Record of Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: North America
Global Technical Committee: Facilities
TC Chapter Cochairs: Steve Lewis / LPCiminelli
Standards Staff: Laura Nguyen

	Scheduled in Background Statement	Actual
Date	04/04/2017	04/04/2017
Location	SEMI Headquarters in Milpitas, CA	SEMI Headquarters in Milpitas, CA
Reason for Change of Date and/or Location (if changed)		

Note: See *Regulations* ¶ 9.5 Exception for allowable reason to change.

I. Document Number and Title

Document Number	Document Title
6105	REVISION TO SEMI F51-1115, GUIDE FOR ELASTOMETRIC SEALING TECHNOLOGY

II. Tally

Standards staff to fill in.

Voting Tally: As-cast tally after close of voting period

Note: A minimum of 60% of the Voting Interests that have TC Members within the global technical committee that issued the Letter Ballot must return Votes. (*Regulations* ¶ 9.7.1.1)

Voting Tally (with example values):

Voting Interest:	Returned Votes		Distribution		Return Rate	
Letter Ballot	43	÷	71	=	60.6%	≥60%
Intercommittee Ballot	37					
Voting Interest Reject(s)	1		Total Voters with Rejects			1
Voting Interest Accept(s)	25					

Note: See *Regulations* § 3.2.1 for definition of Voting Interest.

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: Tokyo Electron)
Voter Reject 1 (Voter: Supika Mashiro/TEL)
Negative 1

Negative	**Referenced Section/ Paragraph**	***TF/TC Chapter to fill in, including text in the ballot if necessary.**
		7.1
	Negative Text	***Original complete Negative text (e.g., issue, justification, suggestion) should be copied.**
		Negative: This paragraph is misleading. It can be read as if PFOA is intentionally used in semiconductor process equipment. Only **known** intentional use of PFOA in the semiconductor industry is use in photolithography processes, which should be outside the scope of this Document. Even some type of semiconductor process equipment has some parts and components that are made of or partly made of PTFE or other fluoropolymers, such parts/components are outside the scope of this Document except for seals. Lastly, though it is certainly true that some elastomeric seals are manufactured through extrusion molding processes using PFOA as additives (intentionally used to improve certain characteristics), such use is not known as for PTFE based products. Reason/Justification: Although there are certain types of parts/components that are more likely to contain PFOA than others (because they are made of flouropolymers), there is little data about the actual use of PFOA in these components. Many fluoropolymer material manufacturers (see the FluoroCouncil membership) have completely eliminated the use of PFOA. There are a few components, such as Teflon seal tape (e.g. for plumbing) that are expected to contain fairly significant amounts of PFOA. All in all, “widely used” seems to be an overestimate based on the data that is available. Furthermore, the scope of this standard focuses on points of view related, in part, to changes in seals that could impact performance. The paragraph as balloted, does not tie back to this concept. In other words it does not explain why the presence of PFOA in seals might be of concern with regard to the focus of the document. [Suggestion] Change the entire paragraph and add a new note and reference as below: “Perfluorooctanoic acid (PFOA) is a material currently regulated, or coming under new regulation, in various countries. The regulatory action thresholds for PFOA tend to be very low concentrations, such as 25ppb for any simple part in case of EU REACH. PFOA is known to have been used in the manufacture of polytetrafluoroethylene (PTFE) and other fluorinated plastics (e.g., PFA, PVDF), and may still be used by some manufacturers, though many PTFE manufacturers have stopped using it. PFOA has been used as a surfactant to improve the general PTFE production process, in which case its presence after PTFE production is not necessary, but might be residual, nonetheless; and it has been used as an intentional PTFE constituent because it gives PTFE flexibility, important for some applications. Per-fluorinated plastics such as PTFE is used in many elastomeric seals. Therefore, in response to regulatory requirements, some elastomeric seals may have to be reformulated or replaced with seals known not to contain PFOA over the threshold. NOTE: The US Environmental Protection Agency (EPA) has been investigating PFOA, as well as the European Chemicals Agency (ECHA). Refer to the EPA PFOA Web site[1] and the ECHA PFOA dossier information [2]. PFOA is a type of perfluoroalkyl substance (a PFAS). The US based FluoroCouncil also has useful information about PFAS materials. See the FluoroCouncil website [3]. [1] EPA PFOA Web site: http://www.epa.gov/oppt/pfoa/index.html [2] ECHA PFOA Restriction Background: https://echa.europa.eu/previous-consultations-on-restriction-proposals/-/substance-rev/1908/term [3] FluoroCouncil website: https://fluorocouncil.com/Resources/Research”

TF input (optional)		The TF agrees with the voter's comments and suggested wording changes.						
Withdrawal (check one)		x	No Negative withdrawal made by Voter.					**GO TO "Related" subsection**
			Withdrawal document received by Standards staff on MM/DD/YYYY.					**GO TO "Final" subsection → (A)**
Related	**Motion and Reason (check one)**	x	'Related' is mutually agreed upon. **(Needs no motion.)**					**GO TO "Persuasive" subsection**
			Negative is not related. **(Needs ≥2/3 votes to pass.)**					
			Reason	XXXX				
Persuasive	**Motion and Reason (check one)**	x	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**					
	Motion by/ 2nd by	Jeff Christian (WIKA) / Bala Mohammed (AMAT)						
	Discussion	None.						
	Result of Vote (check one)	4 **Y**-0 **N**; Motion passed.						
		x	[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**	x	**Y**		**GO TO "Address by Technical Change Option" subsection**
			[Negative is related and not persuasive.] < 2/3			**N**		**GO TO "Final" subsection → (E)**
			2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO "Final" subsection → (C)**				
			90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**				

Address by Technical Change Option

Technical Change Recommendations

Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

Technical Changes	**1**	**FROM:** **7 Consideration for Perfluorooctanoic Acid (PFOA) and Fluorinated Telomers** 7.1 Perfluorooctanoic acid (PFOA), a perfluorinated material, is widely used in Semiconductor industry. One commonly known application is the manufacturing of polytetrafluoroethylene (PTFE), which is a widely used filler for compounding semiconductor seal materials. EPA has been investigating PFOA. Refer to the EPA PFOA Web site.[1] Footnote: [1] EPA PFOA Web site: http://www.epa.gov/oppt/pfoa/index.html

7 Consideration for Perfluorooctanoic Acid (PFOA) and Fluorinated Telomers

7.1 Perfluorooctanoic acid (PFOA) is a material currently regulated, or coming under new regulation, in various countries. The regulatory action thresholds for PFOA tend to be very low concentrations, such as 25ppb for any simple part in case of EU REACH. PFOA is known to have been used in the manufacture of polytetrafluoroethylene (PTFE) and other fluorinated plastics (e.g., PFA, PVDF), and may still be used by some manufacturers, though many PTFE manufacturers have stopped using it. PFOA has been used as a surfactant to improve the general PTFE production process, in which case its presence after PTFE production is not necessary, but might be residual, nonetheless; and it has been used as an intentional PTFE constituent. Per-fluorinated plastics such as PTFE is used in many elastomeric seals. Therefore, in response to regulatory requirements, some elastomeric seals may have to be reformulated or replaced with seals known not to contain PFOA over the threshold. ~~Perfluorooctanoic acid (PFOA), a perfluorinated material, is widely used in Semiconductor industry. One commonly known application is the manufacturing of polytetrafluoroethylene (PTFE), which is a widely used filler for compounding semiconductor seal materials. EPA has been investigating PFOA. Refer to the EPA PFOA Web site.[1]~~

NOTE 1: The US Environmental Protection Agency (EPA) has been investigating PFOA, as well as the European Chemicals Agency (ECHA). Refer to the EPA PFOA Web site[1] and the ECHA PFOA dossier information[2]. PFOA is a type of perfluoroalkyl substance (a PFAS). The US based FluoroCouncil also has useful information about PFAS materials. See the FluoroCouncil website[3].

Footnote:
[1] EPA PFOA Web site: http://www.epa.gov/oppt/pfoa/index.html
[2] ECHA PFOA Restriction Background: https://echa.europa.eu/previous-consultations-on-restriction-proposals/-/substance-rev/1908/term
[3] FluoroCouncil website: https://fluorocouncil.com/Resources/Research"

Motion		Negative is addressed by the technical change(s).		
Motion by/2nd by		Erica Kitano (Fujikin) / Bala Mohammed (AMAT)		
Discussion		None		
Result of Vote (check one)		4 **Y**-0 **N**; Motion passed		
		x	2/3 ≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
			[Negative is not addressed by the technical change(s).] < 2/3	**GO TO "Final" subsection → (E)**
Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).		
	Motion by/2nd by	Erica Kitano (Fujikin) / Jeff Christian (WIKA)		
	Discussion	None		
	Result of Vote (check one)	4 **Y**-0 **N**; Motion passed.		
		X	90% ≤ [Agree to incorporate.]	**GO TO "Final" subsection → (F)**
			[Disagree to incorporate.]>10%	**GO TO "Final" subsection → (E)**

Final					
	(check if applicable)		**(A)**	Withdrawn **(counted under h in disposition)**	
			(B)	Not related **(counted under i in disposition)**	
			(C)	Related and not persuasive (significant)	
			(D)	Not significant **(counted under j in disposition)**	
			(E)	Related and persuasive and not addressed by technical change	**DOCUMENT FAILS**
		X	**(F)**	Addressed by technical change **(counted under k disposition)**	
	(check if applicable)		Comment generated. **See Section V-(ii) Comment #** X.		

Disposition of Voting Interest Reject 1

Check only when the Document has not been failed.

1	Original number (#) of Negatives	**(g)**
	Number of Negatives withdrawn	**(h)**
	Number of Negatives found not related	**(i)**
	Number of Negatives found not significant	**(j)**
1	Number of Negatives addressed by technical change **(Negative becomes not significant)**	**(k)**

Final	x	**g** - (**h** + **i** +**j** + **k**) = 0	**Reject is Not Valid and is not included in the denominator of § VI. *Approval Conditions Check***
		g - (**h** + **i** +**j** + **k**) >0	**Reject is included in the denominator of § VI. *Approval Conditions Check***
		Reject without a Negative	**Not Valid**

Note: If all of the Negatives included with a Reject Vote are withdrawn, determined to be not related, or determined to be not significant, the Reject Vote is not valid. (*Regulations* ¶ 9.4.3.3)
Note: A Negative addressed by a technical change is automatically considered to be not significant. (*Regulations* ¶ 9.6.4.4.2)

IV. Other Technical Issues
None

V. Comments

V- (i) Voters' Comments

Commenter 1 (Julie Hicks/Edwards) - Comment 1

Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**		
	NOTE #: Refer to section on recommendations for storage conditions (¶ 17.2.4). should be 17.6		
Action	**The TC Chapter agreed to do one of the following actions.**		
	***No motion is required in this step.**		
		Already addressed by Commenter #, Comment #	
		No further action was taken by the TC Chapter.	
		Refer to the TF for more consideration.	
		New Business	
	x	Editorial Change	
	Options for editorial		**Case 1: No vote in this section:**
			To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.*

		change (check one)	x	**Case 2: Voted in this section:** **Original section number and at least one full sentence are required in "FROM" and "TO" fields.**
Editorial Changes	1	**FROM: Section/Paragraph xxx** NOTE #: Refer to section on recommendations for storage conditions (¶ 17.2.4).		
		TO: NOTE #: Refer to section on recommendations for storage conditions (¶ 1617.2.4).		
		Justification (If necessary) Editorial change suggested to correct typo on referenced section. The correct referenced section is actually section 16.2.4: ********** 16.2.4 *Storage Conditions* — Seals should be stored in a cool, dry, place and should not be exposed to UV light. The seals should be contained in their original packaging as provided by the supplier. The seals should be stored in room temperature (around 25 °C) and in low humidity conditions (relative humidity <65%). The seals should not be exposed to direct sunlight and protected from the effects of ozone. The seals should also be stored in a radiation-free environment. Finally, the seals should not be stored in a location that distorts or deforms the seals' original shape. ********** Also, section "17.2.4" does not exist in the ballot.		

Motion	To approve above editorial change(s)
Motion by/2nd by	Bala Mohammed (AMAT) / Erica Kitano (Fujikin)
Discussion	None
Vote	4 **Y** 0 **N**; Motion passed.

V-(ii) Comments Created by Handling Negative
None

VI. Editorial Changes Other than Those Voted on in § V
None

VII. Approval Conditions Check

VII. - (i). Approval Rate

APPROVAL CONDITION 1: All Negatives have been discussed and were withdrawn, found not related, found not persuasive, or addressed by a technical change. (*Regulations* ¶ 9.7.1.2)

APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (*Regulations* ¶ 9.7.1.3)

Note: If both approval conditions are not satisfied, the Document fails.

Approval Rate	=	25	/	25	=	**100.0%**		≥90%

VII. – (ii) Approval Level (check one)

Note: See *Regulations* § 9.7.2 for further information.

	Globally Approved (No Ratification Ballot needed): **The Letter Ballot meets the Letter Ballot approval conditions for the global technical committee.**
X	**Need a Ratification Ballot:** **The Letter Ballot meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.**

VIII. Safety Check

Note: See *Regulations* § 15 for further information.

Motion	X	**This is not a Safety Document**, when all safety-related information is removed, the Document is still technically sound and complete. (*Regulations* ¶ 8.7.1)	
		This is a Safety Document, when all safety-related information is removed, the Document is not technically sound and complete. (*Regulations* ¶ 8.7.2)	
		Safety Checklist (*Regulations* ¶ 15.3) is complete and has been included with the Document throughout the balloting process. (*Regulations* ¶ 15.1.2)	
Motion by/2nd by		Jeff Christian (WIKA) / Bala Mohammed (AMAT)	
Discussion		None	
Vote		4 **Y** 0 **N**; Motion passed	

IX. Intellectual Property (IP) Check

Note: This Letter Ballot may cover all or part of a Standard or Safety Guideline. This IP check applies to the entire Standard or Safety Guideline. See *Regulations* § 16 for further information.

X	The TC Chapter meeting chair asked those participating, if they were aware of any potentially material patented technology or copyrighted items* in the Standard or Guideline. (*Regulations* ¶ 8.8.1)		
	X	No potentially material patented technology or reproduction of copyrighted items is known.	GO TO SECTION X.
		Potentially material patented technology or reproduction of copyrighted items is known, but a Letter of Assurance (LOA) or	GO TO SECTION X.

		copyright release letter for such items has been obtained or presented to the TC Chapter.	
		Potentially material patented technology or reproduction of copyrighted items is known and use of such materials is technically justified by the TC Chapter, but an LOA or copyright release letter for some of the item(s) has NOT been obtained or presented to the TC Chapter.	
	Motion		Ask ISC for special permission to publish.
			Quit activity.
			Wait for LOA for patented technology or release of copyrighted items.
	Motion by/2nd by		Name (Company)/Name (Company)
	Discussion		XXXX
	Vote		XX **Y**-XX **N**
	Final Action		Motion passed
			Motion failed

*** Note: Such potentially material patented technology or copyrighted items might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this Letter Ballot.**

X. Action for This Document

Motion		This Document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
		This Document passed TC Chapter review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.
	x	This Document passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.
		This Document failed TC Chapter review and will be returned to the TF for rework.
		This Document failed TC Chapter review and work will be discontinued.
Motion by/ 2nd by		Erica Kitano (Fujikin) / Jeff Christian (WIKA)
Discussion		None
Vote		4 **Y** 0**N**
Final Action	X	Motion passed
		Motion failed

Standards staff to record the result of the A&R procedural review here:

A&R		**Approved for publication**
	X	**Approved pending acceptance of the Ratification Ballot**
		Not approved
	Reason:	