China PV Committee
Meeting Summary and Minutes
China Spring Standards Meetings 2013
Monday, March 18th, 2013, 09:30 -18:00
No.1388 Hua Mu Road Pudong, Shanghai, China

Next Committee Meeting
Friday, June 28th, Yangzhou

Table 1 Meeting Attendees
Co-Chairs: Guangchun Zhang (CanadianSolar)
SEMI Staff: James Amano – SEMI HQ, Kai Qiao – SEMI China, Kris Shen – SEMI China

Company	*Last*	*First*	*Company*	*Last*	*First*
GCL	Lv	Jinbiao	MOTECH	Si	Jianfang
GCL	Lu	Wenfeng	MOTECH	Liu	Jibiao
GCL	Liu	Xiaoxia	GSOLA	Ran	Xu
GCL	Lin	Qingxiang	GSOLA	Zen	Xiangchao
BASF	Qiao	Weiming	TBEA	Li	Jianshuai
Semilab China	Huang	Li	TBEA	Zan	Wu
TÜV SÜD	Wu	Yaozhong	Tianwei	Sheng	Wenting
TÜV SÜD	Zhang	Zhulin	Tianwei	Zhang	Fengming
CanadianSolar	Tang	Yingtang	Suntech	Chen	Rulong
Baoding Tianwei	Zhang	Ying	Suntech	Ge	Jian
JYT	Li	Zhixin	Suntech	Yin	Bing
Sevenstar	Si	Yu	Suntech	Liang	Zhe
Sevenstar	Zhen	Jianyu	Yingli	Song	Dengyuan
Sevenstar	Li	Dongqi	Yingli	Yu	Bo
Sevenstar	Yuan	Guolin	Yingli	Wu	Cuigu
Giansolar	Zhao	Shengxia	Yingli	Wang	Jing
Du Pont	Du	Peng	Yingli	Tian	Shuquan
Rutech	Xu	Hongmei	CPRTC	Zhang	Weihong
GDsolar	Wu	Xiexiang	CPRTC	Lu	Bingling
GDsolar	Wu	Zhiwen	CESI	Feng	Yabin
CPVT	He	Li	CESI	Pei	Huichuan
CPVT	Yuan	Kaidi	CESI	Fu	Xuetao
Hanergy	WU	Zhenyu	Hanergy	Wang	Meng
Hanergy	Ding	Jian	Hanergy	Yu	Huacong
Hanergy	Chen	Zhen	Heraeus	Xing	Guoqiang
LDK	Wan	Yuepeng	Heraeus	Zhang	Weiming
LDK	Cao	Sheng	DSM	Yu	Tiantian
LDK	Liu	Linyan	Hangzhou First PV Material	Hou	Robin
JA Solar	Liu	Yong	Trinasolar	Wang	Allan
JA Solar	Wang	Xiaoyong	Trinasolar	Xiao	Taoyun
Ideal Energy Equipment	Feng	Qiyi	United Initiators	Martin	Kunz
SINOSICO	Liu	Fenghua	Bothleader	Jin	Zhengdong
SINOSICO	Chen	Gui'e	Bothleader	Zhou	Shudong
48th Research Institute	Cai	Xianwu	SIBCO	Ton	Schless
48th Research Institute	Jia	Jingying	Jinko	Peng	Xianping
48th Research Institute	Fan	Liangyu	48th Research Institute	Xiao	Youwen
			48th Research Institute	Fan	Yingxin

Table 2 Leadership Changes

Group	*Previous Leader*	*New Leader*
None		

Table 3 Ballot Results

Passed ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.
Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

Document #	*Document Title*	*Committee Action*
5384	New Standards: Specification for Package protection technology for PV Modules	**Passed** with editorial changes
5475	New Standard: Specification for Anti-reflective-coated Glass, Used In Crystalline Silicon Photovoltaic Modules	**Passed** with editorial changes
5385	New Standards: Test Method for the content of Vinyl Acetate (VA) in Ethylene-Vinyl Acetate (EVA) applied in PV modules—Thermal Gravimetric Analysis (TGA)	**Passed** with editorial changes
5428	New Standard: Specification for Impurities in Polyethylene Packaging Materials for Polysilicon Feedstock	**Failed** and return to TF for re-work
5382	New Standard: Specification for Quasi-monocrystalline Silicon Wafers used in Photovoltaic Solar Cells	**Failed** and return to TF for re-work

Table 4 Authorized Ballots

#	*When*	*SC/TF/WG*	*Details*
None			

Table 5 Authorized Activities

#	*Type*	*SC/TF/WG*	*Details*
5564	SNARF	PV Silicon Raw Materials Task Force	New Standard: Test Method for the Measurement of Chlorine in Silicon by Ion Chromatography
5563	SNARF	Crystalline Silicon PV Module TF	New Standard: Specification for Framing Tape for PV Modules

Note: SNARFs and TFOFs are available for review on the SEMI Web site at:
http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF

Table 6 New Action Items

Item #	*Assigned to*	*Details*
None		

Table 7 Previous Meeting Action Items

Item #	*Assigned to*	*Details*	*Status*
ChinaPV-1112-01	New SNARF proposer	The standards background research report should be submitted with the new SNARFs in future.	Completed
ChinaPV-1112-02	Polysilicon Packaging Materials Task Force Leader	Invite LDK, SINOSICO, RENASOLA,DAQO and other related material manufacturers to join the task force	Completed
ChinaPV-1112-03	Silicon Thin Film PV Module Task Force	Invite test institutes to join the task force	Completed
ChinaPV-1112-04	Kris Shen	Define a task force report template	Completed

1 Welcome, Reminders, and Introductions

Committee Co-chair Guangchu Zhang welcome all attendees, all the attendees introduced themselves. Kris Shen called the meeting to order at 9:40 AM. The meeting reminders on antitrust issues, intellectual property issues and effective meeting guidelines were reviewed.
Agenda was reviewed.

2 Review of Previous Meeting Minutes

Minutes were reviewed. No change was made.
Motion: To accept the minutes of the previous meeting as submitted
By / 2nd: Kris Shen (SEMI China)/ Yong Liu (JASolar)
Discussion: None
Vote: 22-0. Motion passed
Attachment-1, China PV TC Minutes 20121103.pdf

3 Staff Report

Kris Shen (SEMI) gave the staff report. Highlights

- Overview the SEMI Global 2013 Calendar of Events
- Overview the 2013 SEMI China Show and concurrent programs
- Remind that SEMI can provide the GoTo Meeting service for TF meeting
- Recently Published 2 PV Standards
  - SEMI PV42-0113 Test Method for In-Line Measurement of Waviness of PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments
  - 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

Attachment-2, SEMI Staff Report (Spring 2013)0309.pdf

4 Liaison Reports

4.1 *North America PV Materials Committee*
James Amano (SEMI HQ) reported. Highlights:

- Last meeting - NA Fall Standards Meetings，San Jose, CA，Oct 30-31, 2012
- Next meeting - NA Spring Standards Meetings, SEMI HQ, San Jose, CA, April 2-3, 2013
- Ballot Results Summary
  - Doc. 4675B, New Standard: Test Method for the Measurement of Elemental Impurity Concentrations in Silicon Feedstock for Silicon Solar Cells By Bulk Digestion, Inductively Coupled-Plasma Mass Spectrometry
    - Failed and reballoted in cycle 2-2013
  - Doc. 5438, New Standard: Test Method for the Measurement of Oxygen Concentration in PV Silicon Materials for Silicon Solar Cells by Inert Gas Fusion Infrared Detection Method
    - Passed and published as PV43-0113
  - Doc. 5436, Auxiliary Information on Round Robin Report for SEMI PV10 Test Method for Instrumental Neutron Activation Analysis (INAA) of Silicon
    - Approved and published as AUX027-0213
- New SNARFs
  - PV Analytical Test Methods TF
    - Doc. 5501: Auxiliary document to include interlaboratory study for PV43 - Test Method For The Measurement Of Oxygen Concentration In PV Silicon Materials For Silicon Solar Cells By Inert Gas Fusion Infrared Detection Method
  - PV Silicon Materials TF
    - Doc. 5502: Line item Revision to SEMI PV39: Test Method For In-line Measurement Of Cracks In PV Silicon Wafers By Dark Field Infrared Imaging
- Ballot for cycle 1&2, 2013
  - Doc. 4675C, New Standard: Test Method for the Measurement of Elemental Impurity Concentrations in Silicon Feedstock by Bulk Digestion, Inductively-Coupled-Plasma Mass Spectrometry
  - Doc. 5439, Revision to SEMI PV13-1110 Test Method for Contactless Excess-Charge-Carrier Recombination Lifetime Measurement in Silicon Wafers, Ingots, and Bricks Using an Eddy-Current Sensor

Attachment-3, NA Liaison Report PV Materials 20130225.ppt

4.2 *European PV Equipment Automation Committee*
James Amano (SEMI HQ) reported. Highlights:

- Last meeting –March 10-12, 2013, PV Fab Managers Forum, Berlin, Germany
- Next meeting –October 8-10, 2013, SEMICON Europa, Dresden, Germany
- New SNARF
  - Revision of SEMI PV2-0709E, Guide for PV Equipment Communication Interfaces (PVECI)

Attachment-4, EU PV Equipment Liaison Report 20130313.ppt

4.3 *European PV Materials Committee*
James Amano (SEMI HQ) reported. Highlights:

- Last meeting - March 10-12, 2013, PV Fab Managers Forum, Berlin, Germany
- Next meeting - June 19-21, 2013, Intersolar Europe, Munich, Germany
- New SNARFs
  - Line Item Revision to SEMI PV42-0113, Test Method for In-Line Measurement of Waviness of PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments
- Ballot Results Summary from Mar. meeting
  - Doc 5434, New Standard: Test Method for In-Line Measurement of Lateral Dimensional Characteristics of Square and Pseudo-Square PV Silicon Wafers **– PASSED**
  - Doc 5531, Revision to PV40, Test Method for In-Line Measurement of Saw Marks on PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments **- PASSED**
  - Doc 5502, Revision to PV39, Test Method for In-Line Measurement of Cracks in PV Silicon Wafers by Dark Field Infrared Imaging **- PASSED**
  - Doc 5530, New Standard: Specification for Orientation Fiducial Marks for PV Silicon Wafers **- PASSED**

Attachment-5, EU PV Materials Liaison Report 20130315.ppt

4.4 *Japan PV Automation Committee*
James Amano (SEMI HQ) reported. Highlights:

- Last Committee Meeting - Dec. 6, 2012,In conjunction with PV Japan 2012, Makuhari Messe Chiba, Japan
- Next Committee Meeting - April. 12, 2013, SEMI Japan, Ichigaya Office, Tokyo Japan
- Ballots Results from December Meeting
  - Doc. #4804A: "New Standard: Specification for Horizontal Communication between Equipment for Photovoltaic Fabrication System"—Published as SEMI PV35

Attachment-6, JP_PVAuto_Liaison at EU PVAuto 2013 0321 R0.2.ppt

4.5 *Japan PV Materials Committee*
James Amano (SEMI HQ)reported. Highlights:

- Last Meeting - December 5, 2012 at Makuhari Messe, Chiba, Japan
- Next Meeting- April 12, 2013 at SEMI Japan Office, Tokyo, Japan

Attachment-7, JA PVC_PVMC Updates.pptx

4.6 *Taiwan PV Committee*
James Amano (SEMI HQ) reported. Highlights:

- Last meeting – Dec. 21, 2012, SEMI Taiwan Office, HsinChu
- Next meeting – Feb. 22, 2013, ITRI, Hsinchu
- New SNARF
  - **[Doc # 5431]** New Standard: Test Method for Performance Criteria of Photovoltaic (PV) Wafer, Cell, and Module Package

Attachment-8, Taiwan PV_Liaison_20121221.ppt

5 Ballot Review

5.1 Doc. 5384, New Standards: Specification for Package protection technology for PV Modules

5.1.1 Document passed technical review with editorial changes and will be submitted to A&R SC for procedural review. See attachment below for detail of ballot adjudication.

Attachment-9, 5384 Procedure Review.pdf

5.2 Doc. 5475, New Standard: Specification for Anti-reflective-coated Glass, Used In Crystalline Silicon Photovoltaic Modules

5.2.1 Document passed technical review with editorial changes and will be submitted to A&R SC for procedural review. See attachment below for detail of ballot adjudication.

Attachment-10, 5475 Procedure Review.pdf

5.3 Doc. 5385, New Standards: Test Method for the content of Vinyl Acetate (VA) in Ethylene-Vinyl Acetate (EVA) applied in PV modules—Thermal Gravimetric Analysis (TGA)

5.3.1 Document passed technical review with editorial changes and will be submitted to A&R SC for procedural review. See attachment below for detail of ballot adjudication.

Attachment-11, 5385 Procedure Review.pdf

5.4 Doc. 5428, New Standard: Specification for Impurities in Polyethylene Packaging Materials for Polysilicon Feedstock

5.4.1 Document failed technical review due to persuasive reject and was sent back to TF for rework. See attachment below for detail adjudication.

Attachment-12, 5428 Failed.pdf

5.5 Doc. 5382, New Standard: Specification for Quasi-monocrystalline Silicon Wafers used in Photovoltaic Solar Cells

5.5.1 Document failed technical review due to persuasive reject and was sent back to TF for rework. See attachment below for detail adjudication.

Attachment-13, 5382 Failed.pdf

6 Subcommittee & Task Force Reports

6.1 *PV silicon wafer TF*

- TF Work Plan for the Next Step.

What	When
Modified the Document 5382#	Till to June.2013

Attachment-14, PV Silicon Wafter Task Force Report.ppt

6.2 *Crystalline Silicon PV Module TF*

- Task Force was established, two documents were approved
- Complete the two standards draft.
- Ask for comments on the preliminary draft.
- Call for SEMI new standard proposal.

Attachment-15, Crystalline Silicon PV Module Task Force20130314.pptx

6.3 *Metal Paste for Crystalline Silicon Solar Cells TF*

- Finished draft document 5426.
- Finished draft document 5427.
- Plan to review draft document.

Attachment-16, Metal Paste for Crystalline Silicon Solar Cells TF.pptx

6.4 *Poly-silicon Packaging Materials Task Force*

- Have finished draft document Ed.1 now.
- Exchanging opinions with task force participants.
- Have hold a live meeting and phone conference soon to discuss the draft documents in Oct 24th 2012.
- Have finished draft document Ed.2 now.
- Have been on the website for the first voting
- Will be modified according the advice from the experts.
- Showed the TF work plan for the next step.

What	When
Collect work plan of standard within TF participan	Nov.15, 2012
Discuss and confirm the standard plan by TF leaders	Nov. 30, 2012
Start to the next 2 test method standard	April,2012-2013

Attachment-17, Polysilicon Packaging Materials Task Force-2013-3-12.pptx

6.5 *PV Diffusion Furnace Test Methods Task Force*

- Progress on the Documents

Content	When
Send the draft document Ed.3 to the task force participants by E-mail	Dec.10,2012
Collect the opinions from the participants and modify the draft document Ed.3	Jan.18, 2013
Finish the final document and send the final document to the task force participants by E-mail	Jan.28, 2013
Do the comparison test according the Standard and send to it the task force participants by E-mail	Mar.5,2013

- Showed the TF work plan for the next step.

What	When
Hold a conference call and vote in the first circle in TC of PV China	Apr. 15,2013
Vote on SEMI Standards Ballots	Aug. 28,2013

Attachment-18, PV Diffusion Flat temperature Zone Task.ppt

6.6 *PV Silicon Raw Materials Task Force*

- Progress on the Documents ——Have finished

Content	When
Draft Ed.1of SEMI Draft Document 5476	Feb. 2013
Draft Ed.1of SEMI Draft Document 5477	Feb. 2013
Phone conference for SEMI Drafts 5476 and 5477	Mar. 1st, 2013
SNAF for New Standard: Test Method for the Measurement of Chlorine in Silicon by Ion Chromatography	Mar. 1st, 2013

- Showed the TF work plan for the next step.

What	When
Collect work plan of standard within TF participants	Mar. 30, 2013
Discuss and confirm the standard plan by TF leaders	Apr. 15, 2013

Attachment-19, PV Silicon Raw Materials Task Force_20130318.ppt

6.7 *Silicon Thin Film PV Module Task Force*

- The draft standard is being developed.
- Discuss the technical details with other participants by Email.

Attachment-20, Silicon Thin Film PV Module Task Force-TIANWEI.ppt

6.8 *Anti-reflective Coated Glass Task Force*

- The voting of 2013 Cycle1 is closed.
- ARC standard has reached 60% return rate and not received objection.

Attachment-21, ARC glass Task Force-2013-3-11.pptx

7 Old Business

None

8 New Business

8.1 *SNARF- New Standard: Test Method for the Chlorine in Silicon by Ion Chromatography*

Motion: To approve the SNARF
By/2 nd: Wenfeng Lu(GCL)/ Yabin Feng(CESI)
Discussion: What is the advantage of this test method?—Dengyuan Song(Yingli)
The cost of the test method is save cost, and the method is mature.-- Wenfeng Lu(GCL)
Is it necessary to test the Chlorine in silicon now? --Wu Zan(TBEA)
Yes, it is necessary. It will be helpful to improve the quality of silicon.—Xiaoxia Liu(GCL)
Vote: 16-0, Motion Passed

8.2 *SNARF- New Standard: Specification for Framing Tape for PV Modules*

Motion: To approve the SNARF
By/2 nd: Shuquan Tian (YINGLI)/ Yong Liu(JASolar)
Discussion: Is this specification same with the tape requirement?—Yong Liu(JASolar)
It is not same, this specification is focus on the result of PV modules use the tape. —Dengyuan Song(Yingli)
The material of tape is always chang, the quality of this modules will be unsteady.—Yuepeng Wan(LDK)
Will this standard be very popular in the PV industry? –Xiangchao Zeng (GSOLA)
We just share our experience to the industry, hope this requirement will helpful for other companies. – Bo Yu(Yingli)
Vote: 7-4, Motion Passed

8.3 *SNARF- New Standard: Specification for the Silver-based pastes Used to contact P+ emitter and Form the Positive Electrode in N Type Silicon Solar Cell*

Motion: To approve the SNARF
By/2 nd: Jing Wang (YINGLI)/ Zhixin Li(JYT)
Discussion: Is it necessary to define this kind of standard, there are lots of technical styles.—Yong Liu(JASolar)
The scope of this standard is too small, and the technology is not mature yet, it is not a good time to do this standard now. –Weiming Zhang(Heraeus)

Vote: 0-7, Motion failed

8.4 *SNARF- New Standard: Classification for Cell and Module Defect*

Motion: To approve the SNARF
By/2nd: Xu Ran (GSOLA)/ Yong Liu(JASolar)
Discussion: There is a similar standard in IEC, about module defect classify.-- Yong Liu(JASolar)
Vote: 2-11, Motion failed

9 Action Item Review

9.1 *Open Action Items*
None
9.2 *New Action Items*
None

10 Next Meeting and Adjournment

The next meeting of the China PV Standards committee will be on June 28th 2013, in Yangzhou, China.

Respectfully submitted by:
Kris Shen
SEMI China

Minutes approved by:

Guangchun Zhang (CanadianSolar), Co-chair	2013/4/1
Jun Liu (CESI), Co-chair	2013/4/1

Table 8 Index of Available Attachments #1

#	*Title*	#	*Title*
1	China PV TC Minutes 20121103.pdf	12	5428 Failed.pdf
2	SEMI Staff Report (Spring 2013)0309.pdf	13	5382 Failed.pdf
3	NA Liaison Report PV Materials 20130225.ppt	14	PV Silicon Wafer Task Force Report.ppt
4	EU PV Equipment Liaison Report 20130313.ppt	15	Crystalline Silicon PV Module Task Force20130314.pptx
5	EU PV Materials Liaison Report 20130315.ppt	16	Metal Paste for Crystalline Silicon Solar Cells TF.pptx
6	JP_PVAuto_Liaison_at_EU_PVAuto_2013_0312_R0.2.ppt	17	Polysilicon Packaging Materials Task Force-2013-3-12.pptx
7	JA PVC_PVMC Updates.pptx	18	PV Diffusion Flat temperature Zone Task.ppt
8	Taiwan PV_Liaison_20121221.ppt	19	PV Silicon Raw Materials Task Force_20130318.ppt
9	5384 Procedure Review.pdf	20	Silicon Thin Film PV Module Task Force-TIANWEI.ppt
10	5475 Procedure Review.pdf	21	ARC glass Task Force-2013-3-11.pptx
11	5385 Procedure Review.pdf		

#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.