Facilities & Gases North America Joint TC Chapter

Meeting Summary and Minutes

SEMICON West 2018 Standards Meetings
Tuesday, July 10, 09:00 – 12:00 Noon
Marriott Marquis Hotel, San Francisco, California

TC Chapter Announcements

Next TC Chapter Meeting

NA Standards Fall 2018 Meetings
Tuesday, November 6, 09:00 – 12:00 Noon
SEMI Headquarters, Milpitas, California

Table 1 Meeting Attendees

*Italics* indicate virtual participants

**Facilities Co-Chairs**: Steve Lewis (BW Design Group)
**Gases Co-Chairs**: Mohamed Saleem (Brooks Instrument)

**SEMI Staff**: Laura Nguyen

<table>
<thead>
<tr>
<th>Company</th>
<th>Last</th>
<th>First</th>
<th>Company</th>
<th>Last</th>
<th>First</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Pressure (AP) Technology</td>
<td>Kiikvee</td>
<td>Bill</td>
<td>Hitachi High-Technologies</td>
<td>Enami</td>
<td>Hiromichi</td>
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<tr>
<td>Applied Materials</td>
<td>Mohammed</td>
<td>Bala</td>
<td>Kokusai Electric Corporation</td>
<td>Matsuda</td>
<td>Mitsuhiro</td>
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<tr>
<td>BriskHeat</td>
<td>Colquhoun</td>
<td>David</td>
<td>Mtech</td>
<td>Sanders</td>
<td>Chris</td>
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<td>Brooks Instrument</td>
<td>Saleem</td>
<td>Mohamed</td>
<td>Mott Corporation</td>
<td>Chrysosferidis</td>
<td>Michael</td>
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<td>Brooks Instrument</td>
<td>Findleton</td>
<td>Kevin</td>
<td>Mott Corporation</td>
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<td>Kenneth</td>
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<td>Brooks Instrument</td>
<td>Nagarajan</td>
<td>Arun</td>
<td>Parker Hannifin</td>
<td>Lis</td>
<td>Joseph</td>
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<tr>
<td>BW Design Group</td>
<td>Lewis</td>
<td>Steve</td>
<td>Samsung</td>
<td>Na</td>
<td>Hyeokjoo</td>
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<tr>
<td>CBRE</td>
<td>Sanders</td>
<td>Chris</td>
<td>Swagelok</td>
<td>Shutler</td>
<td>Rob</td>
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<tr>
<td>CONSCI</td>
<td>Geiger</td>
<td>William</td>
<td>TEL</td>
<td>Mashiro</td>
<td>Supika</td>
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<tr>
<td>Daido Steel</td>
<td>Matsuda</td>
<td>Mitsuhiro</td>
<td>Ultra Clean Technology (UCT)</td>
<td>Chen</td>
<td>Yanli</td>
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<tr>
<td>Daido Steel</td>
<td>Yoshida</td>
<td>Yutaka</td>
<td>WIKA Instruments</td>
<td>Christian</td>
<td>Jeff</td>
</tr>
<tr>
<td>Entegris</td>
<td>Lobert</td>
<td>Jurgen</td>
<td>SEMI Japan</td>
<td>Iwamura</td>
<td>Mizue</td>
</tr>
<tr>
<td>Fujikin of America</td>
<td>Kitano</td>
<td>Erica</td>
<td>SEMI</td>
<td>Nguyen</td>
<td>Laura</td>
</tr>
</tbody>
</table>

Table 2 Leadership Changes

None

Table 3 Committee Structure Changes

None
## Table 4 Ballot Results

<table>
<thead>
<tr>
<th>Document #</th>
<th>Document Title</th>
<th>Committee Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td></td>
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<tr>
<td>None.</td>
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<td></td>
</tr>
<tr>
<td>Gases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R6341</td>
<td>Revision to SEMI F55-0600 (Reapproved 0412), Test Method for Determining the</td>
<td>Passed, A&amp;R Cycle 7-2018</td>
</tr>
<tr>
<td></td>
<td>Corrosion Resistance of Mass Flow Controllers</td>
<td></td>
</tr>
<tr>
<td>6290A</td>
<td>New Standard, Test Method for the Determination of Hydrocarbons Present on Wetted Surfaces of Ultra High Purity Chemical Delivery Systems and Components</td>
<td>Failed</td>
</tr>
<tr>
<td>6291A</td>
<td>New Standard, Test Method for the Determination of Metallic Elements Present on Wetted Surfaces of Ultra High Purity Chemical Delivery Systems and Components</td>
<td>Failed</td>
</tr>
<tr>
<td>6339A</td>
<td>Replacement of Semi C6.2: Particle Specification for Grade 20/0.02 Oxygen Delivered as Pipeline Gas, SEMI C6.3: Particle Specification for Grade 20/0.2 Hydrogen (H2) Delivered as Pipeline Gas, SEMI C6.4: Particle Specification for Grade 20/0.02 Nitrogen (N2) and Argon (Ar) Delivered as Pipeline Gas, SEMI C6.5: Particle Specification for Grade 10/0.2 Nitrogen (N2) and Argon (Ar) Delivered as Pipeline Gas, and SEMI C6.6: Particle Specification for Grade 10/0.1 Nitrogen (N2) and Argon (Ar) Delivered as Pipeline Gas, and SEMI C6.7: Particle Specification for Grade 10/0.2 Nitrogen in High Pressure Gas Cylinders, into one single document as a New Standard, Specification for Determination of Particle Levels of Gases Delivered as Pipeline Gas or by Pressurized Gas Cylinders</td>
<td>Passed, with editorial changes</td>
</tr>
<tr>
<td>6391</td>
<td>Reapproval of SEMI F101-1105 (Reapproved 1111)E, Test Method for Determining Pressure Regulator Performance in Gas Distribution Systems</td>
<td>Passed, as balloted.</td>
</tr>
</tbody>
</table>

#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

None.

## Table 6 Authorized Activities

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

<table>
<thead>
<tr>
<th>#</th>
<th>Type</th>
<th>SC/TF/WG</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>None.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6413</td>
<td>SNARF</td>
<td>NA Gases Committee</td>
<td>Reapproval of SEMI C3.20-0414, Specification for Helium (He), in Cylinders, 99.9995% — Authorized new SNARF</td>
</tr>
<tr>
<td>6414</td>
<td>SNARF</td>
<td>NA Gases Committee</td>
<td>Reapproval of SEMI C3.24-0414, Specification for Sulfur Hexafluoride (SF6) in Cylinders, 99.97% Quality — Authorized new SNARF</td>
</tr>
</tbody>
</table>
### Table 6 Authorized Activities

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

<table>
<thead>
<tr>
<th>#</th>
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<th>Details</th>
</tr>
</thead>
</table>
| 6415| SNARF      | NA Gases Committee| Reapproval of SEMI F112-0613, Test Method for Determination of Moisture Dry-Down Characteristics of Surface-Mounted and Conventional Gas Delivery Systems by Cavity Ring Down Spectroscopy (CRDS)  
– Authorized new SNARF                                                                 |
| TBD | SNARF      | Filters & Purifiers TF | SEMI F38-0699 (Reapproved 0611), Test Method for Efficiency Qualification of Point-of-Use Gas Filters  
– Authorized to send out new SNARF for Two-Week TC Member Review following TC Chapter Approval |
| 6441| SNARF      | Filters & Purifiers TF | Revision to add a New Subordinate Standard, Test Method for Determination of Particle Contribution of Gas Delivery System and its Components through Dynamic (Pulse) Testing, to SEMI F70-0611 (Reapproved 0517), Test Method for Determination of Particle Contribution of Gas Delivery System  
– Authorized to send out new SNARF for Two-Week TC Member Review following GCS approval |
| 6442| SNARF      | Mass Flow Controller TF | Revision to SEMI E68-0997 (Reapproved 0913), Test Method for Determining Warm-Up Time of Mass Flow Controllers  
– Authorized to send out new SNARF for Two-Week TC Member Review following GCS approval |
– Authorized to send out new SNARF for Two-Week TC Member Review following GCS approval |
– Authorized to send out new SNARF for Two-Week TC Member Review following GCS approval |

#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

<table>
<thead>
<tr>
<th>#</th>
<th>When</th>
<th>TF</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td>None.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gases</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6290B</td>
<td>Cycle 6 or 7-2018</td>
<td>Filters &amp; Purifiers TF</td>
<td>New Standard, Test Method for the Determination of Hydrocarbons Present on Wetted Surfaces of Ultra High Purity Gas Delivery Components and Plumbing Systems</td>
</tr>
<tr>
<td>6291B</td>
<td>Cycle 6 or 7-2018</td>
<td>Filters &amp; Purifiers TF</td>
<td>New Standard, Test Method for the Determination of Metallic Elements Present on Wetted Surfaces of Ultra High Purity Gas Delivery Components and Plumbing Systems</td>
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<tr>
<td>6413</td>
<td>Cycle 6-2018</td>
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<td>Reapproval of SEMI C3.20-0414, Specification for Helium (He), in Cylinders, 99.9995%</td>
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<td>6414</td>
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<td>Reapproval of SEMI C3.24-0414, Specification for Sulfur Hexafluoride (SF6) in Cylinders, 99.97% Quality</td>
</tr>
</tbody>
</table>
Table 8 SNARF(s) Granted a One-Year Extension
None.

Table 9 SNARF(s) Abolished

<table>
<thead>
<tr>
<th>#</th>
<th>TF</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>None.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gases</td>
</tr>
<tr>
<td></td>
<td>6110</td>
<td>Materials of Construction of Gas Delivery Systems TF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reapproval of SEMI F4-0211, Specification for Pneumatically Actuated Cylinder Valves</td>
</tr>
</tbody>
</table>

Reapproval ballot failed Committee review, no industry push, sent to Inactive Status

Table 10 Standard(s) to receive Inactive Status

<table>
<thead>
<tr>
<th>Standard Designation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td>None.</td>
</tr>
<tr>
<td>Gases</td>
<td>SEMI F4</td>
</tr>
</tbody>
</table>

Specification for Pneumatically Actuated Cylinder Valves

Table 11 New Action Items

<table>
<thead>
<tr>
<th>Item #</th>
<th>Assigned to</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018July#01</td>
<td>Jurgen Lobert</td>
<td>To put together feedback from test specialist for Doc 6291A.</td>
</tr>
<tr>
<td>2018July#02</td>
<td>Joyce Chen</td>
<td>Work offline with related parties to clarify Doc 6291A before reballot</td>
</tr>
</tbody>
</table>

Table 12 Previous Meeting Action Items

<table>
<thead>
<tr>
<th>Item #</th>
<th>Assigned to</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017July#02</td>
<td>Bala Mohammed</td>
<td>Bala Mohammed will send Matt information for someone that is familiar with this space that works with him at Applied Materials. Ongoing.</td>
</tr>
<tr>
<td>2017Nov#05</td>
<td>Laura Nguyen</td>
<td>To send TF SEMIViews access for SEMI F43, F59, F112 to review before ballot for reapproval ballot. Completed. Closed.</td>
</tr>
<tr>
<td>2018April#01</td>
<td>Steve Lewis, Laura Nguyen</td>
<td>Contact Steve and Laura Nguyen if interested in the SNARF on SEMI F1 from Japan Chapter. Closed.</td>
</tr>
<tr>
<td>2018April #02</td>
<td>Bill Kiikvee</td>
<td>To set up an offline meeting to discuss SEMI F32 with Mohamed, Matt, Bill; cc: Yanli Chen, Brian Sullivan. Ongoing.</td>
</tr>
</tbody>
</table>

1 Welcome, Reminders, and Introductions

Steve Lewis (BW Design Group) called the meeting to order at 09:00. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: SEMI Standards Required Elements_June2016
2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion: To accept the previous meeting minutes as written.
By / 2nd: Chris Sanders (Mtech) / Bala Mohammed (Applied Materials)
Discussion: None.
Vote: 20-0 in favor. Motion passed.
Attachment: [2018Spring] F&G NA Minutes FINAL

3 Liaison Reports

3.1 Gases & Liquid Chemicals Europe TC Chapter

There is no update since last meeting. The Gases & Liquid Chemicals Europe TC Chapter will be held in conjunction of SEMICON Europa 2018.

3.2 Facilities and Gases Japan TC Chapter

Mizue Iwamura (SEMI Japan) reported for the Japan TC Chapter. Of note:

Meeting Information
- Last meeting: Friday, June 29, 2018; SEMI Japan Standards Summer Meetings; SEMI Japan office
- Next meeting: Friday, November 30, 2018; SEMI Japan Standards Fall Meetings; SEMICON Japan

F&G Leadership
- Committee Co-chairs
  - Hiromichi Enami (Hitachi High Technologies), and Isao Suzuki (MKS Japan)

F&G Current Organization Chart of Japan TC Chapter [See attachment for Org Chart]

Gases

Committee Structure Changes
- Live Gas Flow Rate TF was discharged.

Five-Year Review
- SEMI F89-1012, Specification for Dimension of Compact Size Mass Flow Controllers and Mass Flow Meters for 1.5 Inch Type Surface Mount Gas Distribution Systems

Facilities

Ballot Results

<table>
<thead>
<tr>
<th>Doc #</th>
<th>Document Title</th>
<th>TC Chapter Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6321</td>
<td>Reapproval of SEMI F45-0307, Specification for Machined Stainless Steel Reducing Weld Fittings</td>
<td>Passed, as balloted</td>
</tr>
<tr>
<td>6322</td>
<td>Reapproval to SEMI F44-0307, Specification for Machined Stainless Steel Weld Fittings of Machined Stainless Steel Weld Fittings</td>
<td>Passed, as balloted</td>
</tr>
<tr>
<td>6323</td>
<td>Reinstatement of SEMI F1-0812 Specification for Leak Integrity of High-Purity Gas Piping Systems and Components</td>
<td>Failed, returned to the TF for rework</td>
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</tbody>
</table>

Authorized Activities

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<tr>
<th>Doc #</th>
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<th>Document Title/Details</th>
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<tbody>
<tr>
<td>6395</td>
<td>SNARF</td>
<td>F1 Revision TF</td>
<td>Revision to SEMI F1-0812, Specification for Leak Integrity of High Purity Gas Piping Systems and Components – Authorized new SNARF</td>
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Authorized Ballots

<table>
<thead>
<tr>
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<th>When</th>
<th>TF</th>
<th>Document Title/Details</th>
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<tr>
<td>6395</td>
<td>Cycle7-18</td>
<td>F1 Revision TF</td>
<td>Revision to SEMI F1-0812, Specification for Leak Integrity of High Purity Gas Piping Systems and Components</td>
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</tbody>
</table>

Task Force Highlights

- F1 Revision TF
  - 6323: Reinstatement of SEMI F1-0812, Specification for Leak Integrity of High-Purity Gas Piping Systems and Components
    - SNARF was approved at Facilities Japan TC Chapter meeting on December 12, 2017.
    - Ballot was submitted for Cycle 2-2018 and failed at Facilities Japan TC Chapter meeting on April 24, 2018.
  - 6395: Revision to SEMI F1-0812, Specification for Leak Integrity of High Purity Gas Piping Systems and Components
    - SNARF was approved at Facilities Japan TC Chapter meeting on April 24, 2018.
    - Ballot will be submitted for Cycle 7-2018

- 5-year-review TF
  - 6321: Reapproval of SEMI F45-0307, Specification for Machined Stainless Steel Reducing Weld
    - SNARF was approved at Facilities Japan TC Chapter meeting on December 12, 2017.
    - Ballot was submitted for Cycle 2-2018 and passed at Facilities Japan TC Chapter meeting on April 24, 2018.
    - Passed A&R in May 2018
  - 6322: Reapproval to SEMI F44-0307, Specification for Machined Stainless Steel Weld Fittings of Machined Stainless Steel Weld Fittings
    - SNARF was approved at Facilities Japan TC Chapter meeting on December 12, 2017.
    - Ballot was submitted for Cycle 2-2018 and passed at Facilities Japan TC Chapter meeting on April 24, 2018.
    - Passed A&R in May 2018

Five-Year Review

<table>
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<tr>
<th>Designation</th>
<th>Standard Title</th>
<th>Action By</th>
<th>Assigned to</th>
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<tbody>
<tr>
<td>SEMI F102-0306 (Reapproved 0513)</td>
<td>Guide for Selecting Specifications for Dimension of Components for Surface Mount Gas Distribution Systems</td>
<td>2018</td>
<td>-</td>
</tr>
</tbody>
</table>

Staff Contact: Mizue Iwamura, miwamura@semi.org

Attachment: 180629_JA_G+F_LiaisonR_v1.0

3.3 Facilities Korea TC Chapter

There is no update for this TC Chapter at this time.
3.4 SEMI Staff Report
Laura Nguyen (SEMI) gave the SEMI Staff Report. Of note:

SEMI Global 2018 Calendar of Events
- SEMICON West (July 10-12; San Francisco, California)
- SEMICON Taiwan (September 5-7; Taipei, Taiwan)
- SEMICON Europa (November 13-16; Munich, Germany)
- SEMICON Japan (December 12-14; Tokyo, Japan)

Upcoming North America Standards Meetings
- NA Standards Fall 2018 Meetings (November 5-8, 2018, SEMI HQ in Milpitas, California)
- NA Standards Spring 2019 Meetings (April 1-4, 2019, SEMI HQ in Milpitas, California)
- SEMICON West 2019 (July 8-11, 2019, San Francisco, California)

Letter Ballot Critical Dates for 2018
- Cycle 6-2018: ballot submission due: July 20/Voting Period: August 1 – August 31
- Cycle 7-2018: ballot submission due: August 22/Voting Period: September 5 – October 5
- Cycle 8-2018: ballot submission due: October 12/Voting Period: October 26 – November 26
- Cycle 9-2018: ballot submission due: November 14/Voting Period: November 28 – December 28


Standards Publications Report

<table>
<thead>
<tr>
<th>Cycle</th>
<th>New</th>
<th>Revised</th>
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<th>Withdrawn</th>
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<tr>
<td>April 2018</td>
<td>0</td>
<td>9</td>
<td>2</td>
<td>0</td>
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<tr>
<td>May 2018</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>June 2018</td>
<td>2</td>
<td>14</td>
<td>11</td>
<td>0</td>
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Total in portfolio – 987 (includes 236 Inactive Standards) [See attachment for details]

New Standards

<table>
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<tr>
<th>Cycle</th>
<th>Designation</th>
<th>Title</th>
<th>Committee</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2018</td>
<td>SEMI C96</td>
<td>Test Method for Determining Density of Chemical Mechanical Polish (CMP) Slurries</td>
<td>Liquid Chemicals</td>
<td>NA</td>
</tr>
<tr>
<td>June 2018</td>
<td>SEMI D77</td>
<td>Test Method for Measurements of Dimension of Films for FPD – Contour Matching Method</td>
<td>Flat Panel Display</td>
<td>JA</td>
</tr>
</tbody>
</table>

New Forms, Regulations & Procedure Manual
- New version of Regulations (June 8, 2018)
- New version of Procedure Manual (June 8, 2018)
- New TFOF & SNARF forms
- New Ballot Review Templates
- www.semi.org/standards
  - Bottom left, under Resources

Regulations & Procedure Manual Changes
- Improvements on Rules for Handling of Patented Technology (Regulations § § 16.1-16.3)
  - Patented Technology that might be material to the Standard is disclosed at the end stage of document development
• Disclosed after the ballot is issued
• Assessment for potential materiality and technical justifiability for inclusion shall be postponed to the next scheduled meeting.

• A TF sometimes decides to use patented technology after it has started the document development project.
  o To require subsequent update of SNARF regarding use of Patented Technology and subsequent LOI process to ensure that TC Chapter agrees to the course of action recommended by the TF.

• Improvements on Rules for Handling of Copyright and Trademark (Regulations § 16.4)
  o Improvement on handling copyright process
  o New process for handling trademarks

• Additional Official Virtual TC Chapter Meeting Related Rules (Regulations ¶ 7.4.2 and § 9.5)
  o Loss of necessary infrastructure at the meeting location described in the Background Statement of the Letter Ballot
    ▪ The necessary infrastructure (e.g., electrical power, internet connection, required software applications)
  o Procedure for Transition of Virtual Meeting (PM 4.3.6)
    ▪ GTC Decision for Whether or Not to Adopt the Official Virtual TC Chapter Meeting

• Clarification on the Use of Editorial Changes a Standard or Safety Guideline (Regs § 8.9.5)
  o Two types, made independently from a Letter Ballot.
  o Both requires TC approval and subsequent A&R approval.
  o Type 1:
    ▪ minor changes (i.e., corrections of obvious misspelling, formatting changes to comply with the Style Manual; corrections of capitalization, the use of italics, incorrect spacing);
  o Type 2:
    ▪ those that introduce no change in technical content (e.g., changes to nontechnical information; insubstantial changes to existing Supplementary Materials; changes that reduce ambiguity; changes to eliminate an obvious technical content inconsistency; or adding/deleting/changing Notes or footnotes).

• Clarification on SNARF Revision vs. New SNARF (PM 2.2.6)
  o The SNARF should be revised if the Draft Document deviates technically from the scope described in the SNARF or changes in the ‘Intellectual Property Considerations’ section
  o New SNARF is required
    ▪ expected result of activity changes from Line Item revision(s) to a major revision, or
    ▪ scope change beyond modification of existing scope items (i.e., deleting existing or adding new scope items),
    ▪ change of ballot type (e.g., reapproval to revision or vice versa), or
    ▪ introduction of new Line Item(s)

Gases Nonconforming Titles (See PM Appendix 4) [None for Facilities]

• SEMI C71-0815, Specification and Guide for Boron Trichloride (BCI3)

Facilities & Gases Five-Year Review [See attachment for full list]

In progress/Needs action

Facilities
• SEMI E51, Guide for Typical Facilities Services and Termination Matrix
  o Abolished SNARF Fall 2017 - Reapproval ballot failed Committee review, new SNARF needs to be issued to reflect change in scope
• SEMI F47, Specification for Semiconductor Processing Equipment Voltage Sag Immunity
  o Failed committee review: Spring 2018
• Materials of Construction of Gas Delivery Systems TF
  o SEMI F4-0211, Specification for Pneumatically Actuated Cylinder Valves
• Filter & Purifiers TF
  o SEMI F38, Test Method for Efficiency Qualification of Point-of-Use Gas Filters
    ▪ Abolished SNARF Fall 2017 - Reappraisal ballot failed Committee review, new SNARF needs to be issued to reflect change in scope
• Mass Flow Controller TF
  o SEMI F64, Test Method for Determining Pressure Effects on Indicated and Actual Flow for Mass Flow Controllers
    ▪ Reappraisal Ballot, Publication pending
    ▪ Task Force agreed to address Accept with Comment in future Line Item Ballot
• Heater Jacket TF
  o SEMI F109-0212, Guide for Heater Systems Requirements
    ▪ Abolished Spring 2018; issue new SNARF to incorporate major revision (title cannot have Guide and Requirements)

SNARF 3 Year Status, TC Chapter may grant a one-year extension {None}

Attachment: [2018West] Staff Report F&G

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 Facilities

None.

4.2 Gases

4.2.1 Document # R6341, Revision to SEMI F55-0600 (Reapproved 0412), Test Method for Determining the Corrosion Resistance of Mass Flow Controllers

• The ballot passed TC Chapter review with technical changes during Spring 2018 Meetings. A Ratification Ballot was issued in Cycle 4, 2018. R6341 reached an acceptance rate of at least 30% and was forwarded to A&R for Procedural Review. There was one valid disapprove vote that total to be less than 10% of the total number of Voting Interest. The details of the disapprove vote will be later addressed at the next time the documents ballots or during the next 5-Year Review, whichever comes first. The ISC A&R SC approved R6341 for publications in the July 2018 A&R Cycle. See attachment for details.

Attachment: R6341_ProceduralReview_pass

4.2.2 Document # 6290A, New Standard, Test Method for the Determination of Hydrocarbons Present on Wetted Surfaces of Ultra High Purity Chemical Delivery Systems and Components

• The committee found the negatives related and technically persuasive. The ballot failed and returned to the task force for re-work and re-ballot in the next cycle if ready.

Motion: To fail Doc 6290A based on negative from Dan Cowles (Air Liquide).
By / 2nd: Bala Mohammed (Applied Materials) / Chris Sanders (Mtech)
Discussion: The TF acknowledges abstain comment TEL-1 and will incorporate in next revision.
Vote: 19-0 in favor. Motion passed.
Motion: To authorize Doc 6290B to ballot in voting Cycle 7-2018.
By / 2nd: Kevin Findleton (Brooks Instrument) / Chris Sanders (Mtech)
Discussion: None.
Vote: 19-0 in favor. Motion passed.
Attachment: [Ballot Results] Cycle 05-2018 Gases FP

4.2.3 Document # 6291A, New Standard, Test Method for the Determination of Metallic Elements Present on Wetted Surfaces of Ultra High Purity Chemical Delivery Systems and Components

- The committee found the negatives related and technically persuasive. The ballot failed and returned to the task force for re-work and re-ballot in the next cycle if ready.

Motion: To fail Doc 6291A based on negative from Jurgen Lobert (Entegris).
By / 2nd: Jurgen Lobert (Entegris) / Bala Mohammed (Applied Materials)
Discussion: The TF acknowledges abstain comment TEL-1 and will incorporate in next revision.
Vote: 18-1 in favor. Motion passed.

Motion: To authorize Doc 6291B to ballot in voting Cycle 7-2018.
By / 2nd: Kevin Findleton (Brooks Instrument) / Chris Sanders (Mtech)
Discussion: None.
Vote: 18-0 in favor. Motion passed.

Action Item: 2018July#01, Jurgen Lobert to get feedback from test specialist.
Action Item: 2018July#02, Joyce Chen to work offline with related parties to clarify document.
Attachment: [Ballot Results] Cycle 05-2018 Gases FP

4.2.4 Document # 6339A, Replacement of SEMI C6.2-C6.7 into one single document as a New Standard, Specification for Determination of Particle Levels of Gases Delivered as Pipeline Gas or by Pressurized Gas Cylinders

- The ballot passed TC Chapter review with editorial changes. See attachment for ballot adjudication.

Attachment: 6339A_ProceduralReview

4.2.5 Document # 6340A, Revision to SEMI F53-0600 (Reapproved 0412), Test Method for Evaluating the Electromagnetic Susceptibility of Thermal Mass Flow Controllers, with title change to Test Method for Evaluating the Electromagnetic Susceptibility of Mass Flow Controllers

- The committee found the negatives related and technically persuasive. The ballot failed and returned to the task force for re-work and re-ballot in the next cycle if ready.

Motion: To fail Doc 6340A based on negative TEL-1.
By / 2nd: Bala Mohammed (Applied Materials) / Kevin Findleton (Brooks Instrument)
Discussion: None.
Vote: 16-0 in favor. Motion passed.

Motion: To authorize Doc 6340B to ballot in voting Cycle 6-2018.
By / 2nd: Erica Kitano (Fujikin) / Kevin Findleton (Brooks Instrument)
Discussion: None.
Vote: 15-0 in favor. Motion passed.
Attachment: July 9 2018 MFC TF Meeting Summary
4.2.6 Document # 6391, Reapproval of SEMI F101-1105 (Reapproved 1111)E, Test Method for Determining Pressure Regulator Performance in Gas Distribution Systems

- The ballot passed TC Chapter review with as balloted. See attachment for ballot adjudication.

Attachment: 6391ProceduralReview

5 Subcommittee and Task Force Reports

5.1 Facilities

5.1.1 Power Grid Harmonics Task Force – Did not meet

5.1.2 SEMI F51 Revision Task Force – Did not meet

5.1.3 Building Information Modeling (BIM) for Semiconductor Capital Equipment Task Force – Did not meet

5.2 Gases

5.2.1 Materials of Construction of Gas Delivery Systems Task Force

Bill Kiikvee (AP Tech) reported for this task force. Of note:

Reviewed Prior Meeting and Activities [See attachment for embedded file]

Old Business

- Review the SNARF prepared for SEMI F32 [See attachment for embedded file]
  - Task Force must have meeting to discuss requirements. Some of the limitations is that customers want to determine Cv at higher temperatures, higher flows and IGS components.
- Review the SNARF prepared for SEMI F74 [See attachment for embedded file]
  - SNARF has previously been approved. Staff is waiting on ballot line item.
- Review ballot results Cycle 04-18 for Doc. 6391 SEMI F101 Regulator Performance [See attachment for embedded file]
  - SEMI F101 was clean document. No rejections. Document can move forward.

New Business

- 5 Year Review
  - Any other SEMI document due for 5 Year Review (?)
  - SEMI F72, Test Method for Auger Electron Spectroscopy (AES) Evaluation of Oxide Layer of Wetted Surfaces of Passivated 316L Stainless Steel Components

Action Item Review

- Open Action Items
  - SEMI F4 (Cylinder Valve) NOT sent out for review. No cylinder valve experts on the TF. TF thought it was best to send F4 to “inactive” specification. Motion was made and voted upon to make SEMI F4 an “inactive document”. TF members were NOT aware of any requirements for this Specification.
  - SEMI F32: Task Force to have virtual meetings set up. Discussed limitation with existing SEMI F32 for vacuum application and higher temperatures.
  - SEMI F72: Sending documents out for review to Labs. Labs to be contacted include Foothills Analytical, MTA, Evans and RJ Lee.

- New Action Items
  - SEMI F32 sending out to TF for input/proposals.
  - Making F4 inactive
Marking SEMI F74 for balloting
Auger/ESCA/SEM ballot review. SEMI F72 Foothills, MTA, RJ Lee and Evans

**Motion:** To send SEMI F4-0211, Specification for Pneumatically Actuated Cylinder Valves, to Inactive Status.

**By / 2nd:** Jeff Christian (WIKA) / Chris Sanders (Mtech)

**Discussion:** See above “Open Action Items”

**Vote:** 9-0 in favor. Motion passed.

**Motion:** To abolish SNARF 6110, Reapproval of SEMI F4-0211, Specification for Pneumatically Actuated Cylinder Valves.

**By / 2nd:** Jeff Christian (WIKA) / Joe Lis (Parker)

**Discussion:** See above “Open Action Items”

**Vote:** 8-0 in favor. Motion passed.

**Attachment:** Minutes_Materials_of_Construction_TF - SEMICON West Meeting 2018

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5.2.2 Filters and Purifiers Task Force

Mohamed Saleem (Brook Instrument) reported for this Task Force. Of note:

Reviewed previous meeting minutes

**Update the status of the Document 6212 to TF members**

- TF leaders show the new SNAF draft for the Document 6212 to the members.
- TF members voted and approved to submit the new SNAF to Gases committee to revise the Document 6212.
- TF leaders Joyce and Saleem will continue to work on this document including providing official response to the rejections and getting the document be ready for balloting.

**Review the Cycle 05-2018 balloting results for the Document 6290 and 6291 to TF members**

- There is one rejection from Dan Cowles from Air Liquide and one abstain comment from Supika Mashiro of TEL for Doc 6290.
- There was a discussion between the TF members regarding the negative and found out that this negative is persuasive and technical related because of the test method’s sensitivity limitation.
- TF members agreed to fail the Document 6290. Joyce will call for a following-up conference with Matt Milburn of UCT, Dan Cowles of Air Liquid, Bill Geiger of Consci and Bala Mohamed of AMAT to discuss how to improve this document.
- TF leaders shared the official response to all the TF members. It turns out that most of the negatives are persuasive and considered as technical changes.
- TF members voted and approved to fail this document.
- The document will go back to the author to implement all the changes and submit for the future balloting.
- There is one rejection from Jurgen Lobert of Entegris, one abstain comment from Supika Mashiro of TEL for Doc 6291.
- Jurgen suggested to use nitric acid to extract metal contaminant from the wetted surface.
- The author’s reply is as follows
  - To be clear, the test method is intended to remove contaminants that are “easily” extracted similarly to what would happen in use and not an absolute measurement of all the contaminants.
  - There was a discussion between the TF members regarding the negative and found out that this negative is related, but not persuasive. The comment is acceptable.
- TF members voted and approved to pass this document with a ratification balloting.
- The document will go back to the author to implement the changes and submit for the future ratification balloting.

**New Business**

- Saleem will send it out to TF members for reviewing. Laura will prepare a SNARF to reapprove F112.

**Motion:** To issue new SNARF for SEMI F38 and send out for two-week TC Member review, following GCS approval.
**By / 2nd:** Bill Kikvpee (AP Tech) / Kevin Findleton (Brooks Instrument)
**Discussion:** None.
**Vote:** 8-0 in favor. Motion passed.

**Motion:** To issue new SNARF for SEMI F70 and send out for two-week TC Member review, following GCS approval.
**By / 2nd:** Arun Nagarajan (Brooks Instrument) / Rob Shutler (Swagelok)
**Discussion:** None.
**Vote:** 11-0 in favor. Motion passed.

**Motion:** To approve Reapproval SNARF for SEMI F112 and authorize to ballot in Cycle 6-2018.
**By / 2nd:** Erica Kitano (Fujikin) / Jurgen Lobert (Entegris)
**Discussion:** None.
**Vote:** 9-0 in favor. Motion passed.

**Attachment:** Meeting Minutes_FP TF_7_9_2018

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**5.2.3 Mass Flow Controller Task Force**

Erica Kitano (Fujikin) reported for this task force. Of note:

Reviewed Ballot Results as mentioned in Section 4 [See attachment for embedded file]

**Due for Five Year Review**

There are two Documents that are due for 5-year review:


For SEMI E68 - Will issue SNARF (major revision) to comply to SEMI procedural manual (Clearly indicate Calculations and Report sections in the Document).

For SEMI E69 - Will issue SNARF (major revision) to comply to SEMI procedural manual (Clearly indicate Calculations and Report sections in the Document).

- Currently, the Document is written specifically for Thermal MFCs. Revise the Document such that it also becomes applicable to pressure-based MFCs.

**Motion:** To issue new SNARF for SEMI E68 and E69, send out for two-week TC Member review, following GCS approval.
**By / 2nd:** Kevin Findleton (Brooks Instrument) / Arun Nagarajan (Brooks Instrument)
**Discussion:** None.
**Vote:** 10-0 in favor. Motion passed.

**Attachment:** July 9 2018 MFC TF Meeting Summary
5.2.4 *Gases Specification Task Force*

Mohamed Saleem (Brooks Instrument) reported for this Task Force. Of note:

- The task force:
  - Reviewed Ballot 6339A - There were no rejects; Editorial comments only. TF reviewed and agreed with editorial comments.
  - Reviewed 5-year review documents, all due for Spring 2019. The task force decided to send out a couple for Reapproval ballot.

- No other action items

**Motion:** To approve Reapproval SNARF for SEMI C3.20 and C3.24, and authorize to ballot in Cycle 6-2018.

**By / 2nd:** Kevin Findleton (Brooks Instrument) / Jurgen Lobert (Entegris)

**Discussion:** None.

**Vote:** 12-0 in favor. Motion passed.

5.2.5 *Heater Jacket Task Force*

David Colquhoun (BriskHeat) reported for this Task Force. Of note:

- The above document replaces SEMI F109
- Sections of the combined document needs to comply with Style Manual, including title.
  - Laura to send template for the standard draft.
  - David to format the document and send it to the TF for review.
- Define proof temperature, fail temperature (25% below ultimate flame temperature)
- Discussed particle testing for heater jackets. It is not clear why particle test would require a separate standard. Particle measurement around heater jacket is not different from particle measurement around other areas in the tool and/or cleanrooms.

**Motion:** To issue new SNARF for SEMI F109; send out for two-week TC Member review, following GCS approval.

**By / 2nd:** David Colquhoun (BriskHeat) / Jurgen Lobert (Entegris)

**Discussion:** None.

**Vote:** 10-0 in favor. Motion passed.

6 *Old Business*

6.1 *Previous Action Items*

6.1.1 Previous action items are noted in Table 12 in ‘red’ and for recent updates in ‘blue’. There is no further old business.

7 *New Business*

7.1 *Facilities*

7.1.1 *Standards coming up for Five-Year Review.*

Steve Lewis (BW Design Group) addressed the committee on this topic. Of note, it was announced if anyone is interested in Facilities activities to please reach out to Steve Lewis at Steven.Lewis@BWDesignGroup.com.
7.2 Gases

7.2.1 SEMI F19

Rob Shutler (Swagelok) addressed the committee on this topic. It was noted that as new standards are coming out (i.e. SNARF 6290 and 6291), SEMI F19 should be considered for revision as well.

7.2.2 SEMI E49.6/E49.8

Mohamed Saleem (Brooks Instrument) addressed the committee on this topic. Of note:

- Task force leader from the Liquid Chemicals NA TC Chapter, Koh Murai, reached out to Mohamed Saleem about SEMI e49.6 and E49.8
  - These have not been reapproved for some time and need to be reviewed.
- Mohamed noted that this is something the Materials TF can take over.
  - Bill Kiikvee agreed with the help of Mohamed Saleem
  - SNARF to be issued at Fall meetings

8 Next Meeting and Adjournment

The next meeting is scheduled for Tuesday, November 6, at the NA Standards Fall 2018 Meetings located at SEMI Headquarters in Milpitas, California. See http://www.semi.org/standards-events for the current list of events.

Tentative Schedule:

Monday, November 5

Gases Task Force Meetings
09:00-10:00 Materials of Construction of Gas Delivery Systems (TF)
10:00-11:00 Filters and Purifiers (TF)
11:00-12:00 Mass Flow Controller (TF)
13:00-14:00 Gas Specification (TF)
14:00-15:00 Heater Jacket (TF)

Facilities Task Force Meetings
TBD Power Grid Harmonics (TF)
15:00-17:00 Building Information Modeling (BIM) for Semiconductor Capital Equipment (TF)

Tuesday, November 6

09:00-12:00 Facilities & Gases (C)

Adjournment: 10:46.

Respectfully submitted by:

Laura Nguyen
Coordinator, International Standards
SEMI Headquarters
Phone: 1.408.943.7019
Email: lnguyen@semi.org
Minutes tentatively approved by:

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<tr>
<td>Mohamed Saleem (Brooks Instrument), Gases Co-chair</td>
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#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 Laura Nguyen at the contact information above.