



**PV Materials NA TC Chapter
Meeting Summary and Minutes
Intersolar North America
Wednesday, July 13, 2016, 11:00 AM - 12:00 Noon
San Francisco Marriott Marquis, San Francisco, California**

TC Chapter Announcements

Next TC Chapter Meeting

Wednesday, November 9, 2016 (11:00 AM-Noon) San Jose, CA in conjunction with the NA Fall Standards Meeting 2016. Check www.semi.org/en/standards for the latest update.

Table 1 Meeting Attendees

Co-Chairs: Hugh Gotts (Air Liquide)

SEMI Staff: Kevin Nguyen (SEMI HQ) Chie Yanagisawa (SEMI Japan)

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Sonoscan	Martell	Steve			
Sinton Instruments	Sinton	Ron			
Self	Wagner	Peter			

Table 2 Task Force or Leadership Changes

<i>Group</i>	<i>Previous Leader</i>
International PV Analytical Test Methods, Metrology, and Inspection Task Force	Ron Sinton (Sinton Instruments) stepped down.
PV Materials NA TC Chapter	John Valley (SSL) stepped down via email request.

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.

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
5960A	Revision of SEMI PV21-1011 Guide for Silane (SiH ₄), Used in Photovoltaic Applications	Passed superclean
5961A	Revision of SEMI PV24-1011 Guide for Ammonia (NH ₃) in Cylinders, Used in Photovoltaic Applications	Passed superclean
5962A	Revision of SEMI PV26-1011 Guide for Hydrogen Selenide (H ₂ Se) in Cylinders, Used in Photovoltaic Applications	Passed as balloted

Table 4 Authorized Activities

None

NOTE 1: SNARFs and TFOFs are available for review on the SEMI Web site at: <http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 5 Authorized Ballots

#	When	SC/TF/WG	Details
5959A	Cycle 6-16	International PV Analytical Test Methods, Metrology, and Inspection Task Force	Revision of SEMI PV25-1011 Test Method for Simultaneously Measuring Oxygen, Carbon, Boron And Phosphorus in Solar Silicon Wafers and Feedstock by Secondary Ion Mass Spectrometry
6039	Cycle 6-16	International PV Analytical Test Methods, Metrology, and Inspection Task Force	Reapproval of SEMI PV31-0212 Test Method For Spectrally Resolved Reflective And Transmissive Haze Of Transparent Conducting Oxide (TCO) Films For PV Application

Table 6 New Action Items

None

Table 7 Previous Meeting Action Items

None

1 Welcome, Reminders, and Introductions

Hugh Gotts called the meeting to order at 11:00 AM. 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 TC Chapter reviewed the minutes of the previous meeting.

Motion: Accept the minutes as written

By / 2nd: Ron Sinton/Peter Wagner

Discussion: None

Vote: 3-0

3 Liaison Reports

3.1 PV Materials Europe TC Chapter

Peter Wagner reported for the Europe TC Chapter. Of note:

- Doc 5889, New Standard: Test Method On Cell Level For Potential-Induced Degradation Susceptibility Of Solar Cells And Module Encapsulation Materials – Passed with editorial changes

Attachment: 01, EU liaison report 20160712

3.2 PV and PV Materials Joint Japan TC Chapters

Chie Yanagisawa reported for the Japan TC Chapter.

Attachment: 02, 160630_LiaisonReport_JA_PV&PVM_v1.0

3.3 PV Taiwan TC Chapter

Kevin Nguyen reported for the Taiwan TC Chapter. Of note:

- Doc #5598, New Standard: Test Method for Durability of Low Light Intensity Organic Photovoltaic (OPV) and Dye Sensitized Solar Cell (DSSC) will be reviewed at the next meeting.
- SNARF for 2 weeks review “New Standard: Test Method for Polymer Foil dependent Discoloration of Silver Fingers on PV modules”

Attachment: 03, Taiwan PV Standard Committee Liaison Report July 2016

3.4 PV China TC Chapter

Kevin Nguyen reported for the China TC Chapter. Of note:

- 2 new SNARFs:
 - PV Module TF: Doc 5982, New Standard: Specification for Crystalline Silicon Photovoltaic Module Dimensions
 - PV Diffusion Furnace Test Methods TF: Doc 5983, New Standard: Test Method for In-line Sheet Resistance Inspection
- 3 ballots failed committee review, and return to TF, TF planning to merge the 3 SNARFs to one in next chapter meeting
 - PV Module TF: Doc 5768, New Standard: Specification for Testing Requirements of Electroluminescence Defect Detection System for Crystalline Silicon PV Modules
 - PV Module TF: Doc 5773, New Standard: Test Method for Cell Defects in Crystalline Silicon PV Modules by Using Electroluminescence
 - PV Module TF: Doc 5830, New Standard: Classification for Electroluminescence Inspection of Crystalline Silicon Photovoltaic Modules
- 1 ballot passed committee review:
 - PV Silicon Wafer TF: Doc 5927, Revision of SEMI PV22-1011, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells
- Authorized 2 ballots in Cycle 4- 2016
 - Doc 5841, New Standard: Guide for Specifying Low Pressure Horizontal Diffusion Furnace
 - Doc 5842, New Standard: Test Method for Metal-Wrap-Through Solar Cell Via Resistance
- 2 new standards published:
 - SEMI PV 73-0216, Test Method for Thin-film Silicon PV Modules Light Soaking
 - SEMI PV 74-0216, Test Method for the Measurement of Chlorine in Silicon by Ion Chromatography

Attachment: 04, China Photovoltaic Committee Chapter Liaison Report20160322

3.5 SEMI Staff Report

Kevin Nguyen (SEMI) gave the SEMI Staff Report. Of note:

- Next meetings
 - November 7-10, 2016
 - SEMI HQ in San Jose, California
 - April 3-6, 2017
 - SEMI HQ in San Jose, California
 - July 10-13, 2017

- San Francisco, California
- 2016 Critical Dates for SEMI Standards Ballots
 - Cycle 6
 - Ballot submission deadline: July 22
 - Voting opens: August 1
 - Voting closes: Sept 1
 - Cycle 7
 - Ballot submission deadline: Aug 17
 - Voting opens: August 31
 - Voting closes: Sept 30
 -
- SEMI Standards Publications
 - Total SEMI Standards in portfolio: 964
 - Includes 141 Inactive Standards

Attachment: 05, Staff Report June 2016 PV materials

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.

NOTE 2: 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 5960A, Revision of SEMI PV21-1011 Guide for Silane (SiH₄), Used in Photovoltaic Applications

4.1.1 It passed as balloted.

Attachment: 06, 5960A_Procedural Review

4.2 Document 5961A, Revision of SEMI PV24-1011 Guide for Ammonia (NH₃) in Cylinders, Used in Photovoltaic Applications.

4.2.1 It passed as balloted.

Attachment: 07, 5961A_Procedural Review

4.3 Document Doc. 5962A, Revision of SEMI PV26-1011 Guide for Hydrogen Selenide (H₂Se) in Cylinders, Used in Photovoltaic Applications

4.3.1 It passed as balloted.

Attachment: 08, 5962A_Procedural Review

5 Subcommittee and Task Force Reports

5.1 Int'l PV Analytical Test Methods, Metrology, and Inspection TF

Hugh Gotts reported for the Task Force. Of note:

- Old business



- o Working on Doc. 5959A, Revision of SEMI PV25-1011 Test Method for Simultaneously Measuring Oxygen, Carbon, Boron And Phosphorus in Solar Silicon Wafers and Feedstock by Secondary Ion Mass Spectrometry.

Motion: To submit doc. 5959A for cycle 6

By / 2nd: Ron Sinton/Peter Wager

Discussion: None

Vote: 3-0

- o
- New business
 - o Ron Sinton is resigning as co-chairman of the task force.
 - o Review of Table 1 in liquid and gaseous chemicals such as SEMI PV24-1011 to address/remove US units and review all items for appropriate units

Attachment: 09, 2016 Summer NA PV Standards Analytical TF agenda Rev 2

6 Old Business

None

7 New Business

7.1 Future meeting

Hugh Gotts addressed the committee on this topic of the decline in standards activities. He proposed that this committee be met once a year. After discussion, it appears that SEMICON West would be an ideal time for the committee to meet.

8 Next Meeting and Adjournment

The next meeting is scheduled for Wednesday, November 9, 2016 the NA Fall Standards meetings at SEMI HQ in San Jose, CA. See <http://www.semi.org/en/events> for the current list of meeting schedules.

Having no further business, a motion was made to adjourn. Adjournment was at 12:00 PM.

Respectfully submitted by:

Kevin Nguyen,
SEMI Standards Operations Manager
Phone: 408-943-7997
Email: knguyen@semi.org

Minutes approved by:

Hugh Gotts (Air Liquide)	<Date approved>
<Name> (<Company>), Co-chair	<Date approved>



Table 8 Index of Available Attachments#1

<i>Title</i>	<i>Title</i>
EU liaison report 20160712	5960A_Procedural Review
160630_LiaisonReport_JA_PV&PVM_v1.0	5961A_Procedural Review
Taiwan PV Standard Committee Liaison Report July 2016	5962A_Procedural Review
China Photovoltaic Committee Chapter Liaison Report20160322	2016 Summer NA PV Standards Analytical TF agenda Rev 2
Staff Report June 2016 PV materials	

#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.