



Liquid Chemicals North America TC Chapter

Meeting Summary and Minutes

North America SEMICON West 2018 Standards Meetings

July 10, 2018 14:00–17:00

San Francisco, California

TC Chapter Announcements

Next TC Chapter Meeting

November 6, 2018 14:00 – 17:00

SEMI HQ, Milpitas, CA

General Announcement

Co-Chair of the North America Chapter, Don Hadder (Intel), expressed sincere appreciation to Frank Flowers (Peroxy Chemicals) for his leadership and contribution to the SEMI Standards development. Frank Flowers is retiring and is stepping down from the co-Chair position effective July 2018.

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Don Hadder (Intel); Steve Rogers (KMG Chemicals); Laura Ledenbach (PeroxyChem)

SEMI Staff: Inna Skvortsova

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Intel	Hadder	Don	Versum Materials	Ketkar	Suhas
PeroxyChem	Ledenbach	Laura	Air Liquide	Le	Quynh
KMG Chemicals	Rogers	Steve	Air Liquide	Fuhe	Li
FDT Solutions	Libman	Slava	PeroxyChem	Rego	Rebecca
Mega Fluid Systems	Kandiyeli	David	Rikutec America	Reinig	Gerd
SACHEM	Schleisman	Tony	Asia Union Electronic Chemicals	Thomas	James
GlobalFoundries	Prettyman	Kevin	Samsung	Hosni	Mehrdad
GF Piping Systems	McIntosh	Bob	Solvey	Terracina	Vincent
Mega Fluid Systems	Murai	Koh	SEMI	Skvortsova	Inna
Kanomax Holdings	Blackford	David	SEMI	Iwamura	Mizue
Parker Hannifin Corp.	Conner	Darren			

Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader</i>	<i>New Leader</i>
NA Chapter of Liquid Chemicals TC	Frank Flowers (PeroxyChem)	Steve Rogers (KMG Chemicals) Laura Ledenbach (PeroxyChem)



Motion: To appoint new coChairs of NA Chapter of Liquid Chemicals Technical Committee:

- Steve Rogers (KMG Chemicals)
- Laura Ledenbach (PeroxyChemicals)

By / 2nd: Koh Murai (Mega Fluids) / Bob McIntosh (GF Piping)

Discussion: None

Vote: 15Y/0. Motion passed.

Table 3 Committee Structure Changes

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

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6383	Reapproval to SEMI C20-0213, <i>Specification and Guide for Ammonium Fluoride 40%</i>	Passed
6384	Reapproval for SEMI C34-0113, <i>Specification and Guide for Mixed Acid Etchants</i>	Passed
6385	Reapproval to SEMI C78-0113, <i>Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Atomic Force Microscopy</i>	Passed

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

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

Table 5 Activities Approved by the GCS between meetings of the TC Chapter

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

Table 6 Authorized Activities

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

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
6388	SNARF	CAM TF	Revision to SEMI C44-0514, <i>Specification and Guide for Sulfuric Acid</i> New SNARF previously distributed for 2-week review and approved by TC
6399	SNARF	HPPLA&S TF	Line-item Revision to SEMI E49-0617, <i>Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies</i> New SNARF approved by TC and authorized for Cycle 7-2018 ballot submission
6433	SNARF	CAM TF	New Standard, <i>Test Method for Determining Conductivity of Chemical Mechanical Polish (CMP) Slurries and Related Chemicals</i> New SNARF previously distributed for 2-week review, approved by TC
TBD	SNARF	CAM TF	Revision to SEMI C1-0310 (Reapproved 0618), <i>Guide for the Analysis of Liquid Chemicals</i> New SNARF to be distributed for 2-week member review followed by 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

#	When	TF	Details
6085	Cycle 7/8-2018	HPPM&C TF	Revision to SEMI F57- 0314, <i>Specification for High Purity Polymer Materials and Components Used in Ultrapure Water and Liquid Chemical Distribution Systems.</i>
6316	Cycle 7-2018	UPW TF	Revision to SEMI C79-0113, <i>Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in Ultrapure Water (UPW) Distribution Systems</i>
6399	Cycle 7-2018	HPPLA&S TF	Line-item Revision to SEMI E49-0617, <i>Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies</i>

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

#	TF	Title	Expiration Date
NONE			

Table 9 SNARF(s) Abolished

#	TF	Title
NONE		

Table 10 Standard(s) to receive Inactive Status

Standard Designation	Title
NONE	

Table 11 New Action Items

Item #	Assigned to	Details
2018 SW #01	Inna S.	Distribute SNARF for revision to SEMI C1 for 2-week member review and GCS approval and ballot authorization CLOSED. SNARF #6451.
2018 SW #02	Inna S.	Organize training for new co-Chairs covering the following topics: R&R, Motion Procedure; Proofing process. Conduct training in conjunction with Fall TC Meetings during LChem Leadership Meeting. CLOSED. Training provided as part of NA LChem Leadership Meeting session.
2018 SW #03	Don H.	Attend EHS meetings to evaluate the status/transition of SEMI F8 and F18 documents. CLOSED.

Table 12 Previous Meeting Action Items

Item #	Assigned to	Details
2018 Spring #01	Slava L, Inna S.	SEMI Standards NA Fall 2018 meeting dates overlap with IRDS meetings Nov5-8 at Washington DC. If possible move Fall meetings later or earlier one week. Avoid scheduling conflict for 2019 in advance. CLOSED. We understand the overlap, but Stds Meetings schedule for Fall cannot be changed.
2018 Spring #02	Mizue Chie (SEMI Staff)	Ultrapure Liquid Evaluation Study Group under Japan Chapter of LCh TC to share report with NA co-Chairs as presented results of the experiment and analysis at INE by Mr. Yoshida from KANTO KAGAKU on LC Japan TC Chapter on April 23, 2018.

Table 12 Previous Meeting Action Items

		CLOSED. Part of JA Liaison Report (slide #15)
2018 Spring #03	Koh M. / Bob M.	Bob should forward to Koh technical content for F07&F12 CLOSED.
2018 Spring #04	Don, Koh, Shean L.	To review with Shean L. (EHS TC) F7, F8, F9, F10, F11, F12, and F18. content after LChem TC will summarize, for transferring to EHS TC. Inna to provide Koh with Shean L. contact information. CLOSED: Don H. attended EHS MESSC meeting during SEMICON West. EHS group will not accept the transfer of documents to Safety, but agree to let documents to receive inactive status. 1) F7, F9, F10, F11, F12 – Currently Inactive; 2) LiqChem TC vote to allow F8 and F18 to go inactive at Fall 2018 TC meeting.
2018 Spring #05	Inna S.	Distribute SNARFs for revision to SEMI C44 and Revision to SEMI E49 for 2-week member review and GCS approval and ballot authorization. SNARF were distributed to GTC for review on April 24 th . CLOSED
2018 Spring #06	Inna S.	Arrange SEMIViews access for Bob McIntosh for SEMI C78 CLOSED. SEMIViews access arranged.

1) Welcome, Reminders, and Introductions

Don Hadder (Intel) called the meeting to order at 14:05PM. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment 01: SEMI Standards Required Meeting Elements.ppt

2) Review of Previous Meeting Minutes

2.1 The TC Chapter reviewed and approved the minutes of the previous Spring 2018 Standards meeting.

Motion: To approve minutes as written
By / 2nd: Koh Murai (Mega Fluids) / Bob McIntosh (GF Piping)
Discussion: None
Vote: 15Y/0. Motion passed.

Attachment 02: NA Liquid Chemicals TC Meeting Minutes (Spring 2018).pdf

3) SEMI Staff Report

Inna Skvortsova (SEMI) gave the SEMI Staff Report. Of note:

SEMI Global 2018 Calendar of Events

- SEMICON West (July 10-12, 2018, San Francisco, California)
- SEMICON Taiwan (September 5-7, 2018, Taipei, Taiwan)
- SEMICON Europa (November 13-16, 2018, Munich, Germany)
- SEMICON Japan (December 12-14, 2017, Tokyo, Japan)

Upcoming North America Meetings



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

Letter Ballot Critical Dates for NA Standards meetings

- Cycle 6-18: due July 20 / Voting Period: Aug 1 – Aug 31
- Cycle 7-18: due Aug 22 / Voting Period: Sep 5 – Oct 5
- Cycle 8-18: due Oct 22 / Voting Period: Oct 26 – Nov 26
- Cycle 9-18: due Nov 14/ Voting Period: Nov 28 – Dec 28

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

- SEMI Standards Publications

Cycle	New	Revised	Reapproved	Withdrawn
April 2018	0	9	2	0
May 2018	0	3	5	0
June 2018	2	14	11	0

Total SEMI Standards in portfolio: 987. Includes 236 Inactive Standards

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

- New Forms, Regulations & Procedure Manual
 - New version of *Regulations* (June 8, 2018)
 - New version of *Procedure Manual* (June 8, 2018)
 - New TFOF & SNARF
 - 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.
 - 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)
 - Improvement on handling copyright process
 - New process for handling trademarks
- Additional Official Virtual TC Chapter Meeting Related Rules (*Regulations* ¶ 7.4.2 and § 9.5)
 - 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)
 - 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)
 - Two types, made independently from a Letter Ballot.
 - Both requires TC approval and subsequent A&R approval.
 - 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);
 - 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)
 - 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
 - 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)
 -
- *SNARF(s) and TFOF **approved** by GCS in between TC Chapter Meetings*
 - **None**
- *SNARF(s) and TFOF **distributed** to GCS in between TC Chapter Meetings for review/feedback between TC Chapter Meetings*
 - SNARF for Revision to **SEMI C44-0514**, Specification and Guide for Sulfuric Acid
 - In review 4/25/2018 - 5/09/2018
 - SNARF for Revision to **SEMI E49-0617**, Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies
 - In review 4/25/2018 - 5/09/2018
 - NOTE: This SNARF scope changed from Revision to Line-item revision; Revised SNARF for LI Revision will be authorized at NA LChem TC
 - SNARF for New Standard, Test Method for Determining Conductivity of Chemical Mechanical Polish (CMP) Slurries and Related Chemicals
 - In review 6/15/2018 - 6/29/2018
 - SNARF for New Standard, Test Method for ICP-MS of Ultrapure Liquid Chemicals
 - In review 6/21/2018 – 7/5/2018
- *SNARF 3 year status TC Chapter may grant a one-year extension:*
 - **None**
- *SNARFs to abolish at TC meeting:*
 - **None**
- *Nonconforming Titles*
 - **SEMI C33-0213** - Specifications for n-Methyl 2-Pyrrolidone
 - **SEMI C36-1213** - Specifications for Phosphoric Acid
 - **SEMI C64-0308** (Reapproved 1214) - SEMI Statistical Guidelines for Ship To Control
 - **SEMI F104-0312** - Particle Test Method Guide for Evaluation of Components Used in Ultrapure Water and Liquid Chemical Distribution Systems

NOTE: Refer to Procedure Manual (PM) Appendix Table A4-1 and A4-2



- Documents due for 5 Year Review

Name	Due for Review	Title
**SEMI F104-0312	3/1/2017	Particle Test Method Guide for Evaluation of Components Used in Ultrapure Water and Liquid Chemical Distribution Systems
SEMI C79-0113	1/31/2018	Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in Ultrapure Water (UPW) Distribution Systems
SEMI F18-95 (Reapproved 0413)	4/26/2018	Guide for Determining the Hydrostatic Strength of, and Design Basis for, Thermoplastic Pipe and Tubing
SEMI C36-1213	12/30/2018	Specifications for Phosphoric Acid
SEMI C51-0114	1/10/2019	Specification for Xylenes
SEMI C80-0214	2/14/2019	Guide for Tetrakis(Dimethylamino) Silane (TDMAS)
SEMI C84-0214	2/28/2019	Guide for Cyclopentanone
SEMI C85-0214	2/28/2019	Guide for Methyl Isobutyl Carbinol (MIBC)
SEMI C19-0514	5/16/2019	Specification for Acetone

Attachment 03: SEMI Staff Report Liquid Chemicals TC (July 2018).ppt

4) Liaison Reports

4.1 Liquid Chemicals Europe TC Chapter – no update, next meeting November 2018

- Staff Contact: James Amano (jamano@semi.org)

4.2 Liquid Chemicals Japan TC Chapter

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

- Committee Co-chairs
 - Hiroshi Tomita (Toshiba)
 - Hiroyuki Araki (SCREEN Semiconductor Solutions)
- Last Meeting: April 23, 2018 during Japan Spring Meetings at SEMI Japan, Tokyo, Japan
- Next Meeting: TBD: December 12 or 14, 2018 at SEMICON Japan 2018, Tokyo, Japan
- Ballot Results

Doc #	Document Title	TC Chapter Action
6320	Line Item Revision to SEMI C77-0912: 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	-
Line Item 1	Correct the expressional accuracy in 6.4.1.	Passed as balloted, Super Clean
Line Item 2	Correct the grammatical mistakes in Figure 1.	Passed as balloted, Super Clean
Line Item 3	Correct the expression which may be misunderstood in 7.2.4 and Table 1.	Passed as balloted, Super Clean
Line Item 4	Correct the mistake of the superscript notation and the numerical row in 7.2.4.	Passed as balloted, Super Clean
Line Item 5	Specify the meaning of CV value in 7.5.3.1	Passed as balloted, Super Clean
Line Item 6	Adjust the expression of temperature to the notation of SI unit in 6.2.2 and 6.5.2.	Passed as balloted, Super Clean

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.

o

o **Five-Year Review**

Designation	Standard Title	Action By	Assigned to
SEMI C82-0713	Test Method for Particle Removal Performance of Liquid Filter Rated 20 to 50 nm With Liquid-Borne Particle Counter	2018	Liquid Filter Task Force
SEMI C83-0713	Test Method for Tensile Strength Applied to Welded Connections Made by PFA Weld Fitting	2018	Welding Fitting Task Force
SEMI C89-0116	Test Method for Particle Removal Performance of Liquid Filter Rated Below 30 nm with Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS)	2021	-

o **Task Force / Study Group Reports:**

o Diaphragm Valve Task Force

- No activities

o Welding Fitting Task Force

- No activities

o Liquid Filter Task Force

- #6197 - Reapproval to SEMI F110-0712
- SNARF was approved at Liquid Chemical Japan TC Chapter meeting on April 21, 2017
- Ballot submitted for Cycle 5-2017, passed at Liquid Chemical Japan TC Chapter on December 13, 2017 during SEMICON Japan 2017.
 - o Editorial Change was proposed as report (separately from #6197) and passed at LC Japan TC Chapter meeting on December 13, 2017
 - o Passed A&R in January 2018
 - o Editorial change also passed A&R in January

o Liquid-Borne Particle Counter (LPC) Task Force

- 6196 - Reapproval to SEMI C77-0912
- SNARF was approved at Liquid Chemical Japan TC Chapter meeting on April 21, 2017
 - o Ballot submitted for Cycle 7-2017 and passed at Liquid Chemical Japan TC Chapter on December 13, 2017 during SEMICON Japan 2017
 - o Passed A&R in January 2018

o Ultrapure Liquid Evaluation Study Group



- Considering to standardize the particle measurement at POP in future.
- Asking a cooperation by Interfacial Nano Electrochemistry for seeking the solution to the issues concerned to analyzing metals of organic solvent including IPA.
 - The results of the experiment and analysis at INE were reported by Mr. Yoshida from KANTO KAGAKU on LC Japan TC Chapter on April 23, 2018.
 - INE found out the cause of difference between the amount of the Fe contamination in the DI water and the amount of the Fe contamination which pours the DI water over the Si wafer surface.
- Ultrapure Liquid Chemical Evaluation Study Group will be discharged at next committee meeting since the report was provided.
- To consider the future standardization

For more information, please contact: Mizue Iwamura, SEMI Japan, miwamura@semi.org

Attachment 04: Japan Liquid Chem Liaison Report (July 2018).pdf

5) 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.

Ballot #6383

The TC Chapter reviewed the Document #6383, Reapproval to SEMI C20-0213, *Specification and Guide for Ammonium Fluoride 40%*

The ballot **passed** TC review and will be submitted to the ISC A&R for procedural review. Details can be found in the attached Procedural Review file.

Motion: Document # 6383 is not a Safety Document, when all safety-related information is removed, Document is still technically sound and complete.

By / 2nd: Koh Murai (Mega Fluid Systems) / Anthony Schleisman (Sachem)

Discussion: None.

Vote: 15-0. Motion passed.

Motion: Forward Document # 6383 to the ISC A&R for procedural review as written.

By / 2nd: Koh Murai (Mega Fluid Systems) / Anthony Schleisman (Sachem)

Discussion: None.

Vote: 15-0. Motion passed.

Attachment 05: 6383_Procedural Review

Ballot #6384

The TC Chapter reviewed the Document #6384, Reapproval for SEMI C34-0113, *Specification and Guide for Mixed Acid Etchants*

The ballot **passed** TC review and will be submitted to the ISC A&R for procedural review. Details can be found in the attached Procedural Review file.

Motion: Document # 6384 is not a Safety Document, when all safety-related information is removed, Document is still technically sound and complete.



By / 2nd: Koh Murai (Mega Fluid Systems) / Anthony Schleisman (Sachem)

Discussion: None.

Vote: 15-0. Motion passed.

Motion: Forward Document # 6384 to the ISC A&R for procedural review as written.

By / 2nd: Koh Murai (Mega Fluid Systems) / Steve Rogers (KMG Chemicals)

Discussion: None.

Vote: 15-0. Motion passed.

Attachment 06: 6384_Procedural Review

Ballot #6385

The TC Chapter reviewed the Document #6385, Reapproval to SEMI C78-0113, *Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Atomic Force Microscopy*.

The ballot **passed** TC review and will be submitted to the ISC A&R for procedural review. Details can be found in the attached Procedural Review file.

Motion: Document # 6385 is not a Safety Document, when all safety-related information is removed, Document is still technically sound and complete.

By / 2nd: Koh Murai (Mega Fluid Systems) / Anthony Schleisman (Sachem)

Discussion: None.

Vote: 15-0. Motion passed.

Motion: Forward Document # 6385 to the ISC A&R for procedural review as written.

By / 2nd: Bob McIntosh (GF Piping) / Koh Murai (Mega Fluid Systems)

Discussion: None.

Vote: 15-0. Motion passed.

Attachment 07: 6385_Procedural Review

6) Subcommittee and Task Force Reports

6.1 Ultrapure Water Task Force Report

- Leadership change:
 - None
- Ballot Adjudication:
 - None
- New SANRFs
 - None
- Upcoming Ballots in Cycle 7-18
 - 6316, Revision of SEMI C79-0113, Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in Ultrapure Water (UPW) Distribution Systems
- Current Activities/Other:



- SEMI C79 Retention Testing Development – UF1 (Preliminary Review Data) – please refer to the attached report.
- Target to ballot Revision to SEMI C79 by end of year 2018.
- Upcoming Activities
 - To align with IRDS 2018, SNARFs for revision/line-item revision for SEMI F61, F63, F75 will be prepared and submitted at Spring 2019 Standards Meetings;

Attachment 08: UPW Task Force Report - SEMI C79 Retention Testing Development – UF1.pdf

6.2 Chemical Analytical Methods Task Force Report

David Kandiyeli reported for the CAM Task Force. Of note:

- New SNARFs proposals
 - New Standard: Test Method for Determining Conductivity of Chemical Mechanical (CMP) Slurries and Related Chemicals
 - Submitted 6/15/18
 - Will include sample preparation.
 - Meetings will start ~Sep 2018
 - New Standard: Test Method for ICP-MS of Ultrapure Liquid Chemicals
 - Submitted 6/14/18
 - Will be a revision to SEMI C1 to incorporate measurement of trace metals in liquid chemicals by ICP-MS for specifications at or below 50ppt.
 - Meetings will start ~Sep 2018
- Revised SNARFs proposals
 - Revised the SNARF “ICP-MS” title to “C1 – Revision” instead of “New Standard”
- SNARFs to abolish
 - None This Period
- Ballot Adjudication:
 - Passed:
 - C20-0213 (Ballot 6383) Specification and Guide for Ammonium Fluoride 40%
 - C34-0113 (Ballot 6384) Specification and Guide for Mixed Acid Etchants
 - Failed:
 - None this period
- Upcoming Activities:
 - Locate and recruit members to join the Test Method for Determining Conductivity of Chemical Mechanical (CMP) Slurries and Related Chemicals work group
 - Locate and recruit members to join the Test Method for ICP-MS of Ultrapure Liquid Chemicals work group

Attachment 09: CAM TF Report (July 2018).pdf

6.3 High Purity Liquid Assemblies and Systems (HPLA&S) Task Force Report



Koh Murai reported for the HPLA&S Task Forces. Of note:

- Leadership change:
 - None
- Ballot Adjudication:
 - None
- New SANRFs
 - Line-item Revision to SEMI E49-0617, *Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies*
- Upcoming Ballots in Cycle 7-18
 - Line-item Revision to SEMI E49-0617, *Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies*

Attachment 10: HPLAS Task Force Report (July 2018).pdf

6.4 High Purity Polymer Materials & Components (HPPM&C) Task Force Report

Bob McIntosh reported for HPPM&C Task Force. Of note:

- SEMI F104-0312, *Particle Test Method Guide for Evaluation of Components Used in Ultrapure Water and Liquid Chemical Distribution systems*

Out of date, the information not in sync with the industry.

A new test plan was developed to do testing on a wide range of components and materials (PFA valves and tubing and PVDF valves in both 32 and 63mm). (66% complete)

The test plan includes multiple optical particle counters and new non optical particle measurement devices to get a correlation between “old and new” technologies. All the counters will be measure con-currently.

The goal is to get a database on particles using these analyzers to understand both the values of particles but also to get information on smaller particles which are required to meet even current 14nm and smaller technologies.

Revise the rinse up numbers in the guideline.

Move particles out of SEMI F57 and add them to SEMI F104.

This will change F104 from a method to a method and specification (or at least guide). This is not included in original SNARF#6195 and revision of the SNARF may be needed.

Testing of components is 50% complete. Target completion date by November 2018 Standards meetings. Remaining work is on large diameter valves.

Attachment 11: HPPM&C Task Force Report (July 2018).pdf

7) Old Business

7.1 Standards due for Five-Year Review.

Inna Skvortsova addressed the TC Chapter on this topic. Of note:

Name	*Due	Title	Status / Action required



**SEMI F104-0312	3/1/2017	<i>Particle Test Method Guide for Evaluation of Components Used in Ultrapure Water and Liquid Chemical Distribution Systems</i>	SNARF approved. TF leader is working on document;
SEMI C79-0113	1/31/2018	<i>Guide to Evaluate the Efficacy of Sub-15 nm Filters Used in Ultrapure Water (UPW) Distribution Systems</i>	Ballot planned by EOY2018
SEMI F18-95 (Reapproved 0413)	4/26/2018	<i>Guide for Determining the Hydrostatic Strength of, and Design Basis for, Thermoplastic Pipe and Tubing</i>	Verify with EHS for transfer or let go inactive
SEMI C36-1213	12/30/2018	<i>Specifications for Phosphoric Acid</i>	Assigned to CAM TF
SEMI C51-0114	1/10/2019	<i>Specification for Xylenes</i>	CAM TF to prepare new SNARF by Fall 2018
SEMI C80-0214	2/14/2019	<i>Guide for Tetrakis(Dimethylamino) Silane (TDMAS)</i>	EU – Gases TC
SEMI C84-0214	2/28/2019	<i>Guide for Cyclopentanone</i>	EU – LChem TC
SEMI C85-0214	2/28/2019	<i>Guide for Methyl Isobutyl Carbinol (MIBC)</i>	EU – LChem TC
SEMI C19-0514	5/16/2019	<i>Specification for Acetone</i>	TBD

7.2 SNARFs Approaching 3-Year Review

- No SNARFs need extension.

8) New Business

8.1 New TFOFs and SNARFs Authorization:

- **No new TFOFs**
- **New SNARFS and ballots authorization**

Motion: To approve the SNARF for New Standard, *Test Method for Determining Conductivity of Chemical Mechanical Polish (CMP) Slurries and Related Chemicals*

By / 2nd: Koh Murai (Mega Fluid Systems) / Anthony Schleisman (Sachem)

Discussion: None.

Vote: 12-0. Motion passed

Motion: To approve the SNARF for Revision to SEMI C44-0514, *Specification and Guide for Sulfuric Acid*

By / 2nd: Koh Murai (Mega Fluid Systems) / David Kandiyeli (Mega Fluid Systems)

Discussion: None.



Vote: 12-0. Motion passed

Motion: To approve the SNARF for Line-item Revision to SEMI E49-0617, *Guide for High Purity and Ultrahigh Purity Piping Performance, Subassemblies, and Final Assemblies* and authorize ballot for Cycle 7 2018 submission

By / 2nd: Bob McIntosh (GF Piping) / Koh Murai (Mega Fluid Systems)

Discussion: None.

Vote: 13-0. Motion passed

- Technical Committee authorized to distribute new SNARF for the following document to for 2-week Global TC membership review followed by GCS approval:
 - Revision to SEMI C1-0310 (Reapproved 0618), *Guide for the Analysis of Liquid Chemicals*

Motion: To authorize ballots submission for Cycle 7-2018 for Revision to SEMI F57 and Revision to SEMI C79

By / 2nd: Bob McIntosh (GF Piping) / Slava Libman (FTD Solutions)

Discussion: None.

Vote: 13-0. Motion passed

Action Items:

(Inna Skvortsova) Distribute SNARF for revision to SEMI C1 for 2-week member review and GCS approval and ballot authorization

(Inna Skvortsova) Organize training for new co-Chairs covering the following topics: R&R, Motion Procedure; Proofing process. Conduct training in conjunction with Fall TC Meetings during LChem Leadership Meeting.

(Don Hadder) Attend EHS meetings to evaluate the status/transition of SEMI F8 and F18 documents.

9) IRDS Council Update Report

Slava Libman presented SECC IRDS report. For details and additional information about IRDS Council, please contact Slava Libman at slibman@ftdsolutions.net

10) Next Meeting and Adjournment

The next meeting is scheduled for November 6, 2018 at SEMI HQ, CA in conjunction with NA Standards Fall Meetings. See <http://www.semi.org/standards-events> for the current list of events. Having no further business, a motion was made to adjourn. Adjournment was at 4:40 PM.

Respectfully submitted by:

Inna Skvortsova

Sr. Standards Coordinator

SEMI North America

Phone: 408-9436996



Email: iskvortsova@semi.org

Minutes tentatively approved by:

Don Hadder (Intel), Co-chair	9/26/2018
Laura Ledenbach (Peroxy Chem)	10/1/2018
Steve Rogers (KMG Chemicals) Co-chair	

Table 13 Index of Available Attachments^{#1}

<i>Title</i>	<i>Title</i>
Attachment 01: SEMI Standards Required Elements.ppt	Attachment 07: 6385_Procedural Review
Attachment 02: NA Liquid Chemicals TC Meeting Minutes (Spring 2018).pdf	Attachment 08: UPW Task Force Report (July 2018)
Attachment 03: SEMI Standards Staff Report (July 2018).ppt	Attachment 09: CAM Task Force Report (July 2018)
Attachment 04: Japan Liquid Chem Liaison Report (July 2018).pdf	Attachment 10: HPLA&S Task Force Report (July 2018)
Attachment 05: 6383_Procedural Review	Attachment 11: HPPM&C Task Force Report (July 2018)
Attachment 06: 6384_Procedural Review	

#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 [SEMI Staff Name] at the contact information above.