工作计划

Attachment: 9 中国光伏行业协会标准化工作介绍-2019.10.25 北京会议

4 Ballot Review

NOTE 1: TC Chapter adjudication on ballots reviewed is detailed in the Audits & Review (A&R) Subcommittee Forms for procedural review. The A&R forms are available as attachments to these minutes. The attachment number for each balloted document is provided under each ballot review section below.

4.1 Document 6070E, New Standard: Guide for Identifying Cell Defects in Crystalline Silicon PV Modules by Electroluminescence (EL) Imaging

Motion: Ping Yan (TRINA SOLAR) moved that this document passed TC Chapter review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.

By / 2nd: Ping Yan (TRINA SOLAR) / Zhixin Li (LINTON)

Discussion: Guangchun Zhang (CSI): Did 6070E received any more comments or rejects?

Ping Yan (TRINA SOLAR): No. We received only comments this time.

Vote: 46 in favor and 3 opposed. (Total 55 companies. 6 companies abstain.) Motion Passed.

Attachment: 10 SEMI Standards (6070E)2019-10-11 01

4.2 Document 5983C, New Standard: Test Method for In-line Sheet Resistance Inspection

Motion: Hui Long (CETC-48) moved that this document passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.

By / 2nd: Hui Long (CETC-48) / Li Huang (SEMILAB)

Discussion: Guangchun Zhang (CSI): Please emphasize which rejects you resume unpersuasive?

Hui Long (CETC-48): The rejects from Johnson Wong.

Tony (Saratoga): It is not appropriate to specify like this.

Li Huang (SEMILAB): There is no specific company name in SEMI Documents.

Yuepeng Wan (GCL): 5983C is O.K. Another new standards will be good to apply for Tony's suggestions.

Dazhou Yan (SINOSICO): What is the differences between the two solution?

Li Huang (SEMILAB): The two solutions is relatively.

Vote: 43 in favor and 10 opposed. (Total 53 companies.) Motion Failed.

Attachment: 11 Doc 5983C Ballot_Review

4.3 Document 6191, New Standard: Guide for the Design of Testing and Sorting Equipment for Crystalline Silicon Solar Cells

Motion: Hui Long (CETC-48) moved that this document passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.

By / 2nd: Hui Long (CETC-48) / Rulong Chen (RUNERGY)

Discussion: Hui Long (CETC-48): We accept all the comments.

Vote: 43 in favor and 10 opposed. (Total 53 companies.) Motion Passed.

Attachment: 12 Ballot_Review_for_Doc_6191

4.4 Document 5842D, New Standard: Test Method for Metal-Wrap-Through Solar Cell Via Resistance

- Motion:** Jingbing Dong (CSI) moved that this document passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.
- By / 2nd:** Jingbing Dong (CSI) / Zhixin Li (LINTON)
- Discussion:** Guangchun Zhang (CSI): Please add the development history into the background. This will help the members in other region review and avoid repeated rejects.
Jingbing Dong (CSI): Yes, the rejects we received are repeated from previous cycles.
- Vote:** 47 in favor and 6 opposed. (Total 53 companies.) Motion Passed.
- Attachment:** 13 MWT 太阳能电池灌穿孔电阻的检测方法 20191025

4.5 Document 6458, New Standard: Specification for Silicon Powder Used in Polysilicon Production

- Motion:** Dongxu Chu (SINOSICO) moved that this document failed TC Chapter review and will be returned to the TF for rework.
- By / 2nd:** Dongxu Chu (SINOSICO) / Zhixin Li (LINTON)
- Discussion:** Dongxu Chu (SINOSICO): Particle size is directly quoted in ¶ 5.2.1 and there is evidence for quoting ISO.
Wenfeng Lu (GCL): We decide to put test methods into Doc.6458.
Xiaoxia Liu (Irwin): For example, There is test method in PV91 as well.
Guangchun Zhang (CSI): This writing obey SEMI PM requirement.
Li He (CPVT): This is feasible.
Zhixin Li (LINTON): Test method is not the main part of specification. Screen method is very common and easy method.
Li He (CPVT): Screen method is widely used.
Guangchun Zhang (CSI): Please look for some related quotation.
Zhixin Li (LINTON): Maybe it is mentioned in ASTM.
Guangchun Zhang (CSI): Good suggestion. It is preferred to search in ASTM for screen method.
- Vote:** 40 in favor and 4 opposed. (Total 44 companies.) Motion Passed.
- Attachment:** 14 SEMI Standards 6458 汇报-2019 秋季会议

5 Subcommittee and Task Force Reports

5.1 PV Silicon Raw Materials Task Force

Wenfeng Lu (GCL) reported for the PV Silicon Raw Materials Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members.
- Introduced published standards.
- Working on
 - Doc 6458, Specification for Silicon Powder used in Polysilicon Production
- Work plan for the next step:
 - 5-Year-Review to PV50-0114, Specification for Impurities in Polyethylene Packaging Material for Polysilicon Feedstock

Attachment: 15 SEMI PV Task Force Report-PV Silicon Raw Material20191025



5.2 PV Silicon Wafer Task Force

Yuepeng Wan (GCL) reported for the PV Silicon Wafer Task Force. This report contained information on:

Action Item:

- Introduced the changes of task force's leaders and members
- Introduced published standards.
- Documents in work:
 - Revision to PV22-0817, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells

Attachment: 16 PV Silicon Wafer TF Report _ Oct. 25th 2019-2

5.3 Crystalline Silicon Solar Cell Task Force

Dengyuan Song (Yingli) reported for the Crystalline Silicon Solar Cell Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards.
- Working on
 - Doc 5842D, New Standard: Test Method for Metal-Wrap-Through Solar Cell Via Resistance
 - Doc 6459, New Standard: Test Method for Light Induced Degradation of Crystalline Silicon PV Cells at Elevated Temperature

Attachment: 17 Crystalline Silicon Solar Cell Report--电池工作组汇报

5.4 PV Module Task Force

Wei Zhou (Trina Solar) reported for the PV Module Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on
 - Doc 6070E, New Standard: Test Method for Cell Defects in Crystalline Silicon PV Modules by Electroluminescence (EL) Imaging
 - Doc 6069, New Standard: Specification for Structural Silicone Adhesive for the Back Rail Fixture on PV Modules
 - Doc 6113, New Standard: Test Method for Abrasion Resistance of the Polymer Backsheet of Crystalline Silicon Solar Modules
- Documents Abolished:
 - Doc 6073, New Standard: Specification for Crystalline Silicon PV Modules with Integrated Power Optimizer

Motion: Yunhong Jin (TRINA) moved that Committee approve Doc.6073 abolished.

By / 2nd: Yunhong Jin (TRINA) / Xiaoman Lu (Xinyang Normal University)

Discussion: Xiexiang Wu (GG Solar): I support this SNARF to be continued.
Zhenyu Wu (Hanergy): It is suggested to be continued.
Xiaoman Lu (Xinyang Normal University): We would like to take the test part.



Guangchun Zhang (CSI): Please contact all the members that want to join and make appropriate modifications. This SNARF should be abolished at this TC Meeting and propose a new one on next Meeting.

Vote: 43 in favor and 12 opposed. (Total 55 companies.) Motion Passed.

➤ Doc 5661, New Standard: Test Method for Electrical Parameters of Bifacial Solar Module

Motion: Dengyuan Song (Yingli) moved that Committee approve Doc.5661 abolished.

By / 2nd: Dengyuan Song (Yingli) / Zhixin Li (Linton)

Discussion: Xinming Huang (JA Solar): JA Solar would like to collaborate with Yingli to continue Document 5661.
Guangchun Zhang (CSI): I suggest to make some modification on Doc. 5661 since it is developing for many years.

Dengyuan Song (Yingli): I agreed but it seems like better choice to abolish this SNARF first since it is developed really for many years. We have dedicated into this for these years. Maybe we will propose new SNARF in the near future.

Vote: 43 in favor and 12 opposed. (Total 55 companies.) Motion Passed.

- **Attachment:** 18 SEMI PV Module TF Report 2019-10-25
19 5661 申请终止汇报 PPT-V1

5.5 Thin Film PV Module Task Force

Isadora Jin (SEMI China) reported for the Thin Film PV Module Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on
 - Doc 6295, New Standard: Test Method for Extension of Flexible Thin Film PV Modules
 - Doc 6402: New Standard: Test Method for Vibration Durability of Flexible Thin Film PV Module
 - Doc 6401: New Standard: Test Method for Indentation Force of Flexible Thin Film PV Modules

Attachment: 20 Thin Film PV Module Task Force 会议报告 20191022

5.6 PV Diffusion Furnace Test Methods Task Force

Hui Long (CETC-48) reported for the PV Diffusion Furnace Test Methods Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on:
 - Doc 5983B, New Standard: Test Method for In-line Sheet Resistance Inspection

Attachment: 21 (2019.10.25 秋季会议) SEMI 扩散炉检测方法工作组汇报

5.7 Multi-wire Saws Task Force

Hui Long (CETC-48) reported for the Multi-wire Saws Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards

Attachment: 22 SEMI 多线切割机工作组汇报

5.8 *Testing Equipment Task Force*

Hui Long (CETC-48) reported for the Multi-Wire Saws Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Working on
 - Doc 6191, New Standard: Guide for the Design of Testing and Sorting Equipment for Crystalline Silicon Solar Cells

Attachment: 23 (2019.10.25 秋季会议) SEMI 测试设备工作组汇报

5.9 *Building Integrated Photovoltaic (BIPV) Task Force*

Dengyuan Song (YINGLI) reported for the Building Integrated Photovoltaic (BIPV) Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Working on
 - Doc. 6541, Classification of Building Integrated Photovoltaic (BIPV)
 - Doc. 6542, Guide for Scrap Judgement of Photovoltaic modules in building

Attachment: 24 Building Integrated Photovoltaic (BIPV) Task Force

5.10 *PV Mobile Energy Task Force*

Tao Tian (Hanergy) reported for the PV Mobile Energy Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Working on
 - SNARF, Test Method for Jitter of Thin film Photovoltaic Module
 - SNARF, Guide for Peeling Strength Testing of Flexible Photovoltaic Modules for Consumer applications
- TF Work Plan for the Next Plan

Attachment: 25 PV Mobile Energy Task Force Report

6 Old Business

6.1 *Refer to Table 12 Previous Meeting Action Items*

7 New Business

7.1 Requests for ballots in Cycle 9-2019/ Cycle 1-2020

7.1.1 Doc.6069, New Standard: Specification for Structural Silicone Adhesive for the Back Rail Fixture on PV Modules

Motion: Junjie Zhong (Trina Solar) moved the Committee to approve the Doc 6069 for ballot in cycle 1-2020.

By / 2nd: Junjie Zhong (Trina Solar) / Zhixin Li (Linton)

Discussion: Jessica Zhang (Henkel): Structure adhesive is not appropriate here.

Junjie Zhong (Trina Solar): Tensile elongation is required.

Yan Bai (Hanergy): The topic is intended to be too big scale that is not suitable.

Co-chair: I suggest to invite more adhesive manufacturers to involved into task force group.

Vote: 6 in favor and 38 opposed. (Total 44 companies.) Motion failed.

Attachment: 26 SEMI Standards 6069

7.1.2 Doc.6541, New Standard: Classification of Building Integrated Photovoltaic (BIPV)

Motion: Weiwei Zhao (Gain Solar) moved the Committee to approve the Doc 6541 for ballot in cycle 9-2019 or 1-2020.

By / 2nd: Weiwei Zhao (Gain Solar) / Zhixin Li (LINTON)

Discussion: Zhen Zhang (Hohai University): What is the purpose of this standard?

Weiwei Zhao (Gain Solar): We decide to create such standards in general.

Co-chair: Please satisfy both requirements for PV and Architecture.

Dengyuan Song (Yingli): This standards combine PV industry and architecture industry.

Vote: 31 in favor and 13 opposed. (Total 44 companies.) Motion Passed.

Attachment: 27 BIPV 的分类标准--V1.2-20191021

7.2 New TFOFs

None

7.3 New SNARFs

7.3.1 SNARF, Revision to PV86-1018, Specification for Crystalline Silicon Photovoltaic Module Dimensions

Motion: Jingbing Dong (CSI) moved that the committee approve the SNARF for Revision to PV86-1018, Specification for Crystalline Silicon Photovoltaic Module Dimensions.

By / 2nd: Jingbing Dong (CSI) / Zhixin Li (LINTON)

Discussion: Co-chair: There are many contents need to be revised.

Vote: 38 in favor and 6 opposed. (Total 44 companies.) Motion Passed.

Attachment: 28 组件外形尺寸及技术要求

7.3.2 SNARF, Revision to PV22-0817, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells

Motion: Nannan Fu (LONGi) moved that the committee approve the SNARF for Revision to PV22-0817, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells.

By / 2nd: Nannan Fu (LONGi) / Rulong Chen (RUNERGY)

Discussion: Zhixin Li (LINTON): SEMI PV22 was revised for many times.

Yuepeng Wan (GCL): Please make the specifications on adding wafers not too small.

Xuenan Zhang (Zhonghuan): I suggest to add 161.75 which is popular in global.

Vote: 37 in favor and 7 opposed. (Total 44 companies.) Motion Passed.



Attachment: 29 隆基-光伏晶硅电池用硅片规范

7.3.3 SNARF, New Standard: Terminology for crystalline silicon terrestrial photovoltaic module format and dimensions

Motion: Songmin Liu (LONGi) moved that the committee approve the SNARF for Terminology for crystalline silicon terrestrial photovoltaic module format and dimensions.

By / 2nd: Songmin Liu (LONGi) / Zhixin Li (LINTON)

Discussion:

Vote: 5 in favor and 39 opposed. (Total 44 companies.) Motion Failed.

Attachment: 30 隆基-地面用晶体硅光伏组件版型标称方法

7.3.4 SNARF, New Standard: Specification of 550MPa High Strength Steel for Module Mounting Structure

Motion: Hua Huang (LONGi) moved that the committee approve the SNARF for Specification of 550MPa High Strength Steel for Module Mounting Structure.

By / 2nd: Hua Huang (LONGi) / Zhixin Li (LINTON)

Discussion: Hua Huang (LONGi): Yield Strength 550MPa.

Co-chair: This is for materials. The rationale is not clear. It would be better to consult experts for materials. This standards belongs to materials scope.

Dengyuan Song (Yingli): Steel does not match with bracket.

Zhixin Li (LINTON): Shall the value be specified? The value for 550 MPa seems too limited.

Yuepeng Wan (GCL): The SNARF's scope is not very appropriate.

Vote: 2 in favor and 42 opposed. (Total 44 companies.) Motion Failed.

Attachment: 31 SNARF Report PPT for Technical Specification of 550MPa High Strength Steel for Module Mounting Structure

7.4 Five-Year-Review

7.4.1 Revision to PV54-0514, Specification for Silver Paste, Used to Contact with N+ Diffusion Layer of Crystalline Silicon Solar Cells

Motion: Rulong Chen (RUNERGY) moved that the committee approve the SNARF for Revision to PV54-0514, Specification for Silver Paste, Used to Contact with N+ Diffusion Layer of Crystalline Silicon Solar Cells.

By / 2nd: Rulong Chen (RUNERGY) / Huang Li (SEMILAB)

Discussion: None

Vote: 34 in favor and 0 opposed. (Total 34 companies.) Motion Passed.

Attachment: 32 SNARF_PV54 revision

7.4.2 Reapproved to PV53-0514, Test Method for In-Line Monitoring of Flat Temperature Zone in Horizontal Diffusion Furnace

Motion: Xianwu Cai (Red Solar) moved that the committee approve the SNARF for Reapproved to PV53-0514, Test Method for In-Line Monitoring of Flat Temperature Zone in Horizontal Diffusion Furnace.

By / 2nd: Xianwu Cai (Red Solar) / Zhixin Li (LINTON)

Discussion: None

Vote: 34 in favor and 0 opposed. (Total 34 companies.) Motion Passed.

Attachment: 33 SNARF_PV53 5-Year-Review



7.4.3 Reapproved to PV50-1114, Specification for Impurities in Polyethylene Packaging Materials for Polysilicon Feedstock

Motion: Wenfeng Lu (GCL) moved that the committee approve the SNARF for Reapproved to PV50-1114, Specification for Impurities in Polyethylene Packaging Materials for Polysilicon Feedstock.
By / 2nd: Wenfeng Lu (GCL) / Zhixin Li (LINTON)
Discussion: None
Vote: 34 in favor and 0 opposed. (Total 34 companies.) Motion Passed.
Attachment: 34 SNARF_PV50 5-Year-Review

8 Next Meeting and Adjournment

The next meeting is scheduled for May, 2020 in Shanghai, China. See <http://www.semi.org/standards-events> for the current list of events.

Adjournment: 17:30.

Respectfully submitted by:

Isadora Jin
Standards, Senior Specialist
SEMI China
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Email: ijin@semi.org

Minutes tentatively approved by:

Guangchun Zhang (CSI), PV Committee and PV Materials Committee China TC Chapter Co-chair	<2019/11>
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<i>Title</i>	<i>Title</i>
1 Chinese SEMI Standard Meeting Reminders	2 China PV&PVM TC Joint Spring Meeting Minutes 20190426
3 PVMaterials NA TC Chapter Liaison Report July 2018	4 EU PV Materials Liaison Report March 2019 v1
5 190617_LiaisonReport_JA_PVPVM_v1.0	6 20191004_TW PV Liaison Report
7 SEMI Staff Report 20191025	8 TC82 for SEMI oct19
9 中国光伏行业协会标准化工作介绍-2019.10.25 北京会议	10 SEMI Standards (6070E)2019-10-11 01
11 Doc5983C Ballot_Review	12 Ballot_Review_for_Doc_6191
13 MWT 太阳能电池灌穿孔电阻的检测方法 20191025	14 SEMI Standards 6458 汇报-2019 秋季会议
15 SEMI PV Task Force Report-PV Silicon Raw Material 20191025	16 PV Silicon Wafer TF Report_Oct.25th 2019-2
17 Crystalline Silicon Solar Cell Report--电池工作组汇报	18 SEMI PV Module TF Report 2019-10-25
19 5661 申请终止汇报 PPT-V1	20 Thin Film PV Module Task Force 会议报告 20191022
21 (2019.10.25 秋季会议) SEMI 扩散炉检测方法工作组汇报	22 SEMI 多线切割机工作组汇报
23 (2019.10.25 秋季会议) SEMI 测试设备工作组汇报	24 Building Integrated Photovoltaic (BIPV) Task Force



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#1 Due to file size and delivery issues, attachments must be downloaded separately. A .zip file containing all attachments for these minutes is available at www.semi.org. For additional information or to obtain individual attachments, please contact [SEMI Staff Name] at the contact information above.