# Liquid Chemicals North America TC Chapter

# Meeting Summary and Minutes

SEMI Standards NA Winter Meetings 2026

Tuesday, February 10–Wednesday, February 11, 13:00 – 16:00 Pacific

Online via Official Virtual TC Chapter Meeting (OVTCCM)

**TC Chapter Announcements**

*Next TC Chapter Meeting*

Co-located with Advanced Semiconductor Materials Conference (ASMC) 2026

Day 1: Tuesday, May 12, 13:00 – 16:00 Eastern

Day 2: Wednesday, May 13, 13:00 – 16:00 Eastern *(tentative)*

Hilton Albany, Albany, New York/USA

**Table 1 Meeting Attendees**

*Italics* indicate virtual participants

**Co-Chairs:** Don E. Hadder (Intel), David Kandiyeli (KESG), Laura Ledenbach (Evonik), Per Nelson (Daikin America)
**SEMI Staff:** Laura Nguyen

| *Company* | *Last* | *First* | *Company* | *Last* | *First* |
|---|---|---|---|---|---|
| *Air Liquide* | *Mey-Ami* | *Lisa* | *FTD Solutions LLC* | *Sullivan* | *Lindsey* |
| *Air Liquide* | *Li* | *Fang* | *Georg Fischer Piping Systems* | *McIntosh* | *Bob* |
| *Air Liquide* | *Chan* | *Allen* | *Georg Fischer Piping Systems* | *Allebes* | *Soren* |
| *AOC* | *Widger* | *Bill* | *Honeywell (Solstice Adv. Materials)* | *Tan* | *Sam* |
| *ASM* | *Yun* | *Meerim* | *Intel* | *Hadder* | *Don E.* |
| *ATCP* | *Tregub* | *Alex* | *KESG* | *Kandiyeli* | *David* |
| *Camenzind Solutions* | *Camenzind* | *Mark* | *Knight Material Technologies* | *Krauss* | *Michael* |
| *CERTIE* | *Kennis* | *Ko* | *Mettler Toledo Thornton* | *Cannon* | *Jim* |
| *ChemTrade* | *Hastings* | *Bill* | *NIST* | *Radney* | *Jimmy* |
| *ChemTrade* | *Paris* | *Amy* | *Parker Hannifin* | *Hansen* | *Glade* |
| *Chemours* | *McCall* | *Jenelle* | *RTConsults* | *Yee* | *Michael* |
| *CT Associates, Inc* | *Schooneveld* | *Gary van* | *ULVAC* | *Coppa* | *Brian* |
| *Daikin America, Inc* | *Nelson* | *Per* | *Vogt Valves Inc.* | *Haas* | *Alex* |
| *Elemental Scientific, Inc* | *Ketkar* | *Suhas* | | | |
| *Evonik* | *Ledenbach* | *Laura* | *SEMI* | *Nguyen* | *Laura* |

**Table 2 Leadership Changes**

None

**Table 3 Committee Structure Changes**

None

### Table 4 Ballot Results

| *Document #* | *Document Title* | *Committee Action* |
|---|---|---|
| 7086A | Revision to SEMI F61–0521, Guide for Design and Operation of a Semiconductor Ultrapure Water System, with title change to: Guide for Design, Construction, Installation, and Operation of a Semiconductor Ultrapure Water System | **Passed**, with technical changes and with or without editorial changes; Ratification Ballot to be issued. |

#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 Ratification Ballot Results

None

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* |
|---|---|---|---|
| 7367 | forwarded to the ISC A&R SC for procedural review | Chemical Mechanical Planarization Consumables (CMP-C) TF | New Auxiliary Document: Using Machine Learning Image Processing Algorithms to Characterize Multimodal Particle Size Distributions of Chemical Mechanical Planarization Slurries<br>– ***Approved by GCS on 10/23/2025*** |

### Table 7 Authorized Activities

None

### Table 8 Authorized Ballots

None

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

None

### Table 10 SNARF(s) Canceled

None

### Table 11 Standard(s) to receive Inactive Status

| *Standard Designation* | *Title* |
|---|---|
| SEMI C10-1109 (Reapproved 1114) | Guide for Determination of Method Detection Limits |

#1: *Inactive, adj.* — Status of a Standard or Safety Guideline that is not currently supported by the GTC. [*Regulations* ¶ 4.2.19]

**Table 12 New Action Items**

| *Item #* | *Assigned to* | *Details* |
|---|---|---|
| None | | |

**Table 13 Previous Action Items**

| *Item #* | *Assigned to* | *Details* |
|---|---|---|
| 2025June#01 | SEMI Staff | Request to SEMI for an informal statement for guidance on what documents are valuable to the industry. (Why update it if it's not being used?) |
| 2025June#02 | SEMI Staff | When SEMI updates the Regs/PM, it makes it unfair for volunteers to update old documents, when SEMI is the one making the changes. |
| | | |

## 1 Welcome, Reminders, and Introductions

Per Nelson (Daikin America) called the meeting to order at 13:05 on Day 1. David Kandiyeli (Kinetics) called the meeting to order at 13:04 on Day 2. 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: David Kandiyeli / Kinetics Equipment Solutions Group (KESG)<br>Second: Bob McIntosh / GF Piping Systems |
| **Discussion:** | None |
| **Vote:** | 11-0 in favor. Motion passed. |

**Attachment**: [2025West] LChem NA TC Chapter Meeting Minutes

## 3 Liaison Reports

3.1 *Gase & Liquid Chemicals Europe TC Chapter*

Laura Nguyen (SEMI) reported for the Europe TC Chapter. Of note:

Last meeting

- SEMICON Europa, November 19, 2025
- Munich, Germany

Next meeting

- SEMICON Europa 2026
- Munich, Germany

Organization Chart *{refer to attachment for details}*

- Changes: Gases TFs discharged: Permeation Tubes for Trace Moisture Calibration and Cleaning Gases TFs

Task Force Highlights

- No Task Force updates.

Five-Year Review of Standards

- The following Standards were made inactive at SEMICON Europe 2024:

- SEMI C81-0113 (Reapproved 0618), Guide for Tris(Dimethylamino) Silane (3DMAS)
- SEMI C80-0214, Guide for Tetrakis(Dimethylamino) Silane (TDMAS)
- SEMI C66-0317, Guide for Trimethylaluminium (TMAI), 99.5% Quality
- SEMI C65-0317, Guide for Trimethylsilane (3MS), 99.995% Quality
- SEMI C52-0301 (Reapproved 0618), Specification for the Shelf Life of a Specialty Gas
- SEMI C3.57-0312 (Reapproved 0618), Specification for Carbon Dioxide, CO2, Electronic Grade in Cylinders
- SEMI C3.56-0312 (Reapproved 0618), Specification for Diborane Mixtures

- The following Standards are due for 5-year review:
  - SEMI C95-0516, Guide for Pentakis Dimethylamino Tantalum
  - SEMI C94-0516, Guide for Cyclohexanone
  - SEMI C76-0811 (Reapproved 0317), Guide for Zirconium Tert-Butoxide
  - SEMI C75-0811 (Reapproved 0317), Guide for Tetrakis(Dimethylamino)Titanium
  - SEMI C74-0811 (Reapproved 0317), Guide for Hafnium Tert-Butoxide
  - SEMI C73-0811 (Reapproved 0317), Guide for Hafnium Chloride
  - SEMI C72-0811 (Reapproved 0317), Guide for Propylene-Glycol-Mono-Methyl-Ether (PGME), Propylene-Glycol-Mono-Methyl-Ether-Acetate (PGMEA) and the Mixture 70wt% PGME/30wt% PGMEA
  - SEMI C68-0811 (Reapproved 0317), Guide for Zirconium Amides
  - SEMI C67-0811 (Reapproved 0317), Guide for Hafnium Amides

Staff Contact: Kevin Nguyen (knguyen@semi.org)

**Attachment:** EU Gases & Liquid Chemicals Liaison Report Nov2025 v1

3.2 *Liquid Chemicals Japan TC Chapter*

Laura Nguyen (SEMI) gave the Liaison Report. Refer to attachment for full details.

Last meeting

- Thursday January 29, 2026, 3:00pm – 5:30pm [JST]
- SEMI Japan Office + OVTCCM [Hybrid]

Next meeting

- Thursday May 21, 2026, 3:30pm - 5:30pm [JST]
- SEMI Japan Office + OVTCCM [Hybrid]

Committee Structure change

- Trace Metal Analysis for High Pure IPA TF
  - Dormant status

Organization Chart *{refer to attachment for details}*

Ballot Results:

7254: Revision of SEMI F110-0712: Test Method For Mono-Dispersed Polystyrene Latex (Psl) Challenge Of Liquid Filters [Failed]

7255A: Revision of SEMI C89 - Test Method for Particle Removal Performance of Liquid Filter Rated Below 30 nm with Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS) [Failed]

Authorized Ballots

| # | Type | SC/TF/WG | Details |
|---|---|---|---|
| 7267 | Cycle 5, 2026 | Liquid-borne Particle Counter Task Force | Revision to C77-0818, Test Method for Determining the Counting Efficiency of Liquid-Borne Particle Counters for Which the Minimum Detectable Particle Size is Between 30 nm and 100 nm, with title change to: Test Method for Determining the Counting Efficiency of Liquid-Borne Particle Counters for Which the Minimum Detectable Particle Size is in the Range of 20 nm and 100 nm |

Granted a One-Year Extension

- 6911: New Standard: Test Method For Metal Removal Performance Of Liquid Filter [Exp March 2027]

Five Year Review: *None*

Task Force Highlights

- Liquid Filter Task Force
  - Last Meeting: January 29, 2026 (Hybrid) / Next Meeting: May 2026 (Hybrid)
  - #7255 Revision of SEMI C89-0116: Test Method for Measuring Particle Removal Performance of Liquid Filters Rated Below 30 nm by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)
    - Ballot at CY25 Cycle 9 was conducted. Two reject votes were casted.
    - Both reject comments have common technical reasons. → TF agreed to fail this document
  - #7254 Revision of SEMI F110-0712: Test Method for Mono-Dispersed Polystyrene Latex (PSL) Challenge of Liquid Filters
    - Ballot at CY25 Cycle 9 was conducted. Two reject votes were casted.
    - Both reject comments have common technical reasons related to "CMC" → TF agreed to fail this document
  - #6911 New Standard: Test Method for Metal Removal Performance of Liquid Filter
    - SNARF had been once expired.
    - TF decided to continue this activity and the SNARF as been re-activated until Mar 2026
      - SNARF renewal needed
- Liquid-Borne Particle Counter Task Force
  - Last Meeting: September 2025 (Hybrid) / Next Meeting: TBD
  - C77-0818 :Test Method for Determining the Counting Efficiency of Liquidborne Particle Counters for Which the Minimum Detectable Particle Size is Between 30 nm and 100 nm.
    - 5-year review.
    - Change the detectable particle size of the targeted LPC from 30-100 nm to 20-100 nm.
    - Corrective action for negative comments from previous ballot.
    - Reorganize sections to match the latest SEMI Procedure Manual.
    - Grammatical corrections. → We plan to proceed with submission in Ballot Cycle 5
- Trace Metal Analysis for High Pure IPA Task Force
  - No Activity, The status has been changed to "Dormant".
- Valve & Fitting Task Force ***[New]***
  - Last Meeting: January 29, 2026 (Hybrid) / Next Meeting: May 2026
    - The results of the investigation into valve and fitting standards were shared at the TF meeting.
    - No discussion on this agenda item took place at the TF meeting.
    - Information was provided regarding the JIS committee on PFAS analysis methods.
    - Members were asked to consider the necessity of a contact point and requested to email their opinions to Leader Saso.

Staff Contact: Takeaki Hirabara at thirabara@semi.org

**Attachment:** JA_LC_Liaison_2026_Feb_rev1

3.3 *SEMI Staff Report*

SEMI Global 2026 Calendar of Events

- SEMICON Korea (Feb 11-13; Seoul, Korea)
- SEMICON China (March 25-27; Shanghai, China)
- SEMIEXPO Heartland (April 29-30; Detroit, Michigan)
- SEMICON Southeast Asia (May 5-7, 2026; Kuala Lumpur, Malaysia)
- SEMICON Taiwan (Sept 2-4; Taipei)
- SEMICON India (Sept 17-19; New Delhi)

SEMICON West 2026-2030

- 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

Upcoming NA Meetings 2026

- NA Standards Winter Meetings: Feb 9-12, full virtual
- NA Spring Meetings (in conjunction with ASMC): May 11-14, 2026, Hilton Albany, New York
  - *{refer to attachment for additional information on ASMC}*
- SEMICON West Meeting: Oct 12-15, 2026, at Moscone Center, San Francisco, CA/USA

2026 Critical Dates for SEMI Standards Ballots

- Cycle 2-2026: Ballot Submission Due: Jan 23/Voting Period: Feb 11 – Mar 13
- Cycle 3-2026: Ballot Submission Due: Mar 5/Voting Period: Mar 18 – Apr 17
- Cycle 4-2026: Ballot Submission Due: Mar 30/Voting Period: Apr 14 – May 14
- Cycle 5-2026: Ballot Submission Due: May 8/Voting Period: May 27 – June 26
- https://www.semi.org/en/collaborate/standards/ballots

Standards Publications Report

| *Cycle* | *New* | *Revised* | *Reapproved* | *Withdrawn* |
|---|---|---|---|---|
| October 2025 | 0 | 2 | 3 | 0 |
| November 2025 | 1 | 7 | 5 | 0 |
| December 2025 | 0 | 9 | 0 | 0 |

Total in portfolio – 1,108 (includes 374 Inactive Standards)

14 New SEMI Standards Published in 2025

- SEMI E192 – Guide for Equipment Adoption Criteria for GEM and GEM-related Standards
- SEMI D87 – Test Method for Response Time Evaluation of Displays with Variable Refresh Rate
- SEMI PV102 – Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production
- SEMI F122 – Guide for Facilities Data Package for Manufacturing Equipment Installation and Building Information Modeling
- SEMI D88 – Specification for Electrostatic Properties of FPD Photomasks and Blanks Package
- SEMI MS15 – Guide to MEMS Manufacturing Readiness Levels
- SEMI E193 – Specification for 300 mm Film Frame FOUP (FFF)
- SEMI M94 – Specification for Silicon Carbide Engineered Substrates

- SEMI E194 – Guide to Using a Liquid Particle Counter to Assess Particulate Surface Contamination on Critical Chamber Components and Coupons
- SEMI E195 – Test Method Using Adhesive Replacement Substrates to Assess Particulate Surface Contamination on Critical Chamber Components
- SEMI E196 – Guide for Equipment Edge Data Governance
- SEMI M95 – Test Method for Net Carrier Density and Resistivity of Silicon Epitaxial Layer by Capacitance–Voltage Measurements with an Evaporated Metal Schottky Diode
- SEMI T26 – Specification for Electronic Supply Chain Traceability Using Distributed Ledger Technology
- SEMI T27 – Specification for Traceability Identification Label of Component Parts

Regulations & Procedure Manual

- Regulations (Feb 20, 2024)
    - https://www.semi.org/sites/semi.org/files/2024-02/Standards%20Regulations%20February%2020%202024.pdf
- Procedure Manual (July 7, 2025):
    - https://www.semi.org/sites/semi.org/files/2025-07/Procedure%20Manual%20July%2007%2C%202025%20v1.pdf

SEMI IT - China SVM Issue *{refer to attachment for images}*

- Acquired Consultant to Rebuild SVM on Ballot Platform November 2025
- Thai leading development team
- HQ Kevin, Laura, Michelle and China Standards Staff supporting
- User Testing – January 2026
- Beta Launch Target – February 2026
- Feedback and Performance Refinement – February to March 2026

BETA – Standards Virtual Meeting App *{refer to attachment for images}*

Educational Courses under Development

- *{Subfab} Intro to Sub-fab Course*
- Objective: Gain a comprehensive understanding of SubFAB operations, including system components, facility layouts, environmental and sustainability considerations, organizational structure, safety and maintenance best practices, and incident-response preparedness within the semiconductor manufacturing ecosystem.
- Course Date: Early 2026 (2 sessions, EU & Asia friendly)
- Status: Under development
- Other courses being considered: SECS/GEM, Seals, Cybersecurity

Introducing the SEMI University Learning Platform *{refer to attachment for additional information}*

- SEMI University is designed for the semiconductor industry by experts
- Targeted to employees ranging from new operators to experienced technicians to non-technical staff
- Semiconductor content, business content and other skills
- 250+ on-demand courses designed specifically for our industry.

Staff Contact: Laura Nguyen, Lnguyen@semi.org

**Attachment:** Staff_HQ Report Feb 2026 v3

## 4 Ballot Review

NOTE 3: 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 # 7086A, Revision to SEMI F61–0521, Guide for Design and Operation of a Semiconductor Ultrapure Water System, with title change to: Guide for Design, Construction, Installation, and Operation of a Semiconductor Ultrapure Water System

- The Document passed TC Chapter review with technical changes and with or without editorial changes; Ratification Ballot to be issued. Refer to attachment for ballot adjudication.

**Attachment:** 7086A_ProceduralReview

## 5 Subcommittee and Task Force Reports

5.1 *Statistical Methods Task Force (Dormant)*

5.2 *Chemical Analytical Methods (CAM) Task Force*

David Kandiyeli (KESG) reported for the CAM Task Force. Refer to attachment for full details.

**Attachment:** CAM Winter 2026 NALCC Meeting Report DDK 2-9-2026 REVP01

5.3 *High Purity Liquid Assemblies & Systems Task Force*

David Kandiyeli (Kinetics) reported for the High Purity Liquid Assemblies & Systems Task Force. Refer to attachment for full details.

**Attachment:** HPLAS Winter 2026 NALCC Meeting Report DDK 2-9-2025 REVP01

5.4 *High Purity Polymer Materials & Components Task Force*

Bob McIntosh (GF Piping) reported on the High Purity Polymer Materials and Components Task Force. Refer to attachment for full details.

**Attachment:** NALCC HPPMC Task Force 20260210bm.pn

5.5 *Ultrapure Water Task Force*

Gary van Schooneveld (CT Associates) reported for the UPW Task Force. Refer to attachment for full details.

**Attachment:** UPW Task Force - Winter 2026 Standards Meetings – February 10, 2026

5.6 *Water Management Task Force*

No update.

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

Alex Tregub (ATPC) presented for the Chemical Mechanical Planarization Consumables (CMP-C) Task Force. Refer to attachment for full details.

**Attachment:** CMP-C TF Leaders TF Report Feb 2026

## 6 Old Business

6.1 *Standards to go to Inactive Standards*

| | |
|---|---|
| **Motion:** | Send C10, Guide for Determination of Method Detection Limits, to Inactive Status |
| **By / 2nd:** | By: Bob McIntosh / GF Piping Systems<br>Second: Gary Van Schooneveld / CT Associates, Inc |
| **Discussion:** | None |
| **Vote:** | 7-0 in favor. Motion passed. |

## 7 New Business

None

## 8 Action Item Review

8.1 There are no New Action Items. Previous action items are noted in Table 12 in 'red' and for recent updates in 'blue'. There is no further business.

## 9 Next Meeting and Adjournment

9.1 The next meeting is tentatively scheduled for the week of May 11-14, 2026, to be held in-person and virtual in conjunction with ASMC in Albany, New York. Schedule details TBD. https://www.semi.org/en/products-services/standards.

**Tentative Schedule:**

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

- Monday, May 11 (Open for meetings)
  - ???, NA LChem Leadership Meeting
- Tuesday, May 12
  - 13:00-16:00, Liquid Chemicals NA TC Chapter Meeting (Day 1)
- Wednesday, May 13 *(tentative)*
  - 13:00-16:00 Liquid Chemicals NA TC Chapter Meeting (Day 2)

Adjournment: Day 1, 16:01; Day 2, 14:31.

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:

| | |
|---|---|
| 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 XXXX.**

**Table 14 Index of Available Attachments[#1]**

| *Title* | *Title* |
|---|---|
| SEMI Standards Required Meetings Elements | CAM Winter 2026 NALCC Meeting Report DDK 2-9-2026 REVP01 |
| [2025West] LChem NA TC Chapter Meeting Minutes | HPLAS Winter 2026 NALCC Meeting Report DDK 2-9-2025 REVP01 |
| EU Gases & Liquid Chemicals Liaison Report Nov2025 v1 | NALCC HPPMC Task Force 20260210bm.pn |
| JA_LC_Liaison_2026_Feb_rev1 | UPW Task Force - Winter 2026 Standards Meetings – February 10, 2026 |
| Staff_HQ Report Feb 2026 v3 | CMP-C TF Leaders TF Report Feb 2026 |
| 7086A_ProceduralReview | |

#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.