



Joint Facilities & Gases North America TC Chapter

Meeting Summary and Minutes

NA Standards Spring 2016 Meetings
 April 5, 2016, 09:00 – 12:00 Pacific Time
 SEMI Headquarters in San Jose, California

TC Chapter Announcements

Next TC Chapter Meeting

SEMICON West 2016 Meetings

Tuesday, July 12, 2016, 09:00 – 12:00 Pacific Time

SF Marriott Marquis in San Francisco, California

Table 1 Meeting Attendees

Italics indicate virtual participants

Facilities Co-Chair: Steve Lewis (LPCiminelli)

Gases Co-Chair: Mohamed Saleem (Fujikin)

SEMI Staff: Laura Nguyen, James Amano

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Applied Energy Systems	Bell	Todd	Fujikin of America	Saleem	Mohamed
Applied Materials	Bruce	Ben	Pivotal Systems	McDonough	Kelly
Applied Materials	DiFrancesco	Alfred	Ultra Clean Technology (UCT)	Chen	Yanli “Joyce”
Applied Materials	Mohammed	Bala	WIKA Instrument	Fritz	Thomas
AP Tech	Kiikvee	Bill	WIKA Instrument	Christian	Jeffrey
<i>CONSCI</i>	<i>Ripkowski</i>	<i>Mark</i>			
Ham-let	Shestatski	Felix	SEMI	Amano	James
LPCiminelli	Lewis	Steve	SEMI	Nguyen	Laura

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
Gases Specification Task Force	Mark Ripkowski - retired	Open

Table 3 Ballot Results

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

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
5964	Line item revision to SEMI E56-0314, Test Method For Determining Accuracy, Linearity, Repeatability, Short-Term Reproducibility, Hysteresis, And Dead Band Of Thermal Mass Flow Controllers	
Line Item 1	Correct Formula 1	Failed , send back to TF for rework
Line Item 2	Correct Formula 2	Failed , send back to TF for rework



Table 3 Ballot Results

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

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

Document #	Document Title	Committee Action
Line Item 3	Correct Formula 6	Failed , send back to TF for rework
Line Item 4	Correct Formula 16	Failed , send back to TF for rework
5963	Line Item Revision to SEMI F62-0701 (Reapproved 1111) Test Method For Determining Mass Flow Controller Performance Characteristics From Ambient And Gas Temperature Effects	
Line Item 1	Changes to formula 1, 2, 4 and modify terminology 5.3.8	Failed , send back to TF for rework
3440B	New Standard: Test Method for Pressure Measurement Devices	Failed , send back to TF for rework

Table 4 Authorized Activities

#	Type	SC/TF/WG	Details
5997	SNARF	Gases Specification TF	A line item revision for title change to be conforming to SEMI Standards to document SEMI C3-0413, Specifications for Gases
5998	SNARF	Gases Specification TF	A line item revision for title change to be conforming to SEMI Standards to document SEMI C54-1103 (Reapproved 0211), Specifications and Guidelines for Oxygen
5999	SNARF	Gases Specification TF	A line item revision for title change to be conforming to SEMI Standards to document SEMI C56-0305 (Reapproved 0211), Specifications and Guidelines for Dichlorosilane (SiH ₂ Cl ₂)
6000	SNARF	Gases Specification TF	A line item revision for title change to be conforming to SEMI Standards to document SEMI C57-0305 (Reapproved 0211), Specifications and Guidelines for Argon
6001	SNARF	Gases Specification TF	A line item revision for title change to be conforming to SEMI Standards to document SEMI C58-1213, Specifications for Hydrogen
6002	SNARF	Gases Specification TF	A line item revision for title change to be conforming to SEMI Standards to document SEMI C59-1104 (Reapproved 0211), Specifications and Guidelines for Nitrogen
6003	SNARF	Gases Specification TF	A line item revision for title change to be conforming to SEMI Standards to document SEMI C60-0305 (Reapproved 0211), Specifications and Guidelines for Nitrous Oxide (N ₂ O)
6004	SNARF	Gases Specification TF	A line item revision for title change to be conforming to SEMI Standards to document SEMI C70-0611, Specifications for Tungsten Hexafluoride (WF ₆)

NOTE 1: SNARFs and TFOFs are available for review on the SEMI Web site at: <http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 5 Authorized Ballots

#	When	SC/TF/WG	Details
3440C	Cycle 4 or 5, 2016	Pressure Measurement TF	New Standard: Test Method for Pressure Measurement Devices
5816B	Cycle 5, 2016	Filters and Purifiers TF	Line item Revision to SEMI F30-0710, Start-Up and Verification of Purifier Performance Testing for Trace Gas Impurities and Particles at an Installation Site with title change to Test Method for the Start-Up and Verification of Purifier Performance Testing for Trace Gas Impurities and Particles at an Installation Site
5244B	Cycle 5, 2016	Filters and Purifiers TF	Revision of SEMI F21-1102, Classification of Airborne Molecular Contaminant Levels in Clean Environments
5155	Cycle 5, 2016	BIM TF	New Standard, Guide for Facilities Data Package for Semiconductor Equipment Installation
5997	Cycle 4 or 5, 2016	Gases Specification TF	Line Item Revision to SEMI C3-0413, Specifications for Gases



Table 5 Authorized Ballots

#	When	SC/TF/WG	Details
5998	Cycle 4 or 5, 2016	Gases Specification TF	Line Item Revision to SEMI C54-1103 (Reapproved 0211), Specifications and Guidelines for Oxygen
5999	Cycle 4 or 5, 2016	Gases Specification TF	Line Item Revision to SEMI C56-0305 (Reapproved 0211), Specifications and Guidelines for Dichlorosilane (SiH ₂ Cl ₂)
6000	Cycle 4 or 5, 2016	Gases Specification TF	Line Item Revision to SEMI C57-0305 (Reapproved 0211), Specifications and Guidelines for Argon
6001	Cycle 4 or 5, 2016	Gases Specification TF	Line Item Revision to SEMI C58-1213, Specifications for Hydrogen
6002	Cycle 4 or 5, 2016	Gases Specification TF	Line Item Revision to SEMI C59-1104 (Reapproved 0211), Specifications and Guidelines for Nitrogen
6003	Cycle 4 or 5, 2016	Gases Specification TF	Line Item Revision to SEMI C60-0305 (Reapproved 0211), Specifications and Guidelines for Nitrous Oxide (N ₂ O)
6004	Cycle 4 or 5, 2016	Gases Specification TF	Line Item Revision to SEMI C70-0611, Specifications for Tungsten Hexafluoride (WF ₆)

Table 6 New Action Items

Item #	Assigned to	Details
2016April#01	Laura Nguyen	To contact Junko regarding Japan's interest on Doc F70
2016April#02	Laura Nguyen	To create a Google site for committee meeting purposes
2016April#03	Steve Lewis	Contact Dalia for F51 TF for updates.

Table 7 Previous Meeting Action Items

Item #	Assigned to	Details
2015Nov #02	Mohamed Saleem	To contact David Colquhoun and make a SNARF with the help of Matt Milburn and Bala Mohammed. On-going.
2015Nov #05	Jeffrey Christian, Bill Kiikvee	Find someone interested from Air Products to help revise SEMI F6, F13, and F14. CLOSED.

1 Welcome, Reminders, and Introductions

Steve Lewis, Facilities TC Chapter Co-chair, 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 Meeting 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: Mohamed Saleem (Fujikin) / Bill Kiikvee (AP Tech)

Discussion: None.

Vote: 6-0 in favor. Motion passed.

Attachment: FG Meeting Minutes Fall 2015 Finalv2

3 Liaison Reports

3.1 Liquid Chemicals and Gases Europe TC Chapter

Laura Nguyen (SEMI) reported for the Liquid and Gases Europe TC Chapter. The key items were as follows:

- Leadership
 - Committee cochairs: Jean-Marie Collard (Solvay Chemicals), Gordon Ferrier (Gordon F Consulting)
- Committee Organization *{see attachment}*
- Gases
 - New Activity: Gas mixtures to replace the PFC's and NF3 as cleaning gases. As one of the mixture is similar to the existing 20%F2in 80% N2.
 - SNARF and TFOF pending
 - Recently Approved, Publication pending
 - 5765: Revision to SEMI C15, Test Method for ppm and ppb Humidity Standards
- Liquid Chemicals
 - TC Chapter at SEMICON Europa 2015
 - Five ballots adjudicated
 - Technical changes made to address negatives on three ballots which will undergo new ratification ballot process.
 - Two other ballots failed and will be revised and reballoted for review at next TC Chapter meeting.
 - Presentations
 - ITRS Update
 - Andreas Neuber/AMAT
 - ElectroStatic Discharge : A Challenge in ultra high purity fluid handling
 - Jochen Ruth/PALL
- Staff Contact: James Amano (jamano@semi.org) / HQ

Attachment: EU Gases & Liq Chem April 2016 v1

3.2 Gases and Facilities Japan TC Chapter

Laura Nguyen (SEMI) reported for the Gases and Facilities Japan TC Chapter. The key items were as follows:

- Gases Japan TC Chapter Liaison Report
- Leadership
 - Committee Co-chairs: Hiromichi Enami (Hitachi High Technologies), Isao Suzuki (MKS Japan)
- Current Committee Structure *{see attachment}*
- Meeting Information
 - Last Meeting: March 18, 2016 during Japan Spring Meetings 2016 at SEMI Japan, Tokyo, Japan
 - Next Meeting: June 17, or June 24, 2016 during Japan Summer Meetings 2016 at SEMI Japan, Tokyo, Japan
- Task Force Reports
 - Gas Panel Test Method Task Force: No activity
 - 5-year-review Task Force
 - Will review SEMI F70-0611, Test Method for Determination of Particle Contribution of Gas Delivery System
 - Live Gas Flow Rate Task Force
 - Discussed about the “Round-robin test” to review the problems of calibrating mass flow rate for Live Gases at each MFC suppliers.



- Decided which companies/organizations will conduct it as first run.
- Will conduct the round-robin test and report the results by the end of the year.
- Will submit needs/requirement for Standard on Live Gas Flow Rate calibration based on above result.
- Facilities Japan TC Chapter Liaison Report
- Leadership
 - Committee Co-chairs: Hiromichi Enami (Hitachi High Technologies), Isao Suzuki (MKS Japan)
- Current Committee Structure *{see attachment}*
- Meeting Information:
 - Facilities Japan TC's were held in conjunction with Gases Japan TC's but there was no Major activities.
- Staff Contact: Naoko Tejima (ntejima@semi.org)

Action Item: 2016April#01, Laura to contact Junko regarding Japan's interest on Doc F70

Attachment: Liaison Report JA Spring2016 (F&G)

3.3 SEMI Staff Report

Laura Nguyen (SEMI) gave the SEMI Staff Report. The key items were as follows:

- SEMI Global 2016 Calendar of Events
 - SEMICON Southeast Asia (April 26-28, Penang, Malaysia)
 - SEMICON West (July 12-14, 2016, San Francisco, California)
 - SEMICON Taiwan (September 7-9, Taipei, Taiwan)
 - SEMICON Europa (October 25-27, Grenoble, France)
 - SEMICON Japan (December 14-16, Tokyo, Japan)
- Upcoming North America Standards Meetings
 - SEMICON West 2016 (July 11-14, 2016, San Francisco, California)
 - NA Standards Fall 2016 Meetings (November 7-10, 2016, SEMI HQ in San Jose, California)
 - NA Standards Spring 2016 Meetings (April 3-6 [tentative], SEMI HQ in San Jose, California)
- Letter Ballot Critical Dates for 2016
 - West 2016 adjudication
 - Cycle 4: ballot submission due: April 15/Voting Period: April 26 – May 26
 - Cycle 5: ballot submission due: May 10/Voting Period: May 24 – June 23
 - Fall 2016 adjudication
 - Cycle 6: ballot submission due: July 22/Voting Period: August 1 – September 1
 - Cycle 7: ballot submission due: August 17/Voting Period: August 31 – September 30

- Standards Publications Report

<i>Cycle</i>	<i>New</i>	<i>Revised</i>	<i>Reapproved</i>	<i>Withdrawn</i>
December 2015	0	3	2	0
January 2016	6	7	0	0
February 2016	4	4	3	0
March 2016	2	21	4	0

- Total in portfolio – 962 (includes 131 Inactive Standards)
- New Standards *{list of new Standards can be found on Slide 11-13 of the Staff Report, see the attachments of these minutes}*



- Inactive Standards *{list of inactive Standards can be found on Slide 14-15 of the Staff Report, see the attachments of these minutes}*
- New Requirements/Process Reminders for TC Chapter Meetings
 - Standards Document Development Project Period
 - Project period shall not exceed three years (*Regulations ¶ 8.3.2*).
 - SNARF approval to TC Chapter approval
 - If Document development activity is found to be continuing, but cannot completed within the project period, TC Chapter may grant one-year extension at a time, as many times as necessary.
 - SNARF Review Period
 - A submitted SNARF for a new, or for a major revision to an existing, Standard or Safety Guideline is made available to all members of a TC Chapter's parent global technical committee for two weeks for their review and comment. (*Regulations ¶ 8.2.1*).
 - If the SNARF is submitted at a TC Chapter meeting, the TC Chapter can review and approve, but the SNARF will need to be distributed for two weeks and then approved via GCS.
 - New SNARF & TFOF forms *{embedded in Staff Report, see the attachments of these minutes}*
 - Procedures for Correcting Nonconforming Titles of Published Standards Document (*Procedure Manual Appendix 4*)
 - Some Standards qualify for a special procedure where a line-item change can be used to correct the titles. Otherwise, the corrective action will likely require a major revision.
 - List of Nonconforming Titles *{see attachment}*
 - List of 5 Year Review *{see attachment}*
 - SNARF 3 Year Status
 - Facilities
 - Doc. 5570, Reapproval of SEMI E51-0200: Guide for Typical Facilities Services and Termination Matrix
 - Doc. 5572, Reapproval of SEMI E6-0303: Guide for Semiconductor Equipment Installation Documentation
 - SNARFs were approved on 4/2/2013, action needed by Spring 2016
 - Gases
 - Doc. 5244, Reapproval of SEMI F21-1102: *Classification of Airborne Molecular Contaminant Levels in Clean Environments*
 - SNARF was approved on 7/12/2011
 - SNARF was granted 1 year extension at West 2015
 - Action needed by West 2016
 - TC Chapter may grant a one-year extension
- Staff Contact: Laura Nguyen (lnguyen@semi.org)

Action Item: 2016April#02, Laura to create a Google site for committee meeting purposes

Attachment: SEMI Standards Staff Report

4 Ballot Review

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

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.



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.

4.1 Document # 3440B, New Standard: Test Method for Pressure Measurement Devices

- The ballot found reject Section 5.2.7 on inaccuracy and the ballot failed. See attachment for ballot responses.

Attachment: 3440B – Reply to Eric’s Response

4.2 Document # 5963, Line Item Revision to SEMI F62-0701 (Reapproved 1111) Test Method For Determining Mass Flow Controller Performance Characteristics From Ambient And Gas Temperature Effects

4.2.1 Line Item #1: Changes to formula 1, 2, 4 and modify terminology 5.3.8

- The ballot found the rejects related and technically persuasive and the ballot failed. See attachment for ballot responses.

Attachment: TF Report - MFC (04_04_2016)

4.3 Document # 5964, Line item revision to SEMI E56-0314, Test Method For Determining Accuracy, Linearity, Repeatability, Short-Term Reproducibility, Hysteresis, And Dead Band Of Thermal Mass Flow Controllers

4.3.1 Line Item #1: Correct Formula 1

- The ballot found the rejects technically related and persuasive and the ballot failed. See attachment for ballot responses.

4.3.2 Line Item #2: Correct Formula 2

- The ballot found the rejects technically related and persuasive and the ballot failed. See attachment for ballot responses.

4.3.3 Line Item #3: Correct Formula 6

- The ballot found the rejects technically related and persuasive and the ballot failed. See attachment for ballot responses.

4.3.4 Line Item #4: Correct Formula 16

- The ballot found the rejects technically related and persuasive and the ballot failed. See attachment for ballot responses.

Attachment: TF Report - MFC (04_04_2016)

5 Subcommittee and Task Force Reports

5.1 Facilities

5.1.1 F51 Elastomeric Sealing Revision Task Force

Laura Nguyen (SEMI) reported for the F51 Task Force. There is no update at this time. The below was reported during Fall Meeting.

- Ballot 5080B (F51 revision, *Guide for Elastomeric Sealing Technology*) passed at SEMICON West 2015 last July with both technical and editorial changes. The Ratification Ballot was issued shortly thereafter, where it ultimately achieved the criteria for passing. This document also passed A&R procedural reviews where it will now go into final publication processing.
- The Ratification Ballot received only one reject vote (from Eric Sklar). Eric provided 6 reasons for why he objected. Three (3) of those reasons turned out to be ballot prep/formatting error that will be addressed during publication processing. The other three (3) were found by the TF to helpful in making the updated F51 Standard even better.



- Therefore, the TF plans to work on a follow-on ballot and will prepare a F51 line-item-revision SNARF to be submitted for approval ASAP. If the TF is unable to prepare a SNARF this week, it will be submitted for GCS approval after the meetings.

Action Item: 2016April#03, Steve Lewis to contact Dalia for F51 TF for updates.

5.1.2 Building Information Modeling (BIM) Task Force

Ben Bruce (AMAT) reported for the BIM Task Force. There is a comprehensive working draft and would like to ask the committee for assistance in reviewing the draft and to possibly get it to ballot before SEMICON West.

Motion: To grant one year extension for SNARF Doc 5155, New Standard, Guide for Facilities Data Package for Semiconductor Equipment Installation

By / 2nd: Ben Bruce (AMAT) / Bill Kiikvee (AP Tech)

Discussion: None.

Vote: 11-0 in favor. Motion passed.

Motion: To send Doc 5155, New Standard, Guide for Facilities Data Package for Semiconductor Equipment Installation for Cycle 5, 2016.

By / 2nd: Ben Bruce (AMAT) / Bala Mohammed (AMAT)

Discussion: None.

Vote: 8-0 in favor. Motion passed.

Attachment: FDP GUIDE Rev1.4.3

5.2 Gases

5.2.1 Heater Jacket Task Force

Mohamed Saleem (Fujikin) reported for the Heater Jacket Task Force. He reported that David is planning to work on a Materials and Recommendations document. An outline is done and needs the support of the committee. Mohamed will be in contact and may have an update at West.

5.2.2 Mass Flow Controller Task Force

Mohamed Saleem (Fujikin) reported for the Mass Flow Controller Task Force. The task force reviewed the ballot results for Document 5964 and decided to fail the ballot because of a technically related and persuasive reject. The task force will rework the ballot and resend it out for the next cycle. The task force reviewed the ballot results for Document 5963 and found the comments related and technically persuasive. The document failed and will be sent back to the task force to be reworked and recycle for the next cycle. *{See attachment for ballot review responses and task force reports}*

Attachment: TF Report - MFC (04_04_2016)

5.2.3 Pressure Measurement Task Force

Jeff Christian (WIKA) reported for the Pressure Measurement Task Force. The task force reviewed the ballot results for Doc 3440B and failed the document on technical nature – Section 5.2.7 for inaccuracy. *{See attachment for ballot review responses and task force reports}*

- Task Force Action Items
 - Incorporate changes agreed by TF
 - Submit for balloting 2016, Cycle 4: April 15th



- Voting period starts: April 26th
- Voting period ends: May 26th
- Review balloting results at Semicon West – July 11th - 12th
- Submit for publication no later than Fall 2016

Attachment: Spring 2016 Pressure Measurement Task Force Report_160404 Summary

Attachment: 3440B – Reply to Eric’s Response

5.2.4 Surface Mount Sandwich Component Dimensions Task Force

This task force has had no new activity since the Surface Mount Sandwich Component Dimensions Standard has been published. The Committee discussed of possibly disbanding this task force. Instead, the Committee will make this TF inactive until further notice.

5.2.5 Filter and Purifiers Task Force

Mohamed Saleem (Fujikin) reported for the Filters and Purifiers Task Force *{See attachment for ballot review responses and task force reports}*. The key items were as follows:

- Doc 5667, New Standard: Test Method for Determination of Moisture Dry-Down Characteristics of Gas Delivery Components
 - Published as C91
- Doc 5816A, Line item Revision to SEMI F30-0710 - Start-Up and Verification of Purifier Performance Testing for Trace Gas Impurities and Particles at an Installation Site with title change to Test Method for the Start-Up and Verification of Purifier Performance Testing for Trace Gas Impurities and Particles at an Installation Site
 - Passed committee review at Fall Meetings; failed A&R Review
 - Want to rebalot for Cycle 4 or 5, 2016
- Doc 5244B, Revision of SEMI F21-1102, Classification of Airborne Molecular Contaminant Levels in Clean Environments
 - Douglas indicated he will be unable to spend time on this document due to changes at his company. TF leader (M. Saleem) to attempt to work on this document and send it for balloting by cycle 2, 2016

Attachment: TF Report - FP (04_04_2016)

5.2.6 Materials of Construction of Gas Delivery Systems Task Force

Bill Kiiikvee (AP Tech) reported for the Materials of Construction of Gas Delivery Systems Task Force. The task force has recruited a new member, Todd Bell (Applied Energy Systems). There are no ballots for review. Seven standards will be reviewed by TF (SEMI F6, F13, F14). Title and terminology SEMI F37, F41, F69 and F101 that are due for 5-year review. *{See attachment for detailed task force reports}*

Attachment: TF Minutes - Materials TF Agenda Spring 2016_V1

5.2.7 Gases Specification Task Force

Mark Ripkowski reported for the Gases Specification Task Force. The task force reviewed the documents that have nonconforming titles. Mark will send Laura Nguyen and Mohamed Saleem the Nonconforming Title change SNARF listed in the task force minutes attached to these minutes. *{See attachment for detailed task force reports}*

Attachment: TF Minutes - GasesSpecs (04042016)



6 Old Business

Previous action items has been updated and closed. There is no further old business.

7 New Business

7.1 Task Force Leadership Change

Mohamed Saleem addressed the committee on this topic. Mark Ripkowski (CONSCI) is the leader for Gases Specification task force. Mark Ripkowski has retired from the leader position. There is currently no leader appointed at this time. Mohamed Saleem will be the contact until further notice.

8 Next Meeting and Adjournment

The next meeting is scheduled for Tuesday, July 12, 2016 at the SEMICON West 2016 Standards Meetings in San Francisco, California. See <http://www.semi.org/en/events> for the current list of meeting schedules.

Having no further business, a motion was made to adjourn. Adjournment was at 10:25.

Respectfully submitted by:

Laura Nguyen

International Standards Coordinator

SEMI North America

Phone: +1.408.942.7019

Email: lnguyen@semi.org

Minutes approved by:

Steve Lewis (LPCiminelli), Co-chair	June 20, 2016
Mohamed Saleem (Fujikin), Co-chair	June 17, 2016

Table 8 Index of Available Attachments#1

<i>Title</i>	<i>Title</i>
SEMI Standards Required Meeting Elements	TF Report - MFC (04_04_2016)
FG Meeting Minutes Fall 2015 Finalv2	Spring 2016 Pressure Measurement Task Force Report_160404 Summary
EU Gases & Liq Chem April 2016 v1	3440B – Reply to Eric’s Response
Liaison Report JA Spring2016 (F&G)	TF Report - FP (04_04_2016)
SEMI Standards Staff Report	T F Minutes - Materials TF Agenda Spring 2016_V1
FDP GUIDE Rev1.4.3	TF Minutes - GasesSpecs (04042016)

#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.