Liquid Chemicals North America TC Chapter

Meeting Summary and Minutes

NA Standards Fall Meetings 2021

Wednesday, October 6, 2021, 10:00 – 11:30 Pacific

via OVTCCM

**TC Chapter Announcements**

*Next TC Chapter Meeting*

SEMICON West Standards Meetings 2021

Tuesday, December 7, 2021, 14:00 – 17:00 Pacific

Hybrid

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Meeting Attendees  **Co-Chairs:** Steve Rogers (KMG Chemicals), Don E. Hadder (Intel), Koh Murai (Mega Fluid Systems), Laura Ledenbach (Evonik)  **SEMI Staff:** Laura Nguyen | | | | | |
| Company | Last | First | Company | Last | First |
| 3M | Entezarian | Majid | FTD Solutions, LLC | Marion | Bonnie |
| 3M | Nelson | Per | Georg Fischer Piping Systems | McIntosh | Bob |
| 3M | Tarantino | David | GlobalFoundries | Prettyman | Kevin |
| Air Liquide | Li | Fang | Intel | Gomez | Lewis |
| Air Liquide | Wang | Fei | Intel | Hadder | Don E. |
| Air Liquide Electronics | Pan | Maohua | Intel | Kerr | Paul |
| AMETEK | Gardner | Joseph R. | Intel | Tregub | Alexander |
| AMETEK | Ramos | Lola | KxS Technologies Oy | Kavalijer | Marcus |
| Asahi (America) | Stiles | David | Lanxess | Dinges | Bjoern |
| Bilfinger | Haas | Alexander | Lanxess | Liu | Zhendong |
| Camenzind Solutions | Camenzind | Mark | Mega Fluid Systems, Inc. | Kandiyeli | David |
| Chemours | McCall | Jenell | Mega Fluid Systems, Inc. | Murai | Koh |
| CT Associates, Inc. | Van Schooneveld | Gary | Mettler-Toledo Thornton Inc. | Cannon | Jim |
| Entegris | Leys | John | MGC Pure Chemicals America, Inc. | Hankins | Douglas |
| Entegris | Pendergast | Mary Theresa | Pall GmbH | Ruth | Jochen |
| Entegris | Thomas | Jikku | Saint-Gobain Performance Plastics | Domy | Stephane |
| Entegris | Tu | Jim | SUEZ | Dale | Chuck |
| Evonik | Ledenbach | Laura | SUEZ | Gebicke | Wolfgang |
| Evoqua Water Technologies | Blake-Collins | Brian | EMD Electronics | Ketkar | Suhas |
| Evoqua Water Technologies | Hunter | Alex |  |  |  |
| Evoqua Water Technologies | Knapp | Alan | SEMI | Nguyen | Laura |

| Leadership Changes | | |
| --- | --- | --- |
| None |  |  |

| Committee Structure Changes | |
| --- | --- |
| None |  |

| Ballot Results | | |
| --- | --- | --- |
| Document # | Document Title | Committee Action |
| 6714 | Line Item Revision to SEMI C93-0620, Guide for Determining the Quality of Ion Exchange Resin Used in Polish Applications of Ultrapure Water System |  |
| L1 | Editorial corrections. | **Passed**, as balloted |
| L2 | Removed references to laser particle counter (LPC) for static leach and grab samples and added optional LPC analysis for dynamic leach test. | **Passed**, as balloted |
| L3 | Updated all references to non-volatile residue monitoring (NVR/NRM) to optional. | **Passed**, as balloted |
| L4 | Updated reporting of grab sample data from µg/L to µg/g dry resin. | **Passed**, as balloted |
| L5 | Changed requirement of ISO Class 7 environment for test stand location to ISO Class 9. | **Passed**, as balloted |
| L6 | Clarification on background requirements and background subtraction. | **Passed**, as balloted |
| L7 | Added clarification that test column can be made from PFA. | **Passed**, as balloted |
| L8 | Clarified procedure for PSDA sample preparation. | **Passed**, as balloted |
| L9 | Removed reference of static leach with UPW. | **Passed**, as balloted |
| L10 | Added particle precursors to description of N-CPC. | **Passed**, as balloted |
| SEMI F40 | SEMI F40-0621, Practice For Preparing Liquid Chemical Distribution Components and Neat Polymers for Chemical Testing  (Editorial Change Type 2) | **Passed**, to be submitted to ISC A&R SC |

#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.

| Activities Approved by the GCS between meetings of the TC Chapter | | | |
| --- | --- | --- | --- |
| None |  |  |  |

| Authorized Activities | | | |
| --- | --- | --- | --- |
| Listing of all revised or new SNARF(s) approved by the Originating TC Chapter. | | | |
| None |  |  |  |

#1 SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

| Authorized Ballots | | | |
| --- | --- | --- | --- |
| # | When | TF | Details |
| 6729A | Cycle 8-2021 | High Purity Polymer Material & Components TF | Line Item Revision to SEMI F57-0120, Specification for Polymer Materials and Components Used in Ultrapure Water and Liquid Chemical Distribution Systems |
| 6748 | Cycle 8-2021 | Chemical Mechanical Planarization Consumables (CMP-C) TF | New Standard: Guide for Reporting Performance Parameters of the Polymer Windows for Chemical Mechanical Planarization (CMP) Pads used in Semiconductor Manufacturing |
| 6828 | Cycle 8-2021 | High Purity Liquid Assemblies & Systems TF | Line Item Revision to SEMI F31-0313, Guide for Bulk Chemical Distribution Systems |

| SNARF(s) Granted a One-Year Extension | | | |
| --- | --- | --- | --- |
| None |  |  |  |

| SNARF(s) Abolished | | |
| --- | --- | --- |
| None |  |  |

| Standard(s) to receive Inactive Status | |
| --- | --- |
| None |  |

| New Action Items | | |
| --- | --- | --- |
| Item # | Assigned to | Details |
|  |  |  |

| Previous Meeting Action Items | | |
| --- | --- | --- |
| Item # | Assigned to | Details |
| 2021Feb#01 | Laura Nguyen | Ask NA Gases to take over SEMI C64. Gases chair suggested to reach out to the Metrics committee, or send to Inactive Status. Metrics is unable to support this document. Closed. |
| 2019Nov#01 | Bob M. | Prepare SNARF for SEMI F48 by Spring 2020 meetings. Document is due for 5 year review. Ongoing. |
| 2019Nov#02 | Don H., Laura L. | Follow up with Tony S. on SEMI C10 revision/reapproval recommendation and SNARF if necessary, by Spring 2020 meetings. Document is due for 5 year review. Laura to check with James and reach out to Tony S. James is unable to get in contact with Tony S. Ongoing. |
| 2021June#01 | Laura N. | Follow-up with David/Don on SEMI C24 and SEMI C31. Completed. Closed. |
| 2021June#02 | Alex T. | Reach out to Paul Kerr about waste mgmt. group lead on slurry and chemical waste streams. Completed. Closed. |

1. Welcome, Reminders, and Introductions

Koh Murai (Mega Fluid Systems Inc.) called the meeting to order at 10:04. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

**Attachment**: SEMI Standards Required Meetings Elements (File name: Required Element Nov 2020 Rev1)

1. 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:** | By: Bob McIntosh / GF Piping Systems  Second: Paul Kerr / Intel Corporation |
| **Discussion:** | None. |
| **Vote:** | 16-0 in favor. Motion passed. |

**Attachment**: [2021Summer] LChem NA TC Chapter Meeting Minutes FINAL

1. Liaison Reports
   1. *Liquid Chemicals Europe TC Chapter*

* No update.
* Staff Contact: James Amano ([jamano@semi.org](mailto:jamano@semi.org))
  1. *Liquid Chemicals Japan TC Chapter*

Laura Nguyen (SEMI) reported for the Liquid Chemicals Japan TC Chapter. Of note:

Meeting Information

* Last meeting
  + June 18, 2021
    - SEMI Japan, Tokyo, Japan
    - Official Virtual TC Chapter Meeting
* Next meeting
  + December 3, 2021
    - SEMI Japan, Tokyo, Japan
    - Official Virtual TC Chapter Meeting

Current Structure of Japan TC Chapter *{See attachment for Org Chart}*

* New Committee co-chair: Fujitani Yoshiyuki (SCREEN)

Authorized Activities

* New SNARF Approval
  + Doc. 6820 New Standard: Guide for Trace Iron Analysis in High Purity IPA

Staff Contact: Keigo Nakajima ([knakajima@semi.org](mailto:knakajima@semi.org))

**Attachment:** JA\_LC\_Liaison\_10052021\_v2

* 1. *SEMI Staff* *Report*

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

SEMI Global Calendar of Events

* SEMICON Europa (November 16-19; Munich, Germany)
* SEMICON West (December 7-9; San Francisco, CA/USA)
* SEMICON Japan (December 15-17; Tokyo, Japan)
* SEMICON Taiwan (December 28-30; Taipei, Taiwan)

Critical Dates for SEMI Standards Ballots

* Cycle 7-2021: Ballot Submission Due: Sept 1/Voting Period: Sept 15 – Oct 15
* Cycle 8-2021: Ballot Submission Due: Oct 8/Voting Period: Oct 22 – Nov 22
* Cycle 9-2021: Ballot Submission Due: Nov 16/Voting Period: Nov 30 – Dec 30

Critical Dates: <http://www.semi.org/en/Standards/Ballots>

Standards Publications Report

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Cycle* | *New* | *Revised* | *Reapproved* | *Withdrawn* |
| June 2021 | 5 | 3 | 0 | 0 |
| July 2021 | 3 | 1 | 3 | 0 |
| August 2021 | 4 | 3 | 0 | 0 |

Total in portfolio – 1,053 (includes 294 Inactive Standards)

New Standards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Cycle* | *Designation* | *Title* | *Committee* | *Region* |
| June 2021 | SEMI E182 | Specification for Panel FOUP Loadport for Panel Level Packaging | 3D Packaging and Integration | Japan |
| June 2021 | SEMI E182.1 | Specification for Panel FOUP Loadport for 510 to 515 mm Panel Size | 3D Packaging and Integration | Japan |
| June 2021 | SEMI E182.2 | Specification for Panel FOUP Loadport for 600 to 600 mm Panel Size | 3D Packaging and Integration | Japan |
| June 2021 | SEMI C101 | Test Method for Determining pH of Chemical Mechanical Planarization (CMP) Slurries and Related Chemicals | Liquid Chemicals | NA |
| June 2021 | SEMI C102 | Guide for Reporting Density of Chemical Mechanical Planarization (CMP) Polishing Pads Used in Semiconductor Manufacturing | Liquid Chemicals | NA |
| July 2021 | SEMI M89 | Test Method for Recombination Lifetime of the Epilayer of the Silicon Epitaxial Wafer (p/p+, n/n+) by the Short Wavelength Excitation Microwave Photoconductive Decay Method | Silicon Wafer | Japan |
| July 2021 | SEMI 3D23 | Specification for Glass Carrier Characteristics for Panel Level Packaging (PLP) Applications | 3D Packaging & Integration | Japan |
| July 2021 | SEMI D81 | Test Method for Dimming Properties of Flat Panel Displays | FPD-Metrology | Korea |
| August 2021 | SEMI D82 | Test Method for Viewing Angle of Flat Panel Displays | FPD-Metrology | Korea |
| August 2021 | SEMI M90 | Test Method for Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers by Optical Microscopy After Preferential Etching | Silicon Wafer | Japan |
| August 2021 | SEMI F116 | Guide for Drain Segregation for Semiconductor Manufacturing Tools to Support Site Water Reuse | Liquid Chemicals | NA |
| August 2021 | SEMI A4.1 | Specification for HTTP JSON Protocol Implementation for Tester Event Messaging for Semiconductors (TEMS) | Automated Test Equipment | NA |

Inactive Standards (as of August 25, 2021)

|  |  |
| --- | --- |
| *Committee* | *Number of Inactive Standards* |
| Assembly & Packaging | 48 |
| Automated Test Equipment | 2 |
| Compound Semiconductor Materials | 4 |
| Environmental Health & Safety | 8 |
| Facilities | 14 |
| FPD – Equipment | 5 |
| FPD – Factory Automation | 14 |
| FPD – Materials & Components | 13 |
| Gases | 18 |
| Information & Control | 37 |
| Liquid Chemicals | 26 |
| MEMS | 3 |
| Metrics | 12 |
| Micropatterning | 30 |
| Photovoltaic | 1 |
| Physical Interfaces & Carriers | 19 |
| Silicon Wafer | 11 |
| Traceability | 8 |

connect@SEMI - Contact your staff if a TF Site is desired

* Web link - https://connect.semi.org
  + Login using Standards account (username and password)
* Program Member
  + Join any task forces; Post discussion thread
* TF Leader/Community Admin; contact your staff if a TF Site is desired
  + Add member; Upload meeting minutes
  + Communicate TF members
* Details
  + www.semi.org/standards >> Committee Info >> Collaboration Community

Nonconforming Titles (See PM Appendix 4)

* SEMI C23-0714 (Reapproved 0620), Specifications for Buffered Oxide Etchants
  + See *Procedure Manual* ¶A4-1.8.
* \*SEMI C33-0213, Specifications for n-Methyl 2-Pyrrolidone
* \*SEMI C64-0308 (Reapproved 1214), SEMI Statistical Guidelines for Ship To Control
  + See *Procedure Manual* Table A4-2-1
* \* = Up for Five-Year Review

Five-Year Review

* \*SEMI C33-0213, Specifications for n-Methyl 2-Pyrrolidone
* SEMI C24-0813, Specification for n-Butyl Acetate
* SEMI C10-1109 (Reapproved 1114), Guide for Determination of Method Detection Limits
* SEMI F48-0600 (Reapproved 1214), Test Method for Determining Trace Metals in Polymer Materials
* \*SEMI C64-0308 (Reapproved 1214), SEMI Statistical Guidelines for Ship To Control
* SEMI C87-0515, Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Contact Profilometry
* SEMI C31-0615, Specification for Methanol
* SEMI C90-1015, Test Method and Specification for Testing Perfluoroalkoxy (PFA) Materials Used in Liquid Chemical Distribution Systems

Note: SEMI C33 and C24 – categorized incorrectly

SNARF 3 Year Status, TC Chapter may grant a one-year extension

* 6451, Revision to SEMI C1-0310 (Reapproved 0618), Guide for the Analysis of Liquid Chemicals
  + SNARF Date: 07/10/2018

**Attachment:** Staff Report October 2021 v2\_LChem

1. Ballot Review
   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.
   2. Document # 6714, Line Item Revision to SEMI C93-0620, Guide for Determining the Quality of Ion Exchange Resin Used in Polish Applications of Ultrapure Water System
      1. Line Item #1: Editorial corrections.

* Line Item #1 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #2: Removed references to laser particle counter (LPC) for static leach and grab samples and added optional LPC analysis for dynamic leach test.
* Line Item #2 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #3: Updated all references to non-volatile residue monitoring (NVR/NRM) to optional.
* Line Item #3 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #4: Updated reporting of grab sample data from µg/L to µg/g dry resin.
* Line Item #4 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #5: Changed requirement of ISO Class 7 environment for test stand location to ISO Class 9.
* Line Item #5 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #6: Clarification on background requirements and background subtraction.
* Line Item #6 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #7: Added clarification that test column can be made from PFA.
* Line Item #7 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #8: Clarified procedure for PSDA sample preparation.
* Line Item #8 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #9: Removed reference of static leach with UPW.
* Line Item #9 passed TC Chapter review as balloted. See attachment for ballot adjudication.
  + 1. Line Item #10: Update “Referenced Standards and Documents” section. Added particle precursors to description of N-CPC.
* Line Item #10 passed TC Chapter review as balloted. See attachment for ballot adjudication.

**Attachment:** 6714\_ProceduralReview

* 1. *Editorial Change*
     1. Document: SEMI F40-0621, Practice For Preparing Liquid Chemical Distribution Components and Neat Polymers for Chemical Testin (Editorial Change Type 2)
* The Editorial Changed TC Chapter review. See attachment for procedural review.

**Attachment:**         F40\_ProceduralReview-EditorialChangeType2

1. Subcommittee and Task Force Reports
   1. *Ultrapure Water & Water Management Task Force*

Bonnie Marion (FTD Solutions, LLC) reported for the UPW & Water Management Task Force jointly. Of note:

Task Force Roster *{See attachment for full list}*

Summer 2021, UPW Task & Water Mgmt Task Forces Update

* Main theme: Proactive Yield management from UPW IRDS to SEMI UPW TF, supporting IDMs and their supply chain
  + Spring Kickoff Yield Workshop was held March 4th & 8th, 2021
* Four document revisions published – May 2021
  + - SEMI F63 – UPW Quality
    - SEMI F61 – UPW System Design and Operation
    - SEMI F75 – UPW Metrology
    - SEMI F98 – Water Reuse Guide
* Line item revision submitted – Ballot Cycle 5
  + - SEMI C93 – Polish IX Resin Quality
* New document 6600 – Guide For Drain Segregation For Semiconductor Manufacturing Tools To Support Site Water Reuse, passed ratification ballot and A&R

SNARFs *{See attachment for file}*

* C79 – Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in UPW Distribution Systems
* C93 –Guide for Determining the Quality of Ion Exchange Resin Used in Polish Applications of Ultrapure Water System
* New Document –Guide for Measuring Particle Precursors in Ultrapure Water
* Planned SNARFs – 2021/2022
  + Line Item revisions to SEMI F61, F63, F75 to keep pace with 2-year revision cycle and alignment with IRDS

UPW TF Ballot Activity Summary

* New Ballots:
  + Document #6714, Line-Item Revision to SEMI C93-0620
    - Submitted for Cycle 5 (voting ends July 1)
* Ballot Plans:
  + Document #6716, Revision to SEMI C79-0819 – TBD 2021

Upcoming Activities

* Updated UPW TF leadership – Co-chairs: Bonnie Marion (FTD) and Gary Van Schooneveld (CT Associates)
* Development of new document – guide on particle precursors measurement
* Revision of SEMI C79
* Plans for 2021 SNARFs
  + SEMI F61
  + SEMI F63
  + SEMI F75
* Supporting Ultrapure Micro (UPM) 2021
  + Will present regular update on SEMI Standards
* IRDS Yield Workshop: Fall

Task Force Meeting Schedule

* Date: bi-weekly (has been weekly to start)
* Time: 9am PST on Thursdays
* Location/teleconferencing information – Microsoft Teams link to be provided
* Contact: Bonnie Marion, [bmarion@ftdsolutions.net](mailto:bmarion@ftdsolutions.net); Gary Van Schooneveld, [gary@ctassociatesinc.com](mailto:-gary@ctassociatesinc.com)

**Attachment:** SEMI Stds TF Report\_UPW 2021 Summer\_atm

* 1. *Chemical Mechanical Planarization Consumables (CMP-C) Task Force*

Alex Tregub (Intel) reported for the Chemical Mechanical Planarization Consumables (CMP-C) Task Force. This report contained information on the below.

Task Force Roster *{See attachment for full list}*

TF Meeting Summary

* Date and Event: June 21, 2021: CMP-C TF meeting
  + # of attendees in person: online only
  + # of attendees remote/online: TBD
* TF Leadership & changes (if any): No changes

SNARFs

* New SNARFs proposal:
  + New Standard: Guide for Reporting Performance Parameters of the Polymer Windows for Chemical Mechanical Planarization (CMP) Pads used in Semiconductor Manufacturing
    - Approved
    - Document 6748

Ballot Activity Summary

* Ballot Adjudication:
* New Ballots and ballot plans-Review
* Doc **# 6677.** GUIDE FOR REPORTING PERFORMANCE PARAMETERS OF THE CHEMICAL MECHANICAL PLANARIZATION (CMP) CONDITIONING DISKS USED IN SEMICONDUCTOR MANUFACTURING “
* Returned with no rejects , %-tage return above 60%, 2 comments.
* **Comment 1**: *Related Documents are listed both in the main document (Section 10) and in the Related Information 1 (with one additional  
  standard listed in Related information 1 - ASME Y14.36M). Consider removing from Related Information 1 if not necessary to duplicate.* **No further action.**
* **Comment 2**: *Definitions of pad surface topography parameters Ra, Rq, Rt, Rp, Rv, Sa, Sq, Rt, Sv, Sp are not provided in the main  
  document. Consider defining them in the main document, or section 9.7.1 could reference the related information tables R1-1 and R1-2  
  that define these parameters****.* Made editorial changes.**

Upcoming Activities

* Adjudicate Ballot 6677 for New Standard, “GUIDE FOR REPORTING PERFORMANCE PARAMETERS OF THE CHEMICAL MECHANICAL PLANARIZATION (CMP) CONDITIONING DISKS USED IN SEMICONDUCTOR MANUFACTURING ”.
* Continue working on generating new Standard : Guide for Reporting Performance Parameters of the Polymer Windows for Chemical Mechanical Planarization (CMP) Pads used in Semiconductor Manufacturing

Next TF Meeting Schedule

* **Date**: recurring biweekly meetings of the TF members
* **Time**: Every Thursday of the even week, 9 to 10 am PST
* **Location/teleconferencing information**:
* MS Teams meetings: 🡪 **Join on your computer or mobile app**
* [Click here to join the meeting](https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZmY1YWFmZTMtNWI2NC00ZDc1LWEzMGMtY2I0ZTUzZDI2OWIx%40thread.v2/0?context=%7b%22Tid%22%3a%2246c98d88-e344-4ed4-8496-4ed7712e255d%22%2c%22Oid%22%3a%2281099c1e-1a65-4147-9c2c-14de79f7cda2%22%7d)
* **Contact**: [alexander.tregub@intel.com](mailto:alexander.tregub@intel.com); 408 653 9408

**Attachment:** CMP-C TF Leaders TF Report June 2021\_atm

* 1. *Chemical Analytical Methods (CAM) Task Force*

David Kandiyeli (Mega Fluid Systems, Inc.) reported for the CAM Task Force. This report contained information on the below.

Task Force Roster *{See attachment for full list}*

Ballot Activity Summary

* Ballot Adjudication:
  + The following ballots are up for adjudication
    - 6465 (SEMI C36)
    - 6727 (SEMI C96)
    - 6728 (SEMI C99)
* New Ballots and ballot plans: NONE

Upcoming Activities

* Find membership resources to lead work group to address SEMI C30 SPECIFICATION FOR HYDROGEN PEROXIDE update based on :
  + Align with IRDS roadmap
  + Validate measurement techniques capable of measuring quality of the chemical to the IRDS specifications
* Review and decide the disposition of the following SNARFs:
  + SNARF 6315 (SEMI C30)
  + SNARF 6388 (SEMI C44)
  + SNARF 6451 (SEMI C1)
  + SNARF 6509 (SEMI C64)

**Attachment:** CAM\_TF\_Report\_Summer\_2021

* 1. *High Purity Liquid Assemblies & Systems Task Force*

Koh Murai (Mega Fluid Systems, Inc.) reported for the High Purity Liquid Assemblies & Systems Task Force. This report contained information on the below.

Task Force Roster *{See attachment for full list}*

SNARFs

* New SNARFs proposals
  + 5 year review of F31

Upcoming Activities

* F31- 5 Year Review by members.
* Webex meeting to consolidate and draft final submittal W/C 7/19/2021.
* Submit for ballot, in Cycle 7

**Attachment:** HPLAS\_TF\_Report\_Summer\_2021

* 1. *High Purity Polymer Materials and Components Task Force*

Bob McIntosh (GF Piping Systems) reported for the High Purity Polymer Materials and Components Task Force. This report contained information on the below.

Task Force Roster *{See attachment for full list}*

TF Meeting Summary

* Date and Event
  + SEMI F57++ 2/17/21
  + SEMI C90 rev TF 2/23/21
* TF Leadership & changes (if any):
  + TF F57 Bob McIntosh GF and Archita Sengupta Intel
  + TF C90 Bob McIntosh GF and Daun Wilcox Tesla

SNARFs

* New SNARFs proposals
  + Line-item Revision to SEMI F57 - HIGH PURITY POLYMER MATERIALS AND COMPONENTS USES IN ULTRAPURE WATER AND LIQUID CHEMICAL DISTRIBUTION SYSTEMS.
    - Rationale: When SEMI 57 was last revised the requirement to analyze raw material pellets in Table 1 was left unchecked because there was not adequate direction for testing in SMEI F40. SEMI F40 has now been revised to include detailed directions on testing of components including raw material pellets. As agreed at the time once SEMI F40 was revised SEMI F57 would add the requirement to test raw material pellets
  + SNARF # 6713 SEMI C90
    - Line Item Revision to SEMI C90-1015, Test Method and Specification for Testing Perfluoroalkoxy (PFA) Materials Used in Liquid Chemical Distribution Systems
      * Rationale for revision: During the revision of SEMI F57, a number of new metals were added to the list of items to be measured for in leachable contaminants. In SEMI C90, the list of metals is Fe. In order to align the two material specifications, the list of metals should be consistent.
        + Line item ballot will modify Table 2 to expand on the number of metals to be tested for.
      * 1ST TF meeting 2/23

Ballot Activity Summary: Ballot Adjudication

* Ballot Adjudication:
  + Passed: Line Item 1 Revision to SEMI F57
  + Doc # 6729
  + Failed: Line Item 2 Revision to SEMI F57
  + Doc # 6729
* New Ballots and ballot plans
  + Doc # SEMI C90
  + Cycle # 7 or 8

Meeting Results (Technical Summary)

* SEMI F57++ (6601)
  + Adjusted the tables (2 & 3) to align with SEMI F57
  + Added tables for materials used for chemicals (three columns: cleaning, IPA and peroxide)
  + Identified a new requirement for organics called “critical organics” defined as having a molecular weight of about 100 and a boiling point of about 150oC (examples are cyclohexanone and cyclohexanol). This is an organic that leaves any kind of a residue on the wafer surface post cleaning.
  + This new contaminant will require a new method for measurement. TF is now working on that.
  + This definition of a critical organic will need to be discussed with the UPW group as they have a similar worded category but specific for particle precursors.

Upcoming Activities

* Kick of the C90 task force meetings.
  + We have had 9 meetings with about 50% attendance
  + We have an agreed plan to get a back ground set of data on PFA for metals using dil nitric



* Continue to make progress on F57++ (6601)
* Once the just submitted SNARF for line item revision for F57 then kick off a TF for that. done
* Review SEMI F48 to confirm it is aligned with the just revised SEMI F40 prior to opening SNARF for either revision or reapproval. It was due in 2019. I will ask the same members for F40 to participate.
* Not yet started.

Next Task Force Meeting Schedule

* **6601** 
  + Date bi weekly Weds even WW’s
  + Time 0700 US west coast time
  + Location/teleconferencing information Team mtg
  + Contact Bob McIntosh [bob@enviro-e.com](mailto:bob@enviro-e.com)
* **6713**
  + Date bi weekly Tues odd WW’s
  + Time 0700 US west coast time
  + Location/teleconferencing information Team mtg
  + Contact Bob McIntosh [bob@enviro-e.com](mailto:bob@enviro-e.com)
* **F48** revision tbd

**Attachment:** High Purity Polymers Report 2a 6 2021

1. Old Business
   1. *Standards Due for Five-year Review*

Laura Nguyen (SEMI) addressed the TC Chapter on this topic. Of note:

* SEMI C33: assigned from CAM TF to HPLAS TF
* SEMI C24: follow-up with David/Don
* SEMI C10: Laura/James to reach out to Tony S.
* SEMI F48: assigned to HPPMC TF
* SEMI C64: Laura to check with Gases
* SEMI C87: assigned to HPPMC TF
* SEMI C31: follow-up with Don
  1. *Previous Action Items*

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

1. New Business
   1. *Authorized Activities/Ballots*

* See Tables 6 and 7 for details.

|  |  |
| --- | --- |
| **Motion:** | Approve the SNARF: Line Item Revision to SEMI F31-0313, Guide for Bulk Chemical Distribution Systems, and authorize for Letter Ballot in Cycle 6 or 7-2021. |
| **By / 2nd:** | By: Laura Ledenbach / Evonik  Second: Alexander Tregub / Intel Corporation |
| **Discussion:** | None. |
| **Vote:** | 12-0 in favor. Motion passed. |

**Attachment:** SNARF\_LI\_F31\_distr

1. Next Meeting and Adjournment
   1. The next meeting is tentatively scheduled for the week of December 6-9, in conjunction with SEMICON West 2021.

* Monday
  + 8-9:30, UPW & Water Management TFs
  + 9:30-11, High Purity Polymer Material & Components TF
  + 13:00-14:00, NA Liquid Chemicals Leadership Meeting
  + 14:00-16:00, Chemical Analytical Methods TF
* Tuesdays
  + 9:00-10:00, High Purity Liquid Assemblies & System TF
  + 10:00-11:00, Chemical Mechanical Planarization Consumables TF
  + 14:00-17:00, Liquid Chemicals NA TC Chapter Meeting

Adjournment: 11:47.

Respectfully submitted by:

Laura Nguyen

Sr. Coordinator, International Standards

SEMI Global Headquarters

Phone: +1.408.943.7019

Email: lnguyen@semi.org

Minutes tentatively approved by:

|  |  |
| --- | --- |
| Steve Rogers (KMG Chemicals), Co-chair | <Date approved> |
| Don Hadder (Intel), Co-chair | <Date approved> |
| Koh Murai (Mega Fluid Systems), Co-chair | <Date approved> |
| Laura Ledenbach (Evonik), Co-chair | <Date approved> |

Minutes approved by: **LChem NA OVTCCM on XXX.**

| Index of Available Attachments#1 | | |
| --- | --- | --- |
| Title | Title |
| Required Element Nov 2020 Rev1 | F40\_ProceduralReview-EditorialChangeType2 |
| [2021Summer] LChem NA TC Chapter Meeting Minutes FINAL | SEMI Stds TF Report\_UPW 2021-10-06\_atm |
| JA\_LC\_Liaison\_10052021\_v2 | CAM\_TF\_Report\_Fall\_2021 REV002 |
| Staff Report October 2021 v2\_LChem | HPLAS\_TF\_Report\_Fall\_2021 DDK KM REV003 |
| 6714\_ProceduralReview | High Purity Polymers Report 10 2021\_atm |

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.