

Europe PV Materials Committee Meeting Summary and Minutes

Intersolar Europa
Wednesday, 13 June, 2012, 1.30 – 3.30pm
Munich Germany

Next Committee Meeting

October 9th 2012, Dresden, in conjunction with SEMICON Europa. Check www.semi.org/standards for the latest update.

Table 1 Meeting Attendees

Co-Chairs: Peter Wagner / Hubert Aulich

SEMI Staff: Yann Guillou / James Amano

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Hennecke systems	Hermann	Klaus	Sinton Consulting	Sinton	Ronald
JC s Chunson Limited	Lin	JC	Hennecked Systems	Grosser	Jurgen
Hennecke Systems	Schroll	Philip	Microsense	Bagley	Peter
PVCrystalox	Schley	Michael	ASYS	Wende	Lars
Peter Wagner consulting	Wagner	Peter			

Table 2 Ballot Results (or move to Section 4, Ballot Review)

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.

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>	
5330	New Standard: Test Method for In-Line Measurement of Cracks in PV Silicon Wafers by Dark Field Infrared Imaging	PASSED as balloted	
5331A	New Standard: Test Method for In-Line Measurement of Saw Marks on PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments	PASSED as balloted	
5332A	New Standard: Test Method for In-Line, Non-Contact Measurement of Thickness and Thickness Variation of Silicon Wafers for PV Applications Using Capacitive Probes	PASSED as balloted	
5387	Line Items Revision to SEMI PV17-0312, Specification for Virgin Silicon Feedstock Materials for Photovoltaic Applications		
	1. Line Item 1 - Add “SEMI PV25, Test Method for Simultaneously Measuring Oxygen, Carbon, Boron and Phosphorous in Solar Silicon Wafers and Feedstock by Secondary Ion Mass Spectrometry” to section 4.1	PASSED as balloted	
	2. Line Item 2 - Replace in Table 1, column “Measurement Methods”, in lines 2.1, 2.2, 2.3 and 2.4 “SIMS” by “PV25”.	PASSED as balloted	
5334A	Revision of SEMI PV18-0811, Guide for Specifying a Photovoltaic Connector Ribbon	PASSED as balloted	

Table 3 Authorized Ballots (or move to Section 7, New Business)

<i>#</i>	<i>When</i>	<i>SC/TF/WG</i>	<i>Details</i>
5333	Cycle 5 2012	Silicon Materials TF	New Standard: Test Method for In-Line Measurement of Waviness on PV Silicon Wafers by a Light Sectioning Technique

Table 4 Authorized Activities (or move to Section 7, New Business)

#	Type	SC/TF/WG	Details
5434	SNARF	Silicon Materials TF	New Standard: Test method for In-Line Measurement of Lateral Dimensions of PV Silicon Wafers for PV applications
5432	SNARF	Silicon Materials TF	New Standard: Test method for in-line characterization of PV Silicon Wafers by using photoluminescence
5433	SNARF	Silicon Materials TF	New Standard: Test method for in-line characterization of PV Silicon Wafers regarding Grain Size

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

Table 5 New Action Items (or move to Section 8, Action Item Review)

Item #	Assigned to	Details
0613-01	James Amano	Confirm Lars Wende received the information about #5332A ballot
0613-02	James Amano	#5334A: Comments received will be shared with TF leaders

1 Welcome, Reminders, and Introductions

Peter Wagner called the meeting to order at 1.30pm. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

2 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting.

Motion: Approve the minutes as written
By / 2nd: Peter Wagner / Ron Sinton
Discussion: None
Vote: 6 / 0

3 Liaison Reports

3.1 Japan PV Materials Committee

James Amano gave the liaison report.

Attachment: 01, JA PV_EUPVM2012_R1.0

3.2 Taiwan PV Material Committee

James Amano gave this liaison report.

Of note:

- Doc. 5402, New Standard: Test Method for Mechanical Vibration of c-Si PV cells in Shipping Environment – to be reviewed at the next technical meeting in June 2012.

Attachment: 02, Taiwan PV_Liaison_20120314

3.3 China PV Materials Committee:

Liaison report was given by James Amano. Of Note:

- New Task Force:
 - Metal Paste for Crystalline Silicon Solar Cells Task Force
 - New SNARFs:
 - Doc. 5426, Specification for Aluminum Paste, Used in Back Surface Field of Crystalline Silicon Solar Cells
 - Doc. 5427, Specification for front Surface Silver Paste, Used in P-Type crystalline Silicon Solar Cells
- New Task Force
 - Poly-Silicon Packaging Materials Task Force
 - New SNARFs:
 - Doc. 5428, Specification for Impurities in Polyethylene Packaging Materials for Poly-Silicon Feedstock
- New Task Force
 - PV Diffusion Furnace Test Methods Task Force
 - New SNARF
 - Doc. 5429, Test Method for In-line Monitoring of Flat Temperature Zone in the Horizontal Diffusion Furnaces

Attachment: 03, China Photovoltaic Committee Liaison Report 20120528

3.4 North America PV Materials Committee:

Report was given by James Amano. Of Note:

Ballots for cycle 3 and 4-2012.

- Doc. 5242A, New Standard: Guide For Fluorine (F2), Used In Photovoltaic Applications
- Doc. 5156A, New Standard: Specifications for Hydrogen Peroxide, Used In Photovoltaic Applications
- Doc. #5158A, New Standard: Specification for Anti-Reflective-Coated Glass, Used in Crystalline Silicon Photovoltaic Modules

Attachment: 04, NA Liaison Report PV Materials 20120604

3.5 SEMI Staff Report

James Amano gave the SEMI Staff Report.

Attachment: 05, SEMI Staff Report June 2012 v1

4 Ballot Review

4.1 Document # 5330, New Standard: Test Method for In-Line Measurement of Cracks in PV Silicon Wafers by Dark Field Infrared Imaging

- Document passed technical review and is being forwarded to the ISC A&R Subcommittee for procedural review. See attachment below for details of ballot adjudication.
- **Attachment:** 06, 5330ProceduralReview

4.2 Document # 5331A, New Standard: Test Method for In-Line Measurement of Saw Marks on PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments

- Document passed technical review and is being forwarded to the ISC A&R Subcommittee for procedural review. See attachment below for details of ballot adjudication.
- **Attachment:** 07, 5331AProceduralReview

4.3 Document # 5332A, New Standard: Test Method for In-Line, Non-Contact Measurement of Thickness and Thickness Variation of Silicon Wafers for PV Applications Using Capacitive Probes

- Document passed technical review and is being forwarded to the ISC A&R Subcommittee for procedural review. See attachment below for details of ballot adjudication.
- **Attachment:** 08, 5332AProceduralReview

4.4 Document # 5387, Line Items Revision to SEMI PV17-0312, Specification for Virgin Silicon Feedstock Materials for Photovoltaic Applications

4.4.1 Line Item #1: Add “SEMI PV25, Test Method for Simultaneously Measuring Oxygen, Carbon, Boron and Phosphorous in Solar Silicon Wafers and Feedstock by Secondary Ion Mass Spectrometry” to section 4.1

- Document passed technical review and is being forwarded to the ISC A&R Subcommittee for procedural review. See attachment below for details of ballot adjudication.

4.4.2 Line Item #2 - Replace in Table 1, column “Measurement Methods”, in lines 2.1, 2.2, 2.3 and 2.4 “SIMS” by “PV25”.

- Document passed technical review and is being forwarded to the ISC A&R Subcommittee for procedural review. See attachment below for details of ballot adjudication.
- **Attachment:** 09, 5387-LI1&2ProceduralReview

4.5 Document # 5334A: Revision of SEMI PV18-0811, Guide for Specifying a Photovoltaic Connector Ribbon

- Document passed technical review and is being forwarded to the ISC A&R Subcommittee for procedural review. See attachment below for details of ballot adjudication.
- **Attachment:** 10, 5334AProceduralReview

5 Subcommittee & Task Force Reports

5.1 Silicon Materials TF

5.1.1 Ballot Review:

5.1.1.1 Document # 5330, New Standard: Test Method for In-Line Measurement of Cracks in PV Silicon Wafers by Dark Field Infrared Imaging

Motion: Document to be approved as balloted and forwarded to ISC A&R subcommittee for procedural review
By / 2nd: Peter Wagner / Ron Sinton
Discussion: None
Vote: 6 / 0

5.1.1.2 Document # 5331A, New Standard: Test Method for In-Line Measurement of Saw Marks on PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments

Motion: Document to be approved as balloted and forwarded to ISC A&R subcommittee for procedural review
By / 2nd: Peter Wagner / Klaus Hermann
Discussion: None
Vote: 7 / 0

5.1.1.3 Document # 5332A, New Standard: Test Method for In-Line, Non-Contact Measurement of Thickness and Thickness Variation of Silicon Wafers for PV Applications Using Capacitive Probes

Motion: Document to be approved as balloted and forwarded to ISC A&R subcommittee for procedural review
By / 2nd: Peter Wagner / Klaus Hermann
Discussion: Lars Wende mentioning he did not receive the info about this new document ballot.
Vote: 6 / 1

5.1.1.4 Document # 5387, Line Items Revision to SEMI PV17-0312, Specification for Virgin Silicon Feedstock Materials for Photovoltaic Applications

- Line Item #1: Add “SEMI PV25, Test Method for Simultaneously Measuring Oxygen, Carbon, Boron and Phosphorous in Solar Silicon Wafers and Feedstock by Secondary Ion Mass Spectrometry” to section 4.1

Motion: Document to be approved as balloted and forwarded to ISC A&R subcommittee for procedural review
By / 2nd: Peter Wagner / Ron Sinton
Discussion: None
Vote: 7 / 0

- Line Item 2 - Replace in Table 1, column “Measurement Methods”, in lines 2.1, 2.2, 2.3 and 2.4 “SIMS” by “PV25”.

Motion: Document to be approved as balloted and forwarded to ISC A&R subcommittee for procedural review
By / 2nd: Peter Wagner / Ron Sinton
Discussion: None
Vote: 7 / 0

5.1.1.5 Document # 5334A: Revision of SEMI PV18-0811, Guide for Specifying a Photovoltaic Connector Ribbon

Motion: Document to be approved as balloted and forwarded to ISC A&R subcommittee for procedural review

By / 2nd: Peter Wagner / Ron Sinton

Discussion: None

Vote: 6 / 0

5.1.2 SNARF

5.1.2.1 Doc. 5434, New Standard: Test method for In-Line Measurement of Lateral Dimensions of PV Silicon Wafers for PV applications

Motion: To approve SNARF

By / 2nd: Peter Wagner / Ron Sinton

Discussion: None

Vote: 6 / 0

5.1.2.2 Doc. 5432, New Standard: Test method for in-line characterization of PV Silicon Wafers by using photoluminescence

Motion: To approve SNARF

By / 2nd: Peter Wagner / Klaus Hermann

Discussion: Some companies already developing some equipment. Patent interference will be checked.

Vote: 8 / 0

5.1.2.3 Doc. 5433, New Standard: Test method for in-line characterization of PV Silicon Wafers regarding Grain Size

Motion: To approve SNARF

By / 2nd: Peter Wagner / Klaus Hermann

Discussion: Attendees recommending to add grain boundary length and/or distribution and/or area in the scope of the document.

Vote: 8 / 0

5.1.3 Authorized ballot:

5.1.3.1 Doc 5333: New Standard: Test Method for In-Line Measurement of Waviness on PV Silicon Wafers by a Light Sectioning Technique

Motion: Authorize the documents to go in cycle 5 and be adjudicated in October 8th (Dresden)

By / 2nd: Peter Wagner / Klaus Hermann

Discussion: None

Vote: 7 / 0

5.2 Ribbon TF:

- No update from the Ribbon TF.

6 Action Item Review

6.1 New Action Items

Yann Guillou (SEMI) reviewed the new action items. These can be found in the New Action Items table at the beginning of these minutes.

7 Next Meeting and Adjournment

The next meeting of EU PV Materials committee is scheduled for October 9th 2012 in conjunction with SEMICON Europa in Dresden, Germany.

Adjournment of the meeting was held at 3.30pm.

Minutes respectfully submitted by:

Yann Guillou
Business Development and Standard Manager
SEMI Europe
Phone: +33 4 38 78 39 71
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Minutes approved by:

Peter Wagner, Wagner Consulting, Co-chair	<Date approved>
Hubert Aulich, PV Crystallox, Co-chair	<Date approved>

Table 6 Index of Available Attachments ^{#1}

#	Title	#	Title
1	JA PV_EUPVM2012_R1.0	7	5331AProceduralReview
2	Taiwan PV_Liaison_20120314	8	5332AProceduralReview
3	China Photovoltaic Committee Liaison Report20120528	9	5387-LI1&2ProceduralReview
4	NA Liaison Report PV Materials 20120604	10	5334AProceduralReview
5	SEMI Staff Report June 2012 v1		
6	5330ProceduralReview		

#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.