



## PV Materials Europe TC Chapter Meeting Summary and Minutes

SEMICON Europa

Tuesday, Nov 13, 2018  
12:30 – 14:00 CEST

ICM Munich, Germany

### TC Chapter Announcements

Next TC Chapter Meeting

- 2019, location and date to be determined. Check [www.semi.org/en/standards](http://www.semi.org/en/standards) for the latest update.

### Table 1 Meeting Attendees

**Co-Chairs:** Christian Hagendorf (FhG-CSP) and Peter Wagner (Self)

**SEMI Staff:** Jim Jackman (SEMI HQ)

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Jacobs University	Bergholz	Werner	Self	Wagner	Peter
Fraunhofer CSP	Hagendorf	Christian	REC Solar Norway	Friestad	Kenneth

*Italic indicates remote participant*

### Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader</i>	<i>New Leader</i>
None		

### Table 3 Committee Structure Changes

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

### Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6416	Reapproval of SEMI PV32-0312 Specification for Marking of PV Silicon Brick Face and PV Wafer Edge	Passed as balloted
6417	Reapproval of SEMI PV34-0213 Practice for Assigning Identification Numbers to PV Si Brick, Wafer and Solar Cell Manufacturers	Passed as balloted
6418	Reapproval of SEMI PV39-0513 Test Method for In Line Measurement of Cracks in PV Silicon Wafers by Dark Field Infrared Imaging	Passed as balloted
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	Passed as balloted
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 Probes	Passed as balloted

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6421	Reapproval of SEMI PV46-0613 Test Method for In Line Measurement of Lateral Dimensional Characteristics of Square and Pseudo Square PV Silicon Wafers	Passed as balloted
6422	Reapproval of SEMI PV48-0613 Specification for Orientation Fiducial Marks for PV Silicon Wafers	Passed as balloted
6426	Reapproval of SEMI PV17-1012 Specification for Virgin Silicon Feedstock Materials for Photovoltaic Applications	Passed as balloted

#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>
None			

**Table 6 Authorized Activities**

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
None			

NOTE 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**

<i>#</i>	<i>When</i>	<i>SC/TF/WG</i>	<i>Details</i>
None			

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

<i>#</i>	<i>TF</i>	<i>Title</i>	<i>Expiration Date</i>
None			

**Table 9 Table 10 SNARF(s) Abolished**

<i>#</i>	<i>TF</i>	<i>Title</i>
None		

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

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

**Table 11 New Action Items**

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
Nov13-2018-1	Christian Hagedorf	To look for the hosting location for the next EU PV Materials meeting
Nov13-2018-2	James Amano	To bring up issue of similar PV SNARFs coming out of China with other regions

**Table 12 Previous Meeting Action Items**

<i>Item #</i>	<i>Details</i>	<i>Status</i>
June212018-1	Peter Wagner to contact the Chinese TC regarding the 5-year re-approval of PV29, 32, 34, 39, 40, 41, 46, 48	Completed
June212018-2	John Håkedal will prepare draft document for 5-year re-approval of PV17	Completed

## 1 Welcome, Reminders, and Introductions

Peter Wagner called the meeting to order at 12:30 PM. 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

2.1 The TC Chapter reviewed the minutes of the previous meeting.

**Motion:** Accept the minutes as written  
**By / 2<sup>nd</sup>:** Peter Wagner/Werner Bergholz  
**Discussion:** None  
**Vote:** 3-0

## 3 Liaison Reports

### 3.1 *PV Materials NA TC Chapter*

3.1.1 Peter Wagner reported for the NA TC Chapter.

**Attachment:** **01, PVMaterials NA TC Chapter Liaison Report July 2018**

### 3.2 *PV and PV Materials Joint Japan TC Chapters*

3.2.1 Peter Wagner reported for the Japan TC Chapter.

**Attachment:** **02, 181115a\_LiaisonReport\_JA\_PV&PVM\_v1.0**

### 3.3 *PV Taiwan TC Chapter*

3.3.1 Peter Wagner reported for the Taiwan TC Chapter.

**Attachment:** **03, PV TW Liaison Report\_20180912**

### 3.4 *PV China TC Chapter*

3.4.1 Peter Wagner reported for the China TC Chapter.

Discussion: There is a concern on similar SNARFS coming out of China with Europe. Werner Bergholz expressed the need for synchronization among task forces within PV committee to avoid duplicated effort.

Action Item # 2 – James Amano to bring up this issue at the next ISC meeting.

**Attachment:** **04, China PV&PVM Committee Chapter Liaison Report November 2018**

### 3.5 SEMI Staff Report

3.5.1 Jim Jackman (SEMI) gave the SEMI Staff Report.

**Attachment: 05, Staff Report Nov 2018\_SA rev1**

## 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 Doc. 6416, Reapproval of SEMI PV32-0312 Specification for Marking of PV Silicon Brick Face and PV Wafer Edge*

4.1.1 It passed as balloted

*4.2 Doc. 6417, Reapproval of SEMI PV34-0213 Practice for Assigning Identification Numbers to PV Si Brick, Wafer and Solar Cell Manufacturers*

4.2.1 It passed as balloted

*4.3 Doc. 6418, Reapproval of SEMI PV39-0513 Test Method for In Line Measurement of Cracks in PV Silicon Wafers by Dark Field Infrared Imaging*

4.3.1 It passed as balloted

*4.4 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*

4.4.1 It passed as balloted

*4.5 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 Probes*

4.5.1 It passed as balloted

*4.6 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*

4.6.1 It passed as balloted

*4.7 Doc. 6422, Reapproval of SEMI PV48 0613 Specification for Orientation Fiducial Marks for PV Silicon Wafers*

4.7.1 It passed as balloted

*4.8 Doc. 6426, Reapproval of SEMI PV17-1012 Specification for Virgin Silicon Feedstock Materials for Photovoltaic Applications*

4.8.1 It passed as balloted

**Attachment: 06, A&R EU Materials Nov 2018.zip**

## 5 Subcommittee and Task Force Reports

### 5.1 PV Materials Degradation TF

5.1.1 Christian Hagendorf reported doc. 6373, New Standard: Test Method for Silicon PV Materials for Light-Induced Degradation (LID), is still active. The TF hopes to issue ballot for next year.

**Attachment: 07, PVMatDegTF Meeting Minutes 181113**

### 5.2 PV Si Materials TF

5.2.1 Peter Wagner reported. All 5 year reapproval ballots passed.

**Attachment: 08, PVSIMat Meeting Minutes 181113**

## 6 Old Business

6.1 None

## 7 New Business

7.1 None

## 8 Next Meeting and Adjournment

8.1 The next meeting is tentatively scheduled in June, 2019. Action Item # 2 - Christian Hagendorf is looking for a hosted location. Details be determined in January 2019. 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 14:00.

Respectfully submitted by:

Jim Jackman,  
Email: [jjackman@semi.org](mailto:jjackman@semi.org)

Minutes approved by:

Christian Hagendorf (FhG-CSP)	December 4, 2018
Peter Wagner (Self)	December 4, 2018

**Table 13 Index of Available Attachments<sup>#1</sup>**

<i>Title</i>	<i>Title</i>
PVMaterials NA TC Chapter Liaison Report July 2018	Staff Report Nov 2018_SA rev1
181115a_LiaisonReport_JA_PV&PVM_v1.0	A&R EU Materials Nov 2018.zip
PV TW Liaison Report_20180912	PVMatDegTF Meeting Minutes 181113
China PV&PVM Committee Chapter Liaison Report November 2018	PVSIMat Meeting Minutes 181113

<sup>#1</sup> 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](http://www.semi.org). For additional information or to obtain individual attachments, please contact [SEMI Staff Name] at the contact information above.