Liquid Chemicals North America TC Chapter

Meeting Summary and Minutes

SEMI Standards NA Fall Meetings 2024

Tuesday, November 5–Wednesday, November 6, 13:00 – 16:00 Pacific

SEMI Global Headquarters, Milpitas, California, and via Official Virtual TC Chapter Meeting (OVTCCM)

TC Chapter Announcements

SEMI Standards NA Winter Meetings 2025

Day 1: Tuesday, February 25, 2025, 13:00 – 16:00 Pacific

Day 2: Wednesday, February 26, 2025, 13:00 – 16:00 Pacific *(tentative)*

SEMI Global Headquarters, Milpitas, California/USA

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Steve Rogers (Fujifilm), Don E. Hadder (Intel), David Kandiyeli (KESG), Laura Ledenbach (Evonik)
SEMI Staff: Laura Nguyen

Company	*Last*	*First*	*Company*	*Last*	*First*
Air Liquide	*Malibekova*	*Alma*	*Fujifilm*	*Rogers*	*Steve*
Air Liquide	Milstein	Lisa	*Georg Fischer Piping Systems*	*McIntosh*	*Bob*
Air Liquide	*Sparks*	*Chris*	*Intel*	*Sengupta*	*Archita*
ATPC	*Tregub*	*Alexander*	*Kinetics Equipment Solutions Group*	*Kandiyeli*	*David*
Chemours	*McCall*	*Jenell*	*TSI Incorporated*	*Tiwari*	*Andrea*
CT Associates, Inc	*Schooneveld*	*Gary van*	*Veolia Water*	*Dale*	*Chuck*
Daikin America, Inc.	*Nelson*	*Per*	*Watts Water Technologies*	*Woodworth*	*Ashley*
Entegris	*Tu*	*Jim*			
Evantic	*Connor*	*Darren*	SEMI	Nguyen	Laura

Table 2 Leadership Changes

None

Table 3 Committee Structure Changes

None

Table 4 Ballot Results

Document #	*Document Title*	*Committee Action*
7292	New Auxiliary Document: Report on Closing Metrologies Gaps for CMP Pads	**Passed**

NOTE 1: **Passed** ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

NOTE 2: **Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting or abandoning.

Table 5 Ratification Ballot Results

Document #	*Document Title*	*ISC A&R Action*
R7006	Revision to SEMI C69-1015 (Reapproved 1220), Test Method for the Determination of Surface Areas of Polymer Pellets	**Passed**
R7087	Revision to SEMI F63-0521, Guide for Ultrapure Water Used in Semiconductor Processing	**Passed**

NOTE 1: **Passed** Ratification ballots will be submitted to SEMI publication for final processing.

NOTE 2: **Failed** Ratification ballots were returned to the originating task forces for re-work and re-balloting or abandoning.

Table 6 Activities Approved by the GCS between meetings of the TC Chapter

#	*Type*	*SC/TF/WG*	*Details*
6601	Minority Report	High Purity Polymer Materials and Components TF	New Standard: Guide to Meet IRDS Yield Table Recommendations for High Purity Polymer Materials and Components Used in Ultrapure Water ***– Claims 13 and 15 = 40% for each claim, all other claims were >50%; so the ruling is in favor of the MR.***
7091B	Minority Report	High Purity Polymer Materials and Components TF	Revision to SEMI C90-1015, Test Method and Specification for Testing Perfluoroalkoxy (PFA) Materials Used in Liquid Chemical Distribution Systems, (with title change) ***– Claims 3 and 13 = 40% for each claim, all other claims were >50%; so the ruling is in favor of the MR.***
6601A	Ballot Authorization C7-24	High Purity Polymer Materials and Components TF	New Standard: Guide to Meet IRDS Yield Table Recommendations for High Purity Polymer Materials and Components Used in Ultrapure Water ***– Approved by GCS on 08/23/2024, contingent of MR***
7091C	Ballot Authorization C7-24	High Purity Polymer Materials and Components TF	Revision to SEMI C90-1015, Test Method and Specification for Testing Perfluoroalkoxy (PFA) Materials Used in Liquid Chemical Distribution Systems, with title change to: Test Method and Specification for Perfluoroalkoxy (PFA) and Other Fluorinated Materials Used in Liquid Chemical Distribution Systems ***– Approved by GCS on 08/23/2024, contingent of MR***
7292	SNARF	Chemical Mechanical Planarization Consumables (CMP-C) TF	New Auxiliary Documents: Report on closing metrologies gaps for CMP pads ***– Approved by GCS on 09/24/2024***
7292	SNARF	CMP-C TF	New Auxiliary Documents: Report on closing metrologies gaps for wafer measurements at different stages of CMP process ***– Approved by GCS on 09/24/2024***
6601A	Ballot Authorization C8- or C9-24	High Purity Polymer Materials and Components TF	New Standard: Guide to Meet IRDS Yield Table Recommendations for High Purity Polymer Materials and Components Used in Ultrapure Water ***– Approved by GCS on 09/24/2024***
7091C	Ballot Authorization C8- or C9-24	High Purity Polymer Materials and Components TF	Revision to SEMI C90-1015, Test Method and Specification for Testing Perfluoroalkoxy (PFA) Materials Used in Liquid Chemical Distribution Systems, with title change to: Test Method and Specification for Perfluoroalkoxy (PFA) and Other Fluorinated Materials Used in Liquid Chemical Distribution Systems ***– Approved by GCS on 09/24/2024***

Table 7 Authorized Activities

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

#	Type	SC/TF/WG	Details
7303	SNARF	High Purity Polymer Materials and Components TF	Reapproval of SEMI C78-0113 (Reapproved 1218), Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Atomic Force Microscopy

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

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

Table 8 Authorized Ballots

#	When	TF	Details
7086	Cycle 1, 2, 3-2025	Ultra Pure Water TF	Revision to SEMI F61–0521, Guide for Design and Operation of a Semiconductor Ultrapure Water System
7091C	Cycle 1-2025	High Purity Polymer Materials and Components TF	Revision to SEMI C90-1015, Test Method and Specification for Testing Perfluoroalkoxy (PFA) Materials Used in Liquid Chemical Distribution Systems, with title change to: Test Method and Specification for Perfluoroalkoxy (PFA) and Other Fluorinated Materials Used in Liquid Chemical Distribution Systems
7146	Cycle 1, 2-2025	CAM TF	Revision to SEMI C41-0618, Specification and Guide for 2-Propanol
7148	Cycle 1, 2-2025	CAM TF	Revision to SEMI C62-0309 (Reapproved 0618), Specification for Porogen Precursors Used in Low K CVD Processes
7303	Cycle 9-2024, 1-2025	High Purity Polymer Materials and Components TF	Reapproval of SEMI C78-0113 (Reapproved 1218), Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Atomic Force Microscopy

Table 9 SNARF(s) Granted a One-Year Extension

#	TF	Title	Expiration Date
6904	CMP-C TF	New Standard: Guide for Reporting Performance Parameters of the Retaining Rings for Chemical Mechanical Planarization (CMP) used in Semiconductor Manufacturing	Fall 2025

NOTE 1: If the Standards Document Development Project is found to be continuing, but cannot be completed within the current project period, the TC Chapter may grant a one-year extension at a time, as many times as necessary. [*Regulations* § 8.3]

Table 10 SNARF(s) Canceled

None

Table 11 Standard(s) to receive Inactive Status

None

Table 12 New Action Items

Item #	Assigned to	Details

Table 13 Previous Meeting Action Items

Item #	*Assigned to*	*Details*

1 Welcome, Reminders, and Introductions

Steve Rogers (Fujifilm) called the meeting to order at 13:05. 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

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:	By: Bob McIntosh / GF Piping Systems Second: Gary Van Schooneveld / CT Associates, Inc
Discussion:	None
Vote:	10-0 in favor. Motion passed.

Attachment: [2024West] Liquid Chemicals NA TC Chapter Meeting Minutes

3 Liaison Reports

3.1 *Gases & Liquid Chemicals Europe TC Chapter*

- No update since SEMICON Europa 2023
- Staff Contact: Kevin Nguyen (knguyen@semi.org)

3.2 *Liquid Chemicals Japan TC Chapter*

- No update since SEMICON West – next meeting December 8, 2023

3.3 *SEMI Staff Report*

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

SEMI Global 2024 Calendar of Events

- SEMCON West (July 9-11; San Francisco, CA)
- SEMICON Taiwan (Sept 4-6; Taipei, Taiwan)
- SEMICON India (Sept 11-13; New Delhi, India)
- Energy Taiwan/X Net-Zero Taiwan (Oct 2-4; Taipei, Taiwan)
- SEMICON Europa (Nov 12-15; Munich, Germany)
- SEMICON Japan (December 11-13; Tokyo, Japan)

Global Standards Summit 2024: *Innovating Tomorrow: Standards for Future Factories*

- Inaugural SEMI Event @ SEMICON Japan 2024

- Thursday, December 12 | 10:30 AM to 4:30 PM, Tokyo Big Sight, Conference Tower, Room 606

- Objective: Identify standards-critical areas and work towards an industry
- standardization strategy for the next 3- and 7-year time horizons.
- Session Topics:
  - Smart Manufacturing for Future Factories
  - Packaging Architectures & Materials
  - Environmental Sustainability
- Why Attend?
  - Learn – Hear issues critical to the future advancements of semiconductor manufacturing, what's happening to address them, as well as the standards needed to help enable.
  - Influence – Contribute to the direction of standards development by providing inputs to help optimize future factories.
  - Network – Organized networking events with other stakeholders from suppliers to solution providers to end customers.
  - Discover – Explore what SEMICON Japan has to offer (e.g., Sessions on AI & Data, Sustainability, Manufacturing, Integration of Front & Back-end; Standards Meetings)

SEMICON West 2025-2030 ← **NEW!**

- **2025—October 7-9 | Phoenix Convention Center | Phoenix, AZ**
- 2026—October 13-15 | Moscone Center | San Francisco, CA
- **2027—October 12-14 | Phoenix Convention Center | Phoenix, AZ**
- 2028—October 10-12 | Moscone Center | San Francisco, CA
- **2029—October 9-11 | Phoenix Convention Center | Phoenix, AZ**
- 2030—October 29-31 | Moscone Center | San Francisco, CA

Europe Standards Meetings @ SEMICON Europa 2024

- November 12-14, 2024
- ICM (Internationales Congress Center München)
  - Meeting Room: Staffelsee (Mezzanine Level)
- TCs: Silicon Wafer, Gases, Liquid Chemicals, Compound Semiconductor Materials, ERSC

Upcoming NA Meetings 2025

- NA Standards Winter Meetings: February 24-27, 2025, at SEMI HQ, Milpitas, California/USA
- NA Standards Summer Meetings: June 2-6, 2025 *(tentative)*, at SEMI HQ, Milpitas, California/USA
- SEMICON West: Oct 6-9, 2025, at Phoenix Convention Center, Phoenix, Arizona/USA

Critical Dates for SEMI Standards Ballots

- Cycle 8-2024: Ballot Submission Due: Oct 1/Voting Period: Oct 15 – Nov 14
- Cycle 9-2024: Ballot Submission Due: Nov 8/Voting Period: Nov 22 – Dec 23
- Cycle 1-2025: Ballot Submission Due: Dec 17, 2024/Voting Period: Jan 8 – Feb 7
- Cycle 2-2025: Ballot Submission Due: Jan 23/Voting Period: Feb 11 – Mar 13
- Cycle 3-2025: Ballot Submission Due: Mar 5/Voting Period: Mar 19 – Apr 18
- Cycle 4-2025: Ballot Submission Due: Mar 20/Voting Period: Apr 9 – May 9
- Cycle 5-2025: Ballot Submission Due: May 8/Voting Period: May 28 – June 27
- Cycle 6-2025: Ballot Submission Due: June 19/Voting Period: July 9 – Aug 8
- Cycle 7-2025: Ballot Submission Due: July 24/Voting Period: Aug 13 – Sep 12

https://www.semi.org/en/collaborate/standards/ballots

Standards Publications Report

Cycle	*New*	*Revised*	*Reapproved*	*Withdrawn*
July 2024	2	5	0	0
August 2024	0	5	4	0
September 2024	0	9	5	0
October 2024	2	1	0	0

Total in portfolio – 1,092 (includes 349 Inactive Standards)

New Standards

Cycle	*Designation*	*Title*	*Committee*	*Region*
July 2024	SEMI D85	Guide for the Tone Reproduction Curves for Transparent Displays	FPD - Metrology	TW
July 2024	SEMI FH4	Test Method and Guide for the Tactile Characteristics of Flexible Hybrid Electronics Materials and Products	Flexible Hybrid Electronics	JA
October 2024	SEMI E191	Specification for Computing Device Cybersecurity Status Reporting	Information & Control	NA
October 2024	SEMI E191.1	Specification for SECS-II Protocol for Computing Device Cybersecurity Status Reporting to Specification for Computing Device Cybersecurity Status Reporting	Information & Control	NA

Regulations & Procedure Manual Updates

- *Regulations* (Feb 20, 2024)
  - New definition of "Standards Document"
  - Clarification of confidential presentation materials
    - https://www.semi.org/sites/semi.org/files/2024-02/Standards%20Regulations%20February%2020%202024.pdf
- *Procedure Manual* (Feb 20, 2024)
  - The use of Connect@SEMI for TF management and document development depository (next slide)
- *Procedure Manual* (Sept 27, 2024) **New!**
  - Clarification of § 6.4.5.10 for discharging of a TF
  - New ¶ 6.4.5.11 Designation of a TF as Dormant.
    - https://www.semi.org/sites/semi.org/files/2024-09/Procedure%20Manual%20September%2027%2C%202024.pdf

Connect@SEMI Communities for all SEMI Standards Task Forces

- By Feb 2025, all Standards Task Forces shall use Connect@SEMI to host documents that are currently in development.
- Each Standards Task Force will have its own Community Page on Connect@SEMI.
- All program members may log in at: https://connect.semi.org
  - Enter their username and password (same as program membership log-in)
  - Contact staff if questions.
- Training materials are available at: https://www.semi.org/standards
  - Under Standards Developer Resources → Collaboration Tools (scroll to the bottom)

SEMIViews 4.0 – Available Now! *{refer to attachment graphics}*

- New SEMIViews platform launched on August 19, 2024.
- SEMIViews 4.0 Features include:
  - Upgraded user interface, Improved company user administration functions

- Dynamic landing page, including feeds for new and revised Standards, upcoming meetings & events, and a reference center
- Enhanced search functionality and navigation panel, New SEMI Volumes Library, User defined shortcuts via Collections, Favorites, and now, Bookmarks

- Additional features planned in the pipeline.

SNARF 3-Year Status: Gases

- 6716: Revision to SEMI C79-0819, Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in Ultrapure Water (UPW) Distribution Systems
  - SNARF expiring Fall 2024
- 6904, New Standard: Guide for Reporting Performance Parameters of the Retaining Rings for Chemical Mechanical Planarization (CMP) used in Semiconductor Manufacturing
  - SNARF expiring Dec 2024

Activities Approved via GCS between Meetings

- High Purity Polymer Materials and Components TF
  - MR for 6601, New Standard: Guide to Meet IRDS Yield Table Recommendations for High Purity Polymer Materials and Components Used in Ultrapure Water
    - Claims 13 and 15 = 40% for each claim, all other claims were >50%; so the ruling is in favor of the MR.
  - MR for 7091B, Revision to SEMI C90-1015, Test Method and Specification for Testing Perfluoroalkoxy (PFA) Materials Used in Liquid Chemical Distribution Systems, (with title change)
    - Claims 3 and 13 = 40% for each claim, all other claims were >50%; so the ruling is in favor of the MR.
  - Ballot Authorization C7-24 for 6601A, contingent on MR (***Approved by GCS on 08/23/2024)***
  - Ballot Authorization C7-24 for 7091C, contingent on MR (***Approved by GCS on 08/23/2024)***
  - Ballot Authorization C8 or 9-24 for 6601A, (***Approved by GCS on 09/24/2024)***
  - Ballot Authorization C8 or 9-24 for 7091C, (***Approved by GCS on 09/24/2024)***
- Chemical Mechanical Planarization Consumables (CMP-C) TF
  - SNARF for 7292: New Auxiliary Doc: *Report on closing metrologies gaps for CMP pads*
  - SNARF for 7293: New Auxiliary Doc: *Report on closing metrologies gaps for wafer measurements at different stages of CMP process*

Five-Year Review *{refer to attachment for details}*

Staff Contact: Laura Nguyen, Lnguyen@semi.org

Attachment: Staff Report November 2024 v4_LChem

4 Ballot Review

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 file name for each balloted document is provided under each ballot review section below.

4.1 Document # 7292, New Auxiliary Document: Report on Closing Metrologies Gaps for CMP Pads

- The Document passed TC Chapter review. There were no comments during review period. Submitted to GCS approval following ISC A&R for Procedural Review.
- See attachment for ballot adjudication.

Attachment: 7292_UnballotedProceduralReview

5 Subcommittee and Task Force Reports

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

Alex Tregub (Intel) reported for the Chemical Mechanical Planarization Consumables (CMP-C) Task Force. Of note:

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

Agenda

- Membership
    - New members from DuPont, Intel and Entegris, added in Q2-Q3, have been active in generating metrology roadmaps for CMP consumables
- Reports on closing metrologies gaps for CMP consumables

Ongoing and Completed Activities

- Submit SNARFs for the new auxiliary document
    - Report on closing metrologies gaps for CMP slurries: Submitted, approved
    - Report on closing metrologies gaps for wafers used in CMP : Submitted, approved
- Submit Report on closing metrologies gaps for CMP pads: Submitted, in Review by LC Committee
- Prepare SNARF for the new auxiliary document: Report on closing metrologies gaps for CMP slurries
- Prepare Report on closing metrologies gaps for CMP slurries: 90% completed.
- Prepare Report on closing metrologies gaps for wafers used in CMP: Rev 0 prepared
- Prepare Report on closing metrologies gaps for CMP brushes: started

Upcoming Activities

- Approve Report on closing metrologies gaps for CMP pads
- Complete Report on closing metrologies gaps for wafers used in CMP.
- Submit SNARF for the new auxiliary document: Report on closing metrologies gaps for CMP slurries
- Complete Report on closing metrologies gaps for CMP slurries
- Submit SNARF for the new auxiliary document: Report on closing metrologies gaps for CMP brushes
- Continue working on Report on closing metrologies gaps for CMP brushes
- New Standard 6904 for retaining rings: prepare for balloting on responses to the reviewer comments
- Resume generating New Standard Guide for Reporting Performance Parameters of Pressure Sensitive Adhesives (PSA) for Chemical Mechanical Planarization (CMP) pads used in Semiconductor Manufacturing

Temporary Activities on hold

- Standard 6904 for CMP retainer rings, response to the reviewer comments:
    - All feedbacks from the TF received and recorded;
    - Preparation to respond on hold
- Guide for Reporting Performance Parameters of Pressure Sensitive Adhesives (PSA) for Chemical Mechanical Planarization (CMP) pads used in Semiconductor Manufacturing: on hold

Next TF Meeting Schedule

- **Date**: recurring biweekly meetings of the TF members
- **Time**: Every Thursday of the even week, 10 to 11 am PST
- **Contact**: a.tregub@yahoo.com

Attachment: CMP-C TF Leaders TF Report November 2024

5.2 *High Purity Polymer Materials & Components Task Force*

Bob McIntosh (GF Piping Systems) reported on 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++ even WWs Weds at 0800 ballot Cycle 8
  - SEMI C90 (7091) rev weekly Tues 0700 re-balloted Cycle 9 or Cycle 1
  - SEMI C69 (7006) – plan to ballot 2024 status of ratification?
- TF Leadership & changes (if any):
  - TF F57 Bob McIntosh GF and Archita Sengupta Intel, Per Nelson
  - TF C90 Bob McIntosh GF and Per Nelson
  - TF C69 Per Nelson

TFOF

- The TFOF that we are operating under is very limited, SEMI F57 revision.
- Revised TFOF Approved in July Meeting
  - High Purity Polymer Materials and Components Task Force: To revise existing SEMI standards per the revision schedule and coordinate with other TFOFs (like UPW) that require the use of the materials that are included in the scope of this task force. Applicable SEMI standards are SEMI 57, 40, 104, 40, 87, 78, 69 as well as others. There may be the need to develop new standards or guides as well as the situation warrants.

SNARFs

SNARF # 7006

- Major Revision to SEMI C69 - TEST METHOD FOR THE DETERMINATION OF SURFACE AREAS OF POLYMER
- Rationale for revision
  - During the revision of SEMI F40 it became clear there were conflicts between F40 and C69. These need to be resolved. SEMI C69 will be reviewed and conflicts with F40 will be found and resolved. Further any new pellet shapes that have become common will be added to the standard. Additionally, it has been noted by users of the standard that several materials do not require drying. A further objective is to update the standard to eliminate the requirement to dry pellets prior to measurement
- Update
  - Ratification Ballot in Cycle 7

SNARF # 7091 SEMI C90

- Changed to a full revision - 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.
  - ballot will modify Table 1, 2 to expand on the number of metals to be tested.
- Update:
  - Issues from 7091B were addressed, several structural changes made by TF
  - Pre-review by Eric Sklar now in a 3rd round – Current updates:
    - Reagent section has remaining issues related to defining UPW & nitric acid purity
    - Daisy chains for small components allowed but no longer ‘encouraged’
    - Table 3 row categories genericized to be parallel with method sections (e.g. ‘samples that will be filled’ instead of ‘tubing’, ‘fitting’)
    - Blank correction procedure has increased definition and is now required

- Several values in R1-1 changed to be the same as, not lower than, the detection limit
- Multiple editorial changes (e.g. all mentions of 'leach' are now 'extract')

- Next Steps:
  - Complete round 3 with Eric
  - Resolve reagent definition-requirements
  - Recirculate to the Taskforce, Taskforce meeting will be scheduled if requested
  - Submit for Cycle 9 IF POSSIBLE!

Meeting Results (Technical Summary)

- SEMI F57++ (6601)
  - Adjusted the tables (2 & 3) to align with SEMI F57
  - Used adjusted SEMI F57 model to derive limits
  - We will target Cycle 4 2024.
- Results of balloting
  - Re-balloted in Cycle 8 with all issues raised by ballot fails, comments and by subsequent review by NATC resolved in our opinion.
  - I fail with 60 rejects. All have been addressed with 11 technical and persuasive, 56 editorial and persuasive and 3 editorial and non-persuasive.
  - 6 comments
    - 2 (Faryna and Sullivan) are the same and addressed (adding a reference to a figure)
    - comment 51591 rejected. The limits for ambient UPW and HUPW are the same but the limit for TOC and F are different. The graphs are correct.
    - comment 289524 and 502051 re 7.1 and 7.2 accepted.
    - comment 502051 – re section 2 needs discussion, typo in section 1.1 fixed
  - Will submit for ratification ballot in next cycle. FAILED

Upcoming Activities

- 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
- SEMI C87-0515, Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Contact Profilometry
  - Not yet started
- SEMI C78-1218, Test Method for Determining Roughness Of Polymer Surfaces Used In Ultrapure Water And Liquid Chemical Distribution Systems By Atomic Force Microscopy
  - This should be allowed to go dormat

Next Task Force Meeting Schedule

- **6601**
  - Date bi weekly Weds even WW's
  - Time 0730 US west coast time
  - Location/teleconferencing information Team mtg
  - Contact Bob McIntosh bob@enviro-e.com
- **7091 (C90)**
  - Meeting 'as needed' only
  - Location/teleconferencing information Teams mtg
  - Contact: Per Nelson pnelson@daikin-america.com Bob McIntosh bob@enviro-e.com
- **7006 (C69)**
  - Every 3rd week on Wednesdays (last meeting 3/29, next meeting 4/19, […])
  - Time 0900 US central (0700 US west coast time)
  - Location/teleconferencing information Teams mtg

- Contact Per Nelson pnelson@daikin-america.com
- F48 revision tbd

Next Task Force Meeting Schedule

- F48 generate a SNARF
- C87 informal review to determine state of applicability
- C78 allow to go dormant
- Proposed SNARF from SEMI Korea on pipe surface finish needs to be modified in section 2

Attachment: High Purity Polymers Report 11 2024 r0pn

5.3 *Ultrapure Water Task Force*

Gary Van Schooneveld (CT Associates) reported for the UPW Task Force. Of note:

Task Force Roster *{refer to attachment for full list}*

Yield and Reliability Related SEMI Standards for UPW *{refer to attachment for diagram}*

SEMI UPW TF Roadmap *{refer to attachment for diagram}*

SNARFs

- Revisions to:
  - SEMI F61-0521 (UPW System Design & Operation)
  - SEMI F63-0521 (UPW Quality)
  - SEMI F75-0521 (UPW Metrology)
  - Particle precursor retention in UPW
- Rationale:
  - Alignment with UPW IRDS
  - 2-year revision cycle

UPW TF Ballot Activity Summary

- Ballot Plans:
  - Revisions to SEMI F63 – Balloted Cycle 3
  - Revisions to SEMI F61 – Goal – Cycle 1, 2025
  - Revisions to SEMI F75 – Target not set
  - New Standards Document: Guide to Evaluate the Efficacy of Particle Precursor Reduction Devices Used in Ultrapure Water (UPW) Systems
  - Goal – Cycle 3, 2025

Upcoming Activities

- Main themes:
  - Focus on Proactive Yield management from UPW IRDS to SEMI UPW TF
  - Measurement and management of particle precursors
- Major Revisions of SEMI F61 (on-going), F75 (not started)
- New Particle Precursor Retention Document
  - Creation of a new test method to evaluate retention of a particle precursor challenge material by “PP reduction devices”
  - Ion exchange resin extract used for the development work
  - Experimental work is completed
  - Gary Van Schooneveld (CTA) leading document creation effort (On-hold)

- Development of Auxiliary Information Document to explain the differences and applications of SEMI Standards or Guides on filter performance evaluation
    - SEMI C79, C82 and C89
    - Planned for 2025

Task Force Meeting Schedule

- Date: Weekly meetings on Thursdays, alternating between Regular TF meeting and a Subgroup dedicated to new particle precursor retention document (on-hold)
- Next UPW TF meeting = November 9, 2023
- Time: 8am-9am PDT
- Location/teleconferencing information – Microsoft Teams link to be provided
- Contact: Lindsey Sullivan, lsullivan@ftdsolutions.net; Gary Van Schooneveld, gary@ctassociatesinc.com

Attachment: Fall SEMI Standard Meeting - UPW TF - 11-05-2024

5.4 *Water Management Task Force*

Bob McIntosh (GF Piping Systems) reported for the Water Management Task Force verbally. Of note:

- One of the leaders has changed companies, update TBA.
- Plan to submit a SNARF at the next meeting for major revision to F98

5.5 *High Purity Liquid Assemblies & Systems Task Force*

David Kandiyeli (Kinetics) reported for the High Purity Liquid Assemblies & Systems Task Force. This report contained information on the below.

Task Force Roster *{refer to attachment for full list}*

TF Meeting Summary

- 8/15, 8/29, 9/26, 10/4, 10/18, & 11/1/2024: Bi-weekly Task Force Meetings
    - Continued work on the outline for the SEMI F41 rewrite
    - Attendees: Jim Pedersen, David Kandiyeli, also Ashley Woodworth for some
    - Completed outlines for Rinse in UPW, Rinse in Chemical for Special Contaminant Removal, Pre-Rinse in UPW, Particle Analysis, and Local Rinse in Final Chemical sections
    - Began generation of the Metallic Cations outline sections

Ballot Activity Summary

- New Ballots and ballot plans
    - Rewrite of SEMI F41 (7214) Guide for Qualification of a Bulk Chemical Distribution System Used in Semiconductor Processing; time to completion TBD

Next TF Meeting Schedule

- Next Meeting by Web Conference; 11/15/2024 (8:00AM to 9:00AM PST) and Biweekly Thereafter
- Teleconferencing information – Teams Mtg.
- Contact – D. Kandiyeli

Attachment: HPLAS Fall 2024 NALCC Meeting Report DDK 11-4-2024 REVP01

5.6 *Chemical Analytical Methods (CAM) Task Force*

David Kandiyeli (Kinetics) reported for the CAM Task Force. This report contained information on the below.

Task Force Roster *{refer to attachment for full list}*

TF Meeting Summary

- 8/20/2024, 9/17/2024, & 10/22/2024 CAM TF Meetings: Ballot 7148 (SEMI C62-Porogen Precursors Low K)
  - 2 attendees (Suhas Ketkar, David Kandiyeli)
  - Addressed all Cycle 2-2024 ballot rejections
  - Final modifications to document are pending
- 10/22/2024, Post CAM TF Meeting: Ballot 7146 (SEMI C41-IPA)
  - 1 attendee (David Kandiyeli)
  - Addressed Cycle 2-2024 ballot rejections common to Ballot 7148
- 10/21/2024 CAM TF Meeting: Ballot 7146 (SEMI C41-IPA)
  - 2 attendees (Chris Sparks, David Kandiyeli)
  - Completed addressing approx. ½ of the responses to the Cycle 2-2024 ballot rejections
- 10/2024 Semiconnect File Reorganization Activities
  - David Kandiyeli
  - Removed and reattached working files to community workspace

New SNARF Proposals

- None needed (Title changes to Ballots 7148 & 7149 do not change scope, so new SNARFs not required)

Ballot Activity Summary & Upcoming Activities

- Ballot Adjudication: None
- New Ballots and ballot plans :
  - Complete changes to Ballot 7148 and submit in Cycle 1 of 2025
  - Complete list of changes to Ballot 7146, and prepare ballot for submittal in Cycle 1 of 2025
  - Begin and complete list of changes to Ballot 7149, and prepare ballot for submittal in Cycle 2 of 2025
  - Complete remaining Ballot changes for the remaining 5 failed ballots in upcoming months; submitting in appropriate cycles

Next TF Meeting Schedule

- Next Meeting by Teams Web Conference; 11/12/2024 (8:00AM to 9:00AM PST) and Biweekly Thereafter
- Currently scheduled meetings are established via Teams invitation. Notify David Kandiyeli at D.Kandiyeli@kinetics.net if you would like to join the meetings.

Attachment: CAM Fall 2024 NALCC Meeting Report DDK 11-4-2024 REVP01

5.7 *Statistical Methods Task Force (did not meet)*

Tom Bzik is no longer with EMD Electronics, therefore has stepped back on SEMI Standards activities until further notice.

6 Old Business

6.1 *Standards Due for Five-year Review*

None

6.2 *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.

7 New Business

7.1 *Authorized Activities/Ballots*

Regarding C78

Motion:	Send to Inactive Status: SEMI C78-0113 (Reapproved 1218), Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Atomic Force Microscopy
By / 2nd:	By: Bob McIntosh / GF Piping Systems Second: Gary Van Schooneveld / CT Associates, Inc
Discussion:	BM: C78 does not get used anymore GvS: Downside to having it available? BM: not that I know of, C87 is use instead GvS: are the results different BM: two diff methods are used AG: Is there a downside to keeping it active? LN went over options for Five-Year -> RA or Inactive
Vote:	No vote was made
2nd Motion:	Motion to withdrawn original motion above
By / 2nd:	By: Archita Sengupta / Intel Second: Darren Connor / Evantic
Discussion:	No further discussion.
Vote:	9-0 in favor. Motion passed.

Regarding New SNARF(s):

Motion:	Approve the Reapproval SNARF for: SEMI C78, Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Atomic Force Microscopy, and authorize to ballot in Cycle 9-24, or 1-25
By / 2nd:	By: Per Nelson / Daikin America, Inc. Second: Bob McIntosh / GF Piping Systems
Discussion:	None.
Vote:	10-0 in favor. Motion passed.

SNARF extension:

Motion:	Approve a 1 year extension of the project period for the SNARF 6904, New Standard: Guide for Reporting Performance Parameters of the Retaining Rings for Chemical Mechanical Planarization (CMP) used in Semiconductor Manufacturing
By / 2nd:	By: Alexander Tregub / ATPC Second: Per Nelson / Daikin America, Inc.
Discussion:	None.
Vote:	13-0 in favor. Motion passed.

Ballot Authorization(s):

Motion:	Authorize the Document for Letter Ballot 7091C:

Revision to SEMI C90-1015, Test Method and Specification for Testing Perfluoroalkoxy (PFA) Materials Used in Liquid Chemical Distribution Systems, with title change to: Test Method and Specification for Perfluoroalkoxy (PFA) and Other Fluorinated Materials Used in Liquid Chemical Distribution Systems,

for Cycle 1-2025.

By / 2nd: By: Bob McIntosh / GF Piping Systems
Second: Per Nelson / Daikin America, Inc.

Discussion: None.

Vote: 13-0 in favor. Motion passed.

Motion: Authorize the Document for Letter Ballot 7086, Revision to SEMI F61–0521, Guide for Design and Operation of a Semiconductor Ultrapure Water System,

For Cycle 1, 2, or 3-2025

By / 2nd: By: Gary Van Schooneveld / CT Associates, Inc
Second: Bob McIntosh / GF Piping Systems

Discussion: None.

Vote: 11-0 in favor. Motion passed.

Motion: Authorize the Documents for Letter Ballot:

7146, Revision to SEMI C41-0618, Specification and Guide for 2-Propanol

7148, Revision to SEMI C62-0309 (Reapproved 0618), Specification for Porogen Precursors Used in Low K CVD Processes

For Cycle 1 or 2-2025

By / 2nd: By: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)
Second: Bob McIntosh / GF Piping Systems

Discussion: None.

Vote: 10-0 in favor. Motion passed.

8 Next Meeting and Adjournment

8.1 The next meeting is tentatively scheduled for the week of February 24-27, in conjunction with SEMI Standards NA Winter Meetings 2025. Schedule details TBD. Please check www.semi.org/standards for updates.

Tentative Schedule:

Task Forces will continue to meet on their weekly/bi-weekly cadence. Subject to change.

- Monday, February 24
  - (Open for meetings)
- Tuesday, February 25
  - 09:00-10:30, High Purity Polymer Material & Components TF
  - 10:30-12:00 Noon, UPW TF
  - 13:00-16:00 Liquid Chemicals NA TC Chapter Meeting (Day 1 – traditional reports and voting)
- Wednesday, February 26
  - 13:00-16:00 Liquid Chemicals NA TC Chapter Meeting (Day 2 – voting and authorizations)

- Suggestion for NA LChem leadership to meet virtually prior to the meeting set
- Suggestion: PM webinar-type report out of TFs to the industry vs formal

Adjournment: 15:32.

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 (Fujifilm), Co-chair	<Date approved>
Don Hadder (Intel), Co-chair	<Date approved>
David Kandiyeli (KESG), Co-chair	<Date approved>
Laura Ledenbach (Evonik), Co-chair	<Date approved>

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

Table 14 Index of Available Attachments[#1]

Title	*Title*
SEMI Standards Required Meetings Elements	High Purity Polymers Report 11 2024 r0pn
[2024West] LChem NA TC Chapter Meeting Minutes	Fall SEMI Standard Meeting - UPW TF - 11-05-2024
Staff Report November 2024 v4_LChem	HPLAS Fall 2024 NALCC Meeting Report DDK 11-4-2024 REVP01
7292_UnballotedProceduralReview	CAM Fall 2024 NALCC Meeting Report DDK 11-4-2024 REVP01
CMP-C TF Leaders TF Report November 2024	

#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.