



Facilities & Gases North America Joint TC Chapter Meeting Summary and Minutes

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

TC Chapter Announcements

Next TC Chapter Meeting

NA Standards Spring 2019 Meetings

Tuesday, April 2, 09:00 – 12:00 Noon

SEMI Global Headquarters, Milpitas, California

Table 1 Meeting Attendees

Italics indicate virtual participants

Facilities Co-Chairs: Steve Lewis (BW Design Group)

Gases Co-Chairs: Mohamed Saleem (Brooks Instrument)

SEMI Staff: Laura Nguyen

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
<i>Advanced Pressure (AP) Technology</i>	<i>Kiikvee</i>	<i>Bill</i>	<i>National Grid</i>	<i>Burns</i>	<i>Clay</i>
Air Liquide Electronics	Maohua	Pan	<i>Rockwell</i>	<i>Kagerbauer</i>	<i>Josh</i>
BestESD	Kraz	Vladimir	Swagelok	Shutler	Rob
Brooks Instrument	Saleem	Mohamed	TEL	Mashiro	Supika
Brooks Instrument	Findleton	Kevin	TUV SUD	Ko	Kennis
<i>Brooks Instrument</i>	<i>Nagarajan</i>	<i>Arun</i>	Ultra Clean Technology (UCT)	Chen	Yanli
BW Design Group	Lewis	Steve	Ultra Clean Technology (UCT)	Milburn	Matt
<i>EPRI</i>	<i>Stephens</i>	<i>Mark</i>	Valex Corp	Kim	Joshua
Daido Steel	Yoshida	Yutaka	WIKA Instruments	Christian	Jeff
Fujikin of America	Kitano	Erica	WIKA Instruments	Fritz	Thomas
Hitachi High-Technologies	Enami	Hikomichi			
Kokusai Electric Corporation	Matsuda	Mitsuhiro	SEMI	Nguyen	Laura

Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader</i>	<i>New Leader</i>
<i>Facilities</i>		
Voltage Sag Immunity TF (new)	None	Mark Stephens (EPRI)
<i>Gases</i>		
None		



Table 3 Committee Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
<i>Facilities</i>	
None	Voltage Sag Immunity TF (new)
<i>Gases</i>	
None	

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
<i>Facilities</i>		
None		
<i>Gases</i>		
6340B	Revision to SEMI F53-0600 (Reapproved 0412), Test Method for Evaluating the Electromagnetic Susceptibility of Thermal Mass Flow Controllers, with title change to Test Method for Evaluating the Electromagnetic Susceptibility of Mass Flow Controllers	Failed
SEMI C3.20	SEMI C3.20-0414, Specification for Helium (He), in Cylinders, 99.9995% (To include references to trademark ownership.)	Passed , to be submitted to ISC A&R SC
6413	Reapproval of SEMI C3.20-0414, Specification for Helium (He), in Cylinders, 99.9995%	Passed , as balloted
SEMI C3.24	SEMI C3.24-0414, Specification for Sulfur Hexafluoride (SF6) in Cylinders, 99.97% Quality (To include references to trademark ownership and correction of SI units to Table 3 and ¶9.2.1.1.)	Passed , to be submitted to ISC A&R SC
6414	Reapproval of SEMI C3.24-0414, Specification for Sulfur Hexafluoride (SF6) in Cylinders, 99.97% Quality	Passed , as balloted
6415	Reapproval of SEMI F112-0613, Test Method for Determination of Moisture Dry-Down Characteristics of Surface-Mounted and Conventional Gas Delivery Systems by Cavity Ring Down Spectroscopy (CRDS)	Failed

#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>
<i>Facilities</i>			
None			
<i>Gases</i>			
6441	SNARF	Filters & Purifiers TF	Revision to add a New Subordinate Standard, Test Method for Determination of Particle Contribution of Gas Delivery System and its Components through Dynamic (Pulse) Testing, to SEMI F70-0611 (Reapproved 0517), Test Method for Determination of Particle Contribution of Gas Delivery System – TC Member Review took place between 07/24/2018 and 08/05/2018 – Approved by GCS on 08/20/2018
6442	SNARF	Mass Flow Controller TF	Revision to SEMI E68-0997 (Reapproved 0913), Test Method for Determining Warm-Up Time of Mass Flow Controllers – TC Member Review took place between 07/24/2018 and 08/05/2018 – Approved by GCS on 08/20/2018

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

#	Type	SC/TF/WG	Details
6443	SNARF	Mass Flow Controller TF	Revision to SEMI E69-0298 (Reapproved 0913), Test Method for Determining Reproducibility and Zero Drift for Thermal Mass Flow Controllers, with title change to Test Method for Determining Reproducibility and Zero Drift for Mass Flow Controllers – <i>TC Member Review took place between 07/24/2018 and 08/05/2018</i> – <i>Approved by GCS on 08/20/2018</i>
6457	SNARF	Filters & Purifiers TF	Revision to SEMI F38-0699, Test Method for Efficiency Qualification of Point-of-Use Gas Filters – <i>TC Member Review took place between 10/01/2018 and 10/14/2018</i> – <i>Approved by GCS on 10/22/2018</i>

Table 6 Authorized Activities

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

#	Type	SC/TF/WG	Details
<i>Facilities</i>			
-	TFOF	Voltage Sag Immunity TF	Voltage Sag Immunity Task Force (new)
<i>Gases</i>			
None			

#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
<i>Facilities</i>			
None			
<i>Gases</i>			
6290B	Cycle 9-2018	Filters & Purifiers TF	New Standard: Test Method for the Determination of Organic Contaminants Present on Wetted Surfaces of Ultra High Purity Chemical Delivery Systems and Components
6291B	Cycle 9-2018	Filters & Purifiers TF	New Standard, Test Method for the Determination of Metallic Elements Present on Wetted Surfaces of Ultra High Purity Gas Delivery Components and Plumbing Systems
6340C	Cycle 9-2018, 1 or 2-2019	Mass Flow Controller TF	Revision to SEMI F53-0600 (Reapproved 0412), Test Method for Evaluating the Electromagnetic Susceptibility of Thermal Mass Flow Controllers, with title change to Test Method for Evaluating the Electromagnetic Susceptibility of Mass Flow Controllers
6441	Cycle 1 or 2-2019	Filters & Purifiers TF	Revision to add a New Subordinate Standard, Test Method for Determination of Particle Contribution of Gas Delivery System and its Components through Dynamic (Pulse) Testing, to SEMI F70-0611 (Reapproved 0517), Test Method for Determination of Particle Contribution of Gas Delivery System
6442	Cycle 1 or 2-2019	Mass Flow Controller TF	Revision to SEMI E68-0997 (Reapproved 0913), Test Method for Determining Warm-Up Time of Mass Flow Controllers
6443	Cycle 1 or 2-2019	Mass Flow Controller TF	Revision to SEMI E69-0298 (Reapproved 0913), Test Method for Determining Reproducibility and Zero Drift for Thermal Mass Flow Controllers, with title change to Test Method for Determining Reproducibility and Zero Drift for Mass Flow Controllers

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

None.

Table 9 SNARF(s) Abolished

#	TF	Title
<i>Facilities</i>		
None		
<i>Gases</i>		
6415	Filters & Purifiers TF	Reapproval of SEMI F112-0613, Test Method for Determination of Moisture Dry-Down Characteristics of Surface-Mounted and Conventional Gas Delivery Systems by Cavity Ring Down Spectroscopy (CRDS) – <i>Reapproval ballot failed Committee review, new SNARF to be issued to reflect change in scope</i>

Table 10 Standard(s) to receive Inactive Status

Standard Designation	Title
<i>Facilities</i>	
None	
<i>Gases</i>	
SEMI F4	Specification for Pneumatically Actuated Cylinder Valves

Table 11 New Action Items

Item #	Assigned to	Details
None		

Table 12 Previous Meeting Action Items

Item #	Assigned to	Details
2017July#02	Bala Mohammed	Bala Mohammed will send Matt information for someone that is familiar with this space that works with him at Applied Materials. Ongoing .
2018April #02	Bill Kiikvee	To set up an offline meeting to discuss SEMI F32 with Mohamed, Matt, Bill; cc: Yanli Chen, Brian Sullivan. Ongoing .
2018July#01	Jurgen Lobert	To put together feedback from test specialist for Doc 6291A.
2018July#02	Joyce Chen	Work offline with related parties to clarify Doc 6291A before rebalot. Completed. Closed.

1 Welcome, Reminders, and Introductions

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

Attachment: SEMI Standards Required 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: Thomas Fritz (WIKA) / Joyce Chen (UCT)

Discussion: None.

Vote: 16-0 in favor. Motion passed.

Attachment: [2018West] F&G NA Minutes FINAL

3 Liaison Reports

3.1 Gases & Liquid Chemicals Europe TC Chapter

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

3.2 Facilities and Gases Japan TC Chapter

Hirofumi Enami (Hitachi High-Technologies) reported for the Japan TC Chapter. Of note:

Meeting Information

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

F&G Leadership

- Committee Co-chairs
 - Hirofumi Enami (Hitachi High Technologies), and Isao Suzuki (MKS Japan)

F&G Current Organization Chart of Japan TC Chapter {See attachment for Org Chart}

Gases

Five-Year Review

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

Facilities

Authorized Activities

<i>Doc #</i>	<i>Type</i>	<i>SC/TF/CFG</i>	<i>Document Title/Details</i>
6395	SNARF	F1 Revision TF	Revision to SEMI F1-0812, Specification for Leak Integrity of High Purity Gas Piping Systems and Components – <i>Authorized new SNARF on June 29, 2018 at the SEMI Japan Standards Summer Meetings</i>

Authorized Ballots

<i>Doc #</i>	<i>When</i>	<i>TF</i>	<i>Document Title/Details</i>
6395	Cycle7-18	F1 Revision TF	Revision to SEMI F1-0812, Specification for Leak Integrity of High Purity Gas Piping Systems and Components

Task Force Highlights

- F1 Revision TF
 - 6323: Reinstatement of SEMI F1-0812, Specification for Leak Integrity of High-Purity Gas Piping Systems and Components
 - SNARF was approved at Facilities Japan TC Chapter meeting on December 12, 2017.



- Ballot was submitted for Cycle 2-2018 and failed at Facilities Japan TC Chapter meeting on April 24, 2018.
 - 6395: Revision to SEMI F1-0812, Specification for Leak Integrity of High Purity Gas Piping Systems and Components
 - SNARF was approved at Facilities Japan TC Chapter meeting on April 24, 2018.
 - Ballot will be submitted for Cycle 7-2018
- 5-year-review TF
 - 6321: Reapproval of SEMI F45-0307, Specification for Machined Stainless Steel Reducing Weld
 - SNARF was approved at Facilities Japan TC Chapter meeting on December 12, 2017.
 - Ballot was submitted for Cycle 2-2018 and passed at Facilities Japan TC Chapter meeting on April 24, 2018.
 - Passed A&R in May 2018
 - Published as SEMI F45-0307(Reapproved 0818)
- 6322: Reapproval to SEMI F44-0307, Specification for Machined Stainless Steel Weld Fittings of Machined Stainless Steel Weld Fittings
 - SNARF was approved at Facilities Japan TC Chapter meeting on December 12, 2017.
 - Ballot was submitted for Cycle 2-2018 and passed at Facilities Japan TC Chapter meeting on April 24, 2018.
 - Passed A&R in May 2018
 - Published as SEMI F44-0307(Reapproved 0818)

New Activities in Metrics Committee related to Gases/Facilities

- Currently SCIS Critical Chamber Components (CCC) Gr activities will be moved to CCC TF in NA Metrics Committee.
- SNARFs written below have been reviewed 2-weeks and expected to be approved Nov. 7th at NA Metrics Committee.
 - New Standard: Test Method for Measuring Surface Metal Contamination through ICP-MS of Critical Chamber Components Used in Semiconductor Wafer Processing
 - New Subordinate Standard: Test Method for Measuring Surface Metal Contamination through ICP-MS of Showerheads Used in Semiconductor Wafer Processing
- Those Test Methods will be related to the activities of Gases & Facilities Committee hereafter.
- The Questionnaire asking “whether Gases & Facilities Committee to be the Liaison committee” was sent to GCS members and we got 3 approvals. So this direction will be proposed at 6th & 7th Metrics Related meetings.

Five-Year Review

Designation	Standard Title	Action By	Assigned to
SEMI F102-0306 (Reapproved 0513)	Guide for Selecting Specifications for Dimension of Components for Surface Mount Gas Distribution Systems	2018	-

Staff Contact: Mizue Iwamura, miwamura@semi.org

Attachment: 181105_JA_G+F_LiaisonR_v1.1

3.3 *Facilities Korea TC Chapter*



There is no update for this TC Chapter at this time.

3.4 SEMI Staff Report

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

SEMI Global 2018 Calendar of Events

- SEMICON Europa (November 13-16; Munich, Germany)
- SEMICON Japan (December 12-14; Tokyo, Japan)

SEMI Global 2019 Calendar of Events

- SEMICON Korea (January 23-25; Seoul, Korea)
- MSTC Conference (February 19-20; Monterey, California)
- SEMICON China (March 20-22, Shanghai, China)
- SEMICON SEA (May 7-9, Kuala Lumpur, Malaysia)
- SEMICON West (July 9-11, San Francisco, California)

Upcoming North America Standards Meetings

- NA Standards Spring 2019 Meetings (April 1-4, 2019, SEMI HQ in Milpitas, California)
- SEMICON West 2018 (July 8-11, 2019, San Francisco, California)
- NA Standards Fall 2019 Meetings (November 4-7 [tentative], 2019, SEMI HQ in Milpitas, California)

Letter Ballot Critical Dates for 2018 & 2019

- Cycle 8-2018: ballot submission due: Oct 12/Voting Period: Oct 26 – Nov 26
- Cycle 9-2018: ballot submission due: Nov 14/Voting Period: Nov 28 – Dec 28
- Cycle 1-2019: ballot submission due: Jan 3/Voting Period: Jan 16 – Feb 15
- Cycle 2-2019: ballot submission due: Feb 1/Voting Period: Feb 15 – Mar 18
- Cycle 3-2019: ballot submission due: Mar 12/Voting Period: Mar 26 – April 25

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

Standards Publications Report

<i>Cycle</i>	<i>New</i>	<i>Revised</i>	<i>Reapproved</i>	<i>Withdrawn</i>
July 2018	0	3	21	0
August 2018	2	11	4	0
September 2018	0	8	1	0
October 2018	7	8	12	0

Total in portfolio – 996 (includes 252 Inactive Standards)

New Standards

<i>Cycle</i>	<i>Designation</i>	<i>Title</i>	<i>Committee</i>	<i>Region</i>
August 2018	SEMI HB9	Test Method and Acceptance Criteria for Visual Inspection of Surface Defects of GaN Epitaxial Wafers Used for Manufacturing HB-LED	HB-LED	CH
August 2018	SEMI PV84	Test Method for Polymer Foil Dependent Discoloration of Silver Fingers on Photovoltaic Modules	Photovoltaic	TA
October 2018	SEMI 3D18	Guide for Wafer Edge Trimming for 3DS-IC Process	3D-IC	TA



October 2018	SEMI D78	Test Method of Water Vapor Barrier Property for Plastic Films with High Barrier for Electronic Devices	FPD - Materials & Components	JA
October 2018	SEMI HB10	Specification for Single Crystal Sapphire Intended for Use for Manufacturing HB-LED Wafers	HB-LED	CH
October 2018	SEMI PV85	Practice for Metal Wrap Through (MWT) Back Contact Photovoltaic (PV) Module Assembly	Photovoltaic	CH
October 2018	SEMI PV86	Specification for Crystalline Silicon Photovoltaic Module Dimensions	Photovoltaic	CH
October 2018	SEMI PV87	Test Method for Peeling Force Between Electrode and Ribbon/Back Sheet	Photovoltaic	CH
October 2018	SEMI PV88	Test Method for Determination of Hydrogen in Photovoltaic (PV) Polysilicon by Inert Gas Fusion Infrared Absorption Method	Photovoltaic	CH

Inactive Standards

<i>Committee</i>	<i>Number of Inactive Standards</i>
Assembly & Packaging	35
Automated Test Equipment	2
Compound Semiconductor Materials	4
Environmental Health & Safety	8
Facilities	13
FPD – Equipment	5
FPD – Factory Automation	14
FPD – Materials & Components	12
FPD – Substrate	1
Gases	18
Information & Control	37
Liquid Chemicals	23
MEMS	3
Metrics	9
Micropatterning	29
Photovoltaic	1
Physical Interfaces & Carriers	19
Silicon Wafer	11
Traceability	8

New Forms, Regulations & Procedure Manual

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

Rules for Handling of Trademark (Regulations § 16.4)



- Sections 16.4.1 and 16.4.4 of the recently revised of the Regulations contain requirements for the use of trademarks in published Documents.
- Existing Documents have been found that contain trademarks for items such as materials, software protocols, and equipment.
- All TC Chapters should review their Documents at the time a revision or reapproval ballot is planned to determine if a trademark is used and, if so, whether its use is justified, properly represented, and that a footnote references the trademark owner.
- Failure to do so could jeopardize ballot approval.

Nonconforming Titles (See PM Appendix 4) {None}

Facilities & Gases Five-Year Review {See attachment for full list}

In progress/Needs action

Facilities

- SEMI E51, Guide for Typical Facilities Services and Termination Matrix
 - Abolished SNARF Fall 2017 - Reapproval ballot failed Committee review, new SNARF needs to be issued to reflect change in scope
- SEMI F47, Specification for Semiconductor Processing Equipment Voltage Sag Immunity
 - Failed committee review; Spring 2018

Gases

- Materials of Construction of Gas Delivery Systems TF
 - 6394: Line Item Revision to SEMI F74-1103 (Reapproved 0710), Test Method for the Performance and Evaluation of Metal Seal Designs for Use in Gas Delivery Systems
 - SEMI F32-0211, Test Method for Determining of Flow Coefficient for High Purity Shutoff Valves
- Heater Jacket TF
 - SEMI F109-0212, Guide for Heater Systems Requirements
 - Abolished Spring 2018; issue new SNARF to incorporate major revision (title cannot have Guide and Requirements)

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

SNARF(s) Approved by GCS in between TC Chapter Meetings

- 6441: Revision to add a New Subordinate Standard, Test Method for Determination of Particle Contribution of Gas Delivery System and its Components through Dynamic (Pulse) Testing, to SEMI F70-0611 (Reapproved 0517), Test Method for Determination of Particle Contribution of Gas Delivery System
- 6442: Revision to SEMI E68-0997 (Reapproved 0913), Test Method for Determining Warm-Up Time of Mass Flow Controllers
- 6443: Revision to SEMI E69-0298 (Reapproved 0913), Test Method for Determining Reproducibility and Zero Drift for Thermal Mass Flow Controllers, with title change to Test Method for Determining Reproducibility and Zero Drift for Mass Flow Controllers
- 6457: Revision to SEMI F38-0699, Test Method for Efficiency Qualification of Point-of-Use Gas Filters

Request for Testimonials

- Please email: nguyen@semi.org
 - Name of contact and company, Email address, How has Standards affected you: business, life, etc.
- James Amano or SEMI Global Marketing will reach out to you personally.

Attachment: [2018Fall] Staff Report F&G

4 Ballot Review

NOTE 1: TC Chapter adjudication on ballots reviewed is detailed in the Audits & Review (A&R) Subcommittee Forms for procedural review. The A&R forms are available as attachments to these minutes. The attachment number for each balloted document is provided under each ballot review section below.

4.1 Facilities

None.

4.2 Gases

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

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

Motion: To find negative SG02 related and technically persuasive.

By / 2nd: Jeff Christian (WIKA) / Thomas Fritz (WIKA)

Discussion: None.

Vote: 15-0 in favor. Motion passed.

Motion: To fail Doc 6340B based on negative SG02 from Erik Sklar (Safety Guru) and return to the task force for rework.

By / 2nd: Thomas Fritz (WIKA) / Supika Mashiro (TEL)

Discussion: None.

Vote: 15-0 in favor. Motion passed.

Motion: To authorize Doc 6340C to ballot in voting Cycle 9-2018, 1 or 2-2019.

By / 2nd: Joyce Chen (UCT) / Jeff Christian (WIKA)

Discussion: None.

Vote: 15-0 in favor. Motion passed.

Attachment: [Ballot Results] Cycle 06-2018 Gases MFC

4.2.2 Document # 6413, Reapproval of SEMI C3.20-0414, Specification for Helium (He), in Cylinders, 99.9995%

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

Attachment: 6413_ProceduralReview

4.2.3 Document # 6414, Reapproval of SEMI C3.24-0414, Specification for Sulfur Hexafluoride (SF6) in Cylinders, 99.97% Quality

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

Attachment: 6414_ProceduralReview

4.2.4 Document # 6415, Reapproval of SEMI F112-0613, Test Method for Determination of Moisture Dry-Down Characteristics of Surface-Mounted and Conventional Gas Delivery Systems by Cavity Ring Down Spectroscopy (CRDS)

- The committee found the negatives related and technically persuasive. The Reapproval Ballot failed Committee review, therefore a new SNARF is to be issued to reflect change in scope.



Motion: To find negative from Matt Milburn (UCT) related and technically persuasive and to fail Doc 6415 based on this negative.

By / 2nd: Joyce Chen (UCT) / Jeff Christian (WIKA)

Discussion: None.

Vote: 15-0 in favor. Motion passed.

Motion: To abolish SNARF 6415 (SEMI F112) and issue a new SNARF to reflect change in scope.

By / 2nd: Joyce Chen (UCT) / Supika Mashiro (TEL)

Discussion: None.

Vote: 15-0 in favor. Motion passed.

Attachment: [Ballot Results] Cycle 06-2018 Gases FP

4.3 Editorial Change

4.3.1 Document: SEMI C3.20-0414, Specification for Helium (He), in Cylinders, 99.9995%

- To include references to trademark ownership.
- The TC Chapter reviewed the Editorial Change. See attachment for procedural review.

Attachment: SEMIC3.20_Editorial Changes

4.3.2 Document: SEMI C3.24-0414, Specification for Sulfur Hexafluoride (SF6) in Cylinders, 99.97% Quality

- To include references to trademark ownership.
- Correction of SI units to Table 3 and ¶9.2.1.1.
- The TC Chapter reviewed the Editorial Change. See attachment for procedural review.

Attachment: SEMIC3.24_Editorial Changes

5 Subcommittee and Task Force Reports

5.1 Facilities

5.1.1 *Power Grid Harmonics Task Force – Did not meet*

5.1.2 *SEMI F51 Revision Task Force – Did not meet*

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

5.2 Gases

5.2.1 *Materials of Construction of Gas Delivery Systems Task Force*

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

Reviewed Prior Meeting and Activities {See attachment for embedded file}

Old Business

- No ballots to review; Discussed status of SEMI F32
- SEMI F32:
 - Equations works for pressurized compressible gases.



- Does not work for Vacuum applications.
- Industry is developing more Vacuum applications
- Question: What does Vacuum Valve Manufacturers use in sizing components?
- SEMI F32 is not applicable for Vacuum applications.
- SEMI F32-0998 Section 3.2 clearly states not to be used for vacuum service.
- TF agreed to update SEMI F32.
- Investigate with Matt Milburn UCT
 - IGS set up. Should already be incorporated with Xt in SEMI F32.
 - Schematic is incorrect?
- Vacuum application limitations were discussed. Ken Rubow has investigated Cv under vacuum conditions and confirmed that SEMI F32 is not applicable for vacuum calculations.
- Will contact vacuum valve manufacturers for input.
- SEMI F72
- Foothills Analytical agreed to review SEMI F72 for input. BK to get other labs input by phone versus e-mail for MTA, RJ Lee and Evans.
- Looking at releasing SEMI F72 at Cycle 1.

New Business

- Update SEMI F32 and investigate new specification in sizing components under Vacuum conditions.

Action Items

- Open Action Items:
 - Follow up with SEMI F32 Group for release in Cycle 2....BK
 - Contact Vacuum valve manufacturers for input on sizing of valves under vacuum condition.
 - Follow up with other Labs for input on SEMI F72 for release in Cycle 1...BK

Attachment: Minutes_Materials_of_Const_TF - Standard Fall Meeting 2018_atm

5.2.2 Filters & Purifiers Task Force

Joyce Chen (UCT) reported for this Task Force. Of note:

Review previous meeting minutes

Update the status of the Document 6212 to TF members

- The SNARF for the Document 6212 has been approved by the Global Gases committee in October, 2018.
- TF leaders Joyce and Saleem will continue to work on this document including providing official response to the rejections and getting the document be ready for balloting.

Review the Cycle 05-2018 balloting results and the latest version of the Document 6290 and 6291 to TF members

- Joyce showed the latest version of the Document 6290 and 6291 and explained the major changes implemented on the two documents based on the inputs and feedbacks provided from the attendees during the two online conferences.
- Attendees have a great discussion regarding the intent, scope, sample preparation and methods of these two documents.
- Joyce will make the two documents ready for the cycle 9-2018 balloting. *{See Motion below}*



Review the balloting results of Cycle 6-2018 for SEMI F112-0613 Test Method for Determination of Moisture Dry-Down Characteristics of Surface-Mounted and Conventional Gas delivery Systems by Cavity Ring down Spectroscopy (CRDS)

- There are two comments from Joyce Chen of UCT and Mitsuhiro Matsuda of KKR.
- And there rejections are from Dan Cowles from Air Liquid, Supika Mashiro from TEL and Matt Milburn from UCT.
- Saleem will work on updating the document based on the balloting results.

New Business

- The SNARF for SEMI F70 has been approved by the Gases Global Technical Committee (TC) Members in August, 2018 (Doc 6441)
- Max van den Berg of Festo is continuing to work on the subordinate document to make it ready for the cycle 1 or cycle 2 balloting in 2019. *{See Motion below}*

Motion: To authorize Doc 6290B and 6291B to ballot in voting Cycle 9-2018.

By / 2nd: Thomas Fritz (WIKA) / Kevin Findleton (Brooks Instrument)

Discussion: None.

Vote: 15-0 in favor. Motion passed.

Motion: To authorize Doc 6441 to ballot in voting Cycle 1-2019.

By / 2nd: Jeff Christian (WIKA) / Kevin Findleton (Brooks Instrument)

Discussion: None.

Vote: 15-0 in favor. Motion passed.

Attachment: Meeting Minutes_FP TF_11_5_2018

5.2.3 Mass Flow Controller Task Force

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

Reviewed Ballot Results as mentioned in Section 4 {See attachment for embedded file}

Old Business

- E68 and E69 are due for 5-year review.
 - SNARF for revising these two documents were approved on 8/20/2018. (Doc 6442, 6443)
 - TF is still working on preparing Ballot documents for E68 and E69.
 - The TF would like to ask the committee to authorize for ballot.

Motion: To authorize Doc 6442 (E48) and 6443 (E49) to ballot in voting Cycle 1 or 2-2019.

By / 2nd: Joyce Chen (UCT) / Jeff Christian (WIKA)

Discussion: None.

Vote: 15-0 in favor. Motion passed.

New Business

- E12: due for 5 year review, but we will work on E68 and E69 first.
- EtherCAT MFC Physical Requirements
 - Background: Currently, EtherCAT MFC physical requirements are specified in the ETG (EtherCAT Technology Group) SDP (Specific Device Profile) MFC Specification Document ETG5003-2020.
 - The scope of ETG specification is EtherCAT communication protocol, not physical requirements of the devices.



- ETG MFC task group asked SEMI to consider writing the physical requirements of EtherCAT MFCs in the SEMI Standard.
- Discussion within SEMI MFC TF:

SEMI F82 (1.125" ... inactive; This Document is under Japan TC chapter)/

SEMI F88 (1.5" ...active)

These Documents specify the envelope of MFCs such as height, width, mounting locations, etc, but the scopes of both of these documents are not tied to any specific types of communication. Therefore, the MFCs covered by these two Documents would include all types of communications (analog, RS485, DeviceNET, EtherCAT...).

- Therefore, rather than modifying F82/F88, we should create a new Standard specifying the physical requirements of EtherCAT MFCs.

Action Item: Need to create a SNARF

Action Item: Contact ETG to ask if we can use some of the information from the ETG Document.

Attachment: Nov 5 2018 MFC TF Meeting SummaryR2

5.2.4 Gases Specification Task Force

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

The task force:

- Review previous meeting minutes.
- Reviewed Ballot Results as mentioned in Section 4 *{See attachment for embedded file}*

No other action items.

Attachment: Agenda_GS_TF - Fall Standards Meeting 2018_minutes181105

5.2.5 Heater Jacket Task Force

Matt Milburn (UCT) reported for this Task Force. Of note:

- The updated design guide is a work-in-progress. The expectation is that there will be a near final version ready for review at the Spring Standards TF Meeting, balloting between SSTFM and SEMICON West, and review of ballot results @ SEMICON West 2019.
- An outline of a new test standard was started and discussed for particle testing. No date commitment for this and it needs a SNARF.
- Another aspect of heaters and testing was also discussed: the outgassing characteristics for curing, initial heat-up, and aging. This is a completely different test than particles with a need for expensive analytical equipment unlike the particle testing that requires much less expensive test equipment. A new SNARF is required for combining Design and Material Selection for Heater Jackets.
- (David Colquhoun) To complete document that should be able to move out for general comment in few months.

6 Old Business

6.1 Previous Action Items

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

7 New Business

7.1 Introduction to SEMI E176, Guide to Assess and Minimize Electromagnetic Interference (EMI) in a Semiconductor Manufacturing Environment

Vladimir Kraz (Metrics TC Co-Chair) addressed the committee on this topic. He presented on the topic of EMC and recently published SEMI E176 Standard as relates to facilities and power quality. Please see attachment for full presentation. Of note (the first and last slide below):

What is This E176 All About?

- Electromagnetic interference (EMI) is, in short, undesirable high-frequency signals present in the environment
- While there are a number of Standards controlling electromagnetic compliance (EMC) of individual equipment, there were no Standards in the industry (not just Semi) that would offer guidance, recommendations and goals for actual EMI levels in manufacturing environment
- In short, it was an “open loop” situation
- As the geometry shrinks EMI surfaced as one of key factor affecting yield, process and reliability of the products

SEMI E176 Take-Away

- EMI is something that cannot be ignored anymore
- EMI needs to be managed
- EMC Standards for equipment help, but only a little
- SEMI E176 is result-based, not effort-based document
- SEMI E176 offers practical guidance and sets limits for: Facility, Tools, Processes
- Incorporate E176 limits and recommendations for every facility you are dealing with – it will only improve yield and reduce downtime

Attachment: E176 Presentation to the Facilities Nov 2018

7.2 Facilities

7.2.1 TFOF Proposal for Revision to SEMI F47, Specification for Semiconductor Processing Equipment Voltage Sag Immunity

Mark Stephens (EPRI) addressed the committee on this topic. Please see attached for full presentation. Mark asked the TC Chapter for approval of the new task force. Motion is shown below.

Motion: To approve TFOF for “Voltage Sag Immunity Task Force”

By / 2nd: Mark Stephens (EPRI) / Thomas Fritz (WIKI)

Discussion: None.

Vote: 14-0 in favor. Motion passed.

Attachment: SEMI F47 Revision Task Force 10_29_2018 V2

Attachment: SEMI F47 Revision Task Force October 2018 V3

7.3 Gases

7.3.1 EtherCAT Tech Group Discussion [Mohamed Saleem, Brooks Instrument and Erica Kitano, Fujikin]

This topic was discussed in Section 5.2.3 under New Business.



8 Next Meeting and Adjournment

The next meeting is scheduled for Tuesday, April 2nd at the NA Standards Spring 2019 Meetings located at SEMI Global Headquarters in Milpitas, California. See <http://www.semi.org/standards-events> for the current list of events.

Tentative Schedule:

Monday, April 1

Gases Task Force Meetings

09:00-10:00 Materials of Construction of Gas Delivery Systems (TF)

10:00-11:00 Filters and Purifiers (TF)

11:00-12:00 Mass Flow Controller (TF)

13:00-14:00 Gas Specification (TF)

14:00-15:00 Heater Jacket (TF)

Facilities Task Force Meetings (None)

Tuesday, April 2

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

Adjournment: 11:50.

Respectfully submitted by:

Laura Nguyen

Sr. Coordinator, International Standards

SEMI Headquarters

Phone: 1.408.943.7019

Email: lnguyen@semi.org

Minutes tentatively approved by: **F&G NA TC Chapter on April 2, 2019**

Steve Lewis (BW Design Group), Facilities Co-chair	April 2, 2019
Mohamed Saleem (Brooks Instrument), Gases Co-chair	April 2, 2019

Table 13 Index of Available Attachments#1

<i>Title</i>	<i>Title</i>
SEMI Standards Required Elements	SEMIC3.24_Editorial Changes
[2018West] F&G NA Minutes FINAL	Minutes_Materials_of_Const_TF - Standard Fall Meeting 2018_atm
Staff Report Nov 2018_F&G	E176 Presentation to the Facilities Nov 2018
181105_JA_G+F_LiaisonR_v1.1	Nov 5 2018 MFC TF Meeting SummaryR2
[Ballot Results] Cycle 06-2018 Gases MFC	Agenda_GS_TF - Fall Standards Meeting 2018_minutes181105
[Ballot Results] Cycle 06-2018 Gases FP	E176 Presentation to the Facilities Nov 2018
6413_ProceduralReview	SEMI F47 Revision Task Force 10_29_2018 V2
6414_ProceduralReview	SEMI F47 Revision Task Force October 2018 V3
SEMIC3.20_Editorial Changes	

#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.