

# **PV Committee China TC Chapter**

# **PV Materials Committee China TC Chapter**

# **Joint Meeting Summary and Minutes**

China Spring Standards Meeting 2022 April 15<sup>th</sup>, 2022, 9:30-16:00

Virtual, China

# **TC Chapter Announcements**

Next TC Chapter Meeting TBD, China, 2022

# **Table 1 Meeting Attendees**

*Italics* indicate virtual participants **Co-Chairs:** *Guangchun Zhang (CSI)* **SEMI Staff:** *Isadora Jin, Cassie Li, Ein Wu* 

Company	Last	First	Company	Last	First
MDEP	LV	Jinbiao	LINTON	Li	Zhixin
RUNERGY	Chen	Rulong	TALESUN	Qian	Hongqiang
Sinosico	Yan	Dazhou	RedSolar	Cai	Xianwu
Canadian Solar	Zhang	Guangchun	Shenzhen SC	Tan	Haoyun
Canadian Solar	Хи	Tao	Hohai University	Zhang	Zhen
NAURA	Li	Buzhong	Yongxiang	Wang	Yaping
NAURA	Tian	Tao	DASOLAR	Song	Dengyuan
JNU	Wu	Shaohang	Yingli	Li	Yingye
LONGi	Zhou	Rui	CHINT	Xue	Xinying
Trinasolar	Zhou	Wei	Hanergy	Wu	Zhenyu
Trinasolar	Du	Qingguo	Hanergy	Bai	Yan
Trinasolar	Jin	Yunhong	Canadian Solar	Guo	Suqin
Trinasolar	Zhou	Yujia	JINAN University	Wu	Shaohang
JA Solar	Xu	Desheng	AikoSolar	fukui	Kenji
Rutech	Хи	Fan	GCL	Huang	Yan
Xinyang Normal University	Lu	Xiaoman	Sunchine	Wang	Tong
Chint Solar	Zhou	Chengjun	Jolywood	Ni	Jianxiong
Sinoma	Zhnag	Xueri	FJ Metrology	Li	Jiansheng
FJ Metrology	Luo	Haiyan	Longi	Han	Wei
Chint Solar	Lin	Sainv	Cando Solar	Huang	Qiang
ZhongHuan	Zhang	Xuenan	Shenzhen SC	Li	Shijun



Jolywood	Chen	Jia	JA Solar	Niu	Xinwei
Yingli	Wang	Xiuxiang	DASOLAR	Xu	Xingxing
Yingli	Yu	Во	LeadMicro	Liao	Baochen
Gain Solar	Ма	Ming	CPVT	Wu	Xiaoli
Talesun	Zhang	Shude	Tongwei	Xing	Guoqiang
Naura	Sun	Pengtao	YL Metron	Zhang	Yingjiu
Longi	Ren	Gaigai	Linton	Liu	Erfei
Jinko Solar	Li	Ning	Longi	Mao	Jianbo
Yonz Technology	Ji	Mingliang	Sunflare	Wang	Lei
Longi	Fu	Nannan	TUV	Gu	Wei
Yingli	Zhang	Lina	Jolywood	Ма	Limin
Longi	Huang	Shanshan	Gain Solar	Zhao	Weiwei
TUV	Guo	Amy	SunTech	Yan	Tingting
Yingli	Meng	Qingchao	Trinasolar	Wang	Үи

# Table 2 Leadership Changes

WG/TF/SC/TC Name	Previous Leader	New Leader
PV		
Crystalline Silicon Solar Cell TF	Dengyuan Song – YINGLI Rulong Chen – RUNERGY Xianwu Cai – CETC 48	Dengyuan Song – DASOLAR Rulong Chen – RUNERGY Xianwu Cai – CETC 48 Xiuxiang WANG – YINGLI
BIPV TF	Dengyuan Song – YINGLI Jingbin Zhu – Sunman Jian Ding – Hanergy Pengjun Xiao – CTC	Dengyuan Song – DASOLAR Jingbin Zhu – Sunman Chengjun ZHOU – ChintSolar Jian Ding – Hanergy Xiuxiang WANG – YINGLI
PV Material		
PV Silicon Wafer Task Force	Yuepeng WAN – GCL Rui ZHOU – LONGI Dongli HU - GCL	Rui ZHOU – LONGI Dongli HU - GCL

# Table 3 Committee Structure Changes

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

# **Table 4 Ballot Results**

Document #	Document Title	Committee Action
PV		
6610	Revision to PV86-1018, Specification for Crystalline Silicon Photovoltaic Module	Passed with Technical



#### **Table 4 Ballot Results**

Document #	Document Title	Committee Action
	Dimensions	Changes.
		Ratification ballot to
		be issued.
6671	Revision to SEMI PV63-0215, Specification for Ultra-Thin Glasses Used for Photovoltaic Modules	Passed
6697	Withdrawal of SEMI PV73-0216, Test Method for Thin-Film Silicon Photovoltaic (PV) Modules Light Soaking	Passed
6778	Reapproval to SEMI PV78-0817, Test Method for Bending Property of Flexible Thin Film Photovoltaic (PV) Modules	Passed
6871	Reapproval to SEMI PV77-0817, Guide for Calibration of Photovoltaic (PV) Module UV Test Chambers	Passed
PV Materials	•	
None		

#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

#	Type	SC/TF/WG	Details	
Photovolta	Photovoltaic			
None				
Photovolta	Photovoltaic Materials			
None				

#### **Table 6 Authorized Activities**

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

#	Type	SC/TF/WG	Details
PV			
	NNARE	PV Silicon Wafer TF	New Standard: Classification of Reusable Silicon Material
PV Materi	PV Materials		
None			

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

http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF

#### **Table 7 Authorized Ballots**

#	When	TF	Details
PV			
6700	Cycle 5-22 or Cycle 6- 22		New Standard: Test Method of Wind Uplift Resistance for Roof-Top Building Integrated Photovoltaics (BIPV)
6542	Cycle 5-22	BIPV TF	New Standard: Guide for Scrap Judgement of Photovoltaic Modules in Building



# **Table 7 Authorized Ballots**

#	When	TF	Details
	or Cycle 6- 22		
PV Materi	PV Materials		
None			

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

#	TF	Title	Expiration Date		
Photovoltai	Photovoltaic				
None					
Photovoltaic Materials					
None					

# Table 9 SNARF(s) Abolished

#	TF	Title
PV		
5983	PV Equipment TF	New Standard: Test Method for In-line Sheet Resistance Inspection
6401	Thin Film PV Module TF	New Standard: Test Method for Indentation Force of Flexible Thin Film PV Modules
6402	Thin Film PV Module TF	New Standard: Test Method for Vibration of Flexible Thin Film PV Module
PV Materia	ls	
None		

#### Table 10 Standard(s) to receive Inactive Status

Standard Designation	Title	
Photovoltaic		
None		
Photovoltaic Materials		
None		



#### Table 11 Table 10 Standard(s) to receive Withdrawal Status

Standard Designation	Title	
PV		
None		
PV Materials		
None		

#### Table 12 New Action Items

	Item #	Assigned to	Details
1		PV Equipment Task Force	Study and discussion of Graphite Carrier
2		PV & PVM TC Chapter	Study and discussion of Carbon Neutral

#### **Table 13 Previous Meeting Action Items**

Item #	Assigned to	Details
None		

#### 1 Welcome, Reminders, and Introductions

Committee co-chair Guangchun Zhang called the meeting to order at 9:30.

#### 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 / 2 <sup>nd</sup> :	Zhixin Li (Linton)/ Dazhou Yan (SINOSICO)
Discussion:	None
Vote:	27Y - 0 N . Total 27 companies. Motion Passed.

Attachment: 2. China PV&PVM TC Joint Fall Meeting Minutes 20211117-v2

#### **3 Liaison Reports**

3.1 Photovoltaic Taiwan TC Chapter

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

Action Item: Next meeting –TBD

- The Co-chairs of Taiwan PV Materials TC are T.C. Wu (CMS/ITRI), Ray Sung (UL Taiwan) and C.C.Lin (PV Guider).
- Leadership Changes
  - None
- Ballot Results



➢ #6705 Reapproval of SEMI PV72-0316-EN Test Method of to Evaluate an Accelerated Thermo Humidity Resistance of PV Encapsulation

Failed

#6731 Revision of SEMI PV69 - Test Method for Spectrum Response (SR) Measurement of Organic Photovoltaic (OPV) and Dye-Sensitized Solar Cell (DSSC) and Perovskite Solar Cell(PSC)

Passed

#6730 Revision of SEMI PV57 - Test Method for Current-Voltage (I-V) Performance Measurement of Organic Photovoltaic (OPV) and Dye-Sensitized Solar Cell (DSSC) and Perovskite Solar Cell(PSC)
Presed

Passed

#6732 Revision of SEMI PV76 - Test Method for Durability of Low Light Intensity Organic Photovoltaic (OPV) and Dye-Sensitized Solar Cell (DSSC) and Perovskite Solar Cell(PSC)

Passed

#6733 Revision of SEMI PV80 - Specification of Indoor Lighting Simulator Requirements for Emerging Photovoltaic and Perovskite Solar Cell(PSC)

Passed

#6734 Revision of SEMI PV89 - Test Method of Current-Voltage (I-V) Measurement in Indoor Lighting for Dye-Sensitized Solar Cell and Organic Photovoltaic and Perovskite Solar Cell(PSC)

Passed

- Authorized Activities
  - None
- Authorized Ballots
  - None
- Abolished SNARF(s)
  - > None
- Task Force Highlights
  - ➢ OPV, DSSC&PSC TF
    - Process A&R review process for the below 5 ballots.
    - #6730 #6731 #6732 #6733 #6734
  - ➢ PV Reliability Test TF
    - After review of the Ballot Doc.#6705: SEMI PV72-0316-EN Test Method of to Evaluate an Accelerated Thermo Humidity Resistance of PV Encapsulation for one year extension. There were few rejects from ballot cycle 4. Decided to motion fail this ballot, return to re-work
- Five-Year Review
  - > None

Attachment: 4. PV Taiwan Liasion Report\_20211001\_V2

3.2 SEMI Staff Report

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

#### **Action Item:**

• Standards Technical Committees



- 2022 Critical Dates for SEMI Standards Ballots
- SEMI Standards Publications
- Organization chart for China PV Committee
- Organization chart for China PVM Committee
- China PV&PV Materials TC Update

Attachment: 3. SEMI Staff Report 20220415-v3

#### 3.3 Other SDO (Standards Development Organization) Update

• None

#### 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 6610, Revision to SEMI PV86-1018, Specification for Crystalline Silicon Photovoltaic Module Dimensions

Motion:	Tao XU (CSI) moved that this document passed TC Chapter review with technical 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 / 2 <sup>nd</sup> :	Tao XU (CSI) / Wei ZHOU (TrinaSolar)
Discussion:	Guangchun ZHANG (Canadian): The figure shall be modified.
Vote:	31 in favor and 0 opposed. (Total 31 companies. 0 companies abstain.) Motion passed.
Attachment	15 Ballot report 6610

Attachment: 15. Ballot report\_6610

4.2 Document 6671, Withdrawal of SEMI PV73-0216, Test Method for Thin-Film Silicon Photovoltaic (PV) Modules Light Soaking

Motion:	Wei ZHOU (TrinaSolar) moved that this document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
By / 2 <sup>nd</sup> :	Wei ZHOU (TrinaSolar) / Dazhou YAN (SINOSICO)
Discussion:	None
Vote:	28 in favor and 0 opposed. (Total 28 companies. 0 companies abstain.) Motion passed.

Attachment: 16. Ballot report\_6671

4.3 Document 6697, Revision to SEMI PV63-0215, Specification for Ultra-Thin Glasses Used for Photovoltaic Modules

Motion:	Wei ZHOU (TrinaSolar) moved that this document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
By / 2 <sup>nd</sup> :	Wei ZHOU (TrinaSolar) / Alan XU (CSI)
Discussion:	None
Vote:	31 in favor and 0 opposed. (Total 31 companies. 0 companies abstain.) Motion passed.
Attachment:	17. Ballot report_6697



4.4 Document 6778, Reapproval to SEMI PV78-0817, Test Method for Bending Property of Flexible Thin Film Photovoltaic (PV) Modules

Motion:	Rulong CHEN (Runergy) moved that this document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
By / 2 <sup>nd</sup> :	Rulong CHEN (Runergy)/Wei ZHOU (TrinaSolar)

Discussion: None

Vote: 31 in favor and 0 opposed. (Total 31 companies. 0 companies abstain.) Motion passed.

Attachment: 18. Ballot report\_6778

4.5 Document 6871, Reapproval of SEMI PV77-0817, Guide for Calibration of PV Module UV Test Chambers

Motion:Xinwei NIU (JASOLAR) moved that this document passed TC Chapter review as balloted and will be forwarded<br/>to the ISC A&R SC for procedural review.By / 2<sup>nd</sup>:Xinwei NIU (JASOLAR)/Buzhong LI (NAURA)Discussion:NoneVote:31 in favor and 0 opposed. (Total 31 companies. 0 companies abstain.) Motion passed.

Attachment: 19. Ballot report\_6871

#### 5 Subcommittee and Task Force Reports

5.1 PV Silicon Raw Materials Task Force

None

#### 6 SNARF Abolished

6.1 Doc. 5983, New Standard: Test Method for In-Line Sheet Resistance Inspection Using the Junction Photo-Voltage Method

Motion:	Abolish SNARF Document 5983.	
By / 2 <sup>nd</sup> :	Xianwu CAI (Red Solar) / Buzhong LI (NAURA)	
Discussion:	Guangchun ZHANG (Canadian): Is this technology popular at present?	
	Xianwu CAI (Red Solar): No.	
Vote:	34 in favor and 0 opposed. (Total 34 companies. 0 companies abstain.) Motion passed.	

6.2 Doc. 6401, New Standard: Test Method for Indentation Force of Flexible Thin Film PV Modules

Motion:	Abolish SNARF Document 6401.	
By / 2 <sup>nd</sup> :	Rulong CHEN (Runergy) / Shaohang WU (JINAN University)	
Discussion:	None	
Vote:	32 in favor and 0 opposed. (Total 32 companies. 0 companies abstain.) Motion passed.	

6.3 Doc. 6402, New Standard: Test Method for Vibration of Flexible Thin Film PV Module

Motion:	Abolish SNARF Document 6402.
By / 2 <sup>nd</sup> :	Rulong CHEN (Runergy) / Shaohang WU (JINAN University)
Discussion:	None
Vote:	32 in favor and 0 opposed. (Total 32 companies. 0 companies abstain.) Motion passed.



# 7 Task Force Report

# 7.1 PV Silicon Wafer Task Force

Rui Zhou (LONGi) reported for the PV Silicon Wafer Task Force. This report contained information on:

### Action Item:

- Introduced the task force's leaders and members.
- Previous Work of PV Silicon Wafer Task Force
- Standard proposal schedule of PV Silicon Wafer Task Force
- Working Schedule of PV Silicon Wafer Task Force

# Attachment: 5. PV Silicon Wafer TF Report APr. 15th, 2022

#### 7.2 Crystalline Silicon Solar Cell Task Force

Dengyuan SONG (DASOLAR) 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
  - ▶ 6872: Revision to PV75-1016: Test Method on Cell Level for Potential-induced-degradation Susceptibility of Solar Cells and Module Encapsulation Materials(电池以及组件封装材料 PID 敏感 性测试)

Attachment: 6. Crystalline Silicon Solar Cell Report--电池工作组汇报 PPT2022-03-29--

#### 7.3 Building Integrated Photovoltaic (BIPV) Task Force

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

#### Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on
  - > Doc. 6542, Guide for Scrap Judgement of Photovoltaic modules in building
  - Doc. 6700, Test Methods of Wind Uplift Resistance for Roof-Top Building Integrated Photovoltaics (BIPV)
- Work Plan for the Next Step

Attachment: 7. 2022-3-29--Building Integrated Photovoltaic (BIPV) Task Force--BIPV 工作组汇报 PPT



# 7.4 PV Module Task Force

Wei ZHOU (TrinaSolar) 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 6113, Test Method for Abrasion Resistance of the Polymer Backsheet of Crystalline Silicon Solar Modules
  - Doc 6610, Specification for Crystalline Silicon Photovoltaic Module Dimensions (Revision to PV86-1018)
  - Doc 6671, Revision to SEMI PV63-0215, Specification for Ultra-thin glasses used for photovoltaic modules

Attachment: 8. SEMI PV Module TF Report 2022-4-15

7.5 PV Equipment Task Force

Haoyun TAN (SHENZHEN S.C.) reported for the PV Equipment Task Force. This report contained information on:

#### Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on
  - Doc. 5983D, Test Method for In-line Sheet Resistance Inspection Using the Junction Photo-Voltage Method
- Work Plan for the Next Step

Attachment: 9 SEMI 中国光标委设备工作组工作汇报(2022 春季会议)-20220413(密级:不涉密)

#### 7.6 Thin Film PV Modules Task Force

Shaohang Wu ((JINAN University) reported for the Thin Film PV Modules Task Force. This report contained information on:

#### Action Item:

- Introduced the task force's leaders and members
- Working on
- Reactivated Document Number: 6401 SNARF for: New Standard: Test Method for Indentation Force of Flexible Thin Film PV Modules
- Reactivated Document Number: 6402 SNARF for: New Standard: Test Method for Vibration Durability of Flexible Thin Film PV Module

Attachment: 10 Thin Film PV Modules TF Report April 15th, 2022

#### 8 Old Business

8.1 Refer to Table 12 Previous Meeting Action Items



## 9 New Business

9.1 Requests for ballots in Cycle of 2022

9.1.1 Doc. 6700, New Standard: Test Method of Wind Uplift Resistance for Roof-Top Building Integrated Photovoltaics (BIPV)

Motion:	Approve Document 6700 for Letter Ballot in Cycle 5-22 or Cycle 6-22.	
By / 2 <sup>nd</sup> :	Xinying XUE (Chint Solar) / Rulong CHEN (Runergy)	
Discussion:	Zhenyu WU (Hanergy): Is this SNARF suitable for BIPV and BAPV?	
	Xinying XUE (Chint Solar): Involved	
Vote:	32 in favor and 0 opposed. (Total 32 companies. 0 companies abstain.) Motion passed.	
Attachment	12. Doc6700-Test Methods of Wind Uplift Resistance for Photovoltaic Modules Roof (BIPV)	

9.1.2 Doc. 6542, New Standard: Guide for Scrap Judgement of Photovoltaic Modules in Building

Motion:	Approve Document 6542 for Letter Ballot in Cycle 5-22 or Cycle 6-22.	
By / 2 <sup>nd</sup> :	Yan BAI (Hanergy) / Rulong CHEN (Runergy)	
Discussion:	Guangchun ZHANG (Canadian): The figure shall be modified.	
Vote:	30 in favor and 0 opposed. (Total 30 companies. 1 companies abstain.) Motion passed.	
Attachment: 13. SEMI_DocDraft6542 汇报_白燕		

#### 9.2 New SNARFs

9.2.1 SNARF, New Standard: Classification of Reusable Silicon Material

Motion:	Approve the SNARF.	
By / 2nd:	Wei HAN (LONGI) / Dazhou YAN (SINOSICO)	
Discussion:	Dazhou YAN (SINOSICO): SINOSICO would like to participate.	
	Yifeng LIU (YONGXIANG): YONGXIANG would like to participate.	
Vote:	31 in favor and 0 opposed. (Total 31companies.) Motion passed.	
Attachment:	21. Classification of Reusable Silicon Material-SEMI_16x9_Main_2019-standards-SNARF	

9.3 Five-Year-Review

None

9.4 SNARF(s) Granted a One-Year Extension

None

#### **10 Next Meeting and Adjournment**

The next meeting of the PV & PV Materials China TC Chapter is TBD.

For more information, please visit Standards Calendar at http://www.semi.org/en/standards



Adjournment: 17:00

Respectfully submitted by:

Cassie Li

SEMI China

Phone: 86-21-60277654

Email: cassie.li@semichina.org

#### Minutes tentatively approved by:

Guangchun Zhang (CSI), PV Committee and PV	2022.4.19
Materials Committee China TC Chapter Co-chair	

# Table 14 Index of Available Attachments<sup>#1</sup>

Title	Title
1. China PV Standards Committee Spring Meeting 2022 Agenda	2. China PV&PVM TC Joint Fall Meeting Minutes 20211117- v2
3. SEMI Staff Report 20220415-v3	4. PV Taiwan Liasion Report_20211001_V2
5. PV Silicon Wafer TF Report APr. 15th, 2022	6. Crystalline Silicon Solar Cell  Report电池工作组汇 报 PPT2022-03-29
7. 2022-3-29Building Integrated Photovoltaic (BIPV) Task ForceBIPV 工作组汇报 PPT	8. SEMI PV Module TF Report 2022-4-15
9 SEMI 中国光标委设备工作组工作汇报(2022 春季会议)- 20220413(密级:不涉密)	10 Thin Film PV Modules TF Report April 15th, 2022
12. Doc6700-Test Methods of Wind Uplift Resistance for Photovoltaic Modules Roof (BIPV)	13. SEMI_DocDraft6542 汇报_白燕
15. Ballot report_6610	16. Ballot report_6671
17. Ballot report_6697	18. Ballot report_6778
19. Ballot report_6871	20. Guide for manufacture of electroplated diamond wire used for photovoltaic silicon wafer cutting
21. Classification of Reusable Silicon Material- SEMI_16x9_Main_2019-standards-SNARF	

#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.