

## Record of Letter Ballot Review by TC Chapter for Procedural Review

REGION/LOCALE: [Japan](#)

GLOBAL TECHNICAL COMMITTEE: [EHS](#)

TC CHAPTER CO-CHAIRS: [Hidetoshi Sakura/ Nuflare Technology, Supika Mashiro/Tokyo Electron, Moray Crawford/Hatsuta Seisakusho](#)

SEMI STANDARDS STAFF: [Chie Yanagisawa](#)

	Scheduled in Background Statement	Actual
Date	<a href="#">04/24/2018</a>	<a href="#">04/24/2018</a>
Location	<a href="#">Tokyo, Japan</a>	<a href="#">Tokyo, Japan</a>

### I. Document Number and Title

<p><b>Document Number</b> <a href="#">6289</a></p>	<p><b>Document Title</b>  <a href="#">Revision to SEMI S18-0312            ENVIRONMENTAL, HEALTH AND SAFETY GUIDELINE            FOR FLAMMABLE SILICON COMPOUNDS            with title change to            ENVIRONMENTAL, HEALTH, AND SAFETY            GUIDELINE FOR FLAMMABLE SILICON COMPOUNDS</a></p>
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### II. Tally (Standards staff to fill in)

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

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	<a href="#">57</a>	÷	<a href="#">94</a>	=	<a href="#">60.6%</a>	>=60%
Intercommittee Ballot	<a href="#">35</a>					
Voting Interest Reject(s)	<a href="#">1</a>		<b>Total Voter with Rejects</b>			<a href="#">1</a>
Voting Interest Accept(s)	<a href="#">45</a>					

### III. Rejects

#### Voting Interest Reject 1 (Voting Interest Name: Applied Materials)

#### Voting Interest Reject 1- Voter Reject 1 (Voter: Edward Karl / Applied Materials)

#### Negative 1 of Voting Interest Reject 1- Voter Reject 1

Negative	Referenced Section/ Paragraph	*TF/TC Chapter to fill in including text in the ballot if necessary.		
		NOTE 5: A Safety Guideline named SAFETY GUIDELINE FOR USE OF ENERGETIC MATERIALS IN SEMICONDUCTOR R&D AND MANUFACTURING PROCESSES is under development. The document can be very informative when considering energetic nature of some of flammable silicon compounds and their byproducts.		
Negative	Negative Text	*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.		
		A new terminology of “Energetic” is being introduced into this SEMI document, but this non-commonly used terminology term has not been defined and could introduce confusion within the semiconductor manufacturing industry.  Proposed Solution: Instead of introducing a new terminology (“Energetic Materials” and “energetic nature”) which could have different meaning to different readers, the term “Energetic” should be defined in Section 5 Terminology, or the term “energetic” replaced with the specific and defined characteristics of concern in the Note.		
TF input (optional)				
Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO “Related” subsection	
	<input type="checkbox"/>	Withdrawal document received by Standards staff on MM/DD/YYYY.	GO TO “Final” subsection → (A)	
Related	Motion and Reason (check one)	<input checked="" type="checkbox"/>	‘Related’ is mutually agreed upon. (Needs no Motion.)	GO TO “Persuasive” subsection
		<input type="checkbox"/>	Negative is not related. (Needs ≥2/3 votes to pass.)	
		Reason	XXXX	
	Motion by/2nd by	Name (Company)/Name (Company)		
	Discussion			
Result of Vote (check one)	<input type="checkbox"/>	XX-XX; Motion passed/failed.		
	<input type="checkbox"/>	[Negative is not related.] <2/3	GO TO “Persuasive” subsection	
	<input type="checkbox"/>	2/3≤ [Negative is not related.]	GO TO “Final” subsection → (B)	
Persuasive	Motion and Reason (check one)	<input type="checkbox"/>	Negative is related and persuasive. (Needs >1/3 votes to pass.)	
		<input checked="" type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
	Reason	Negative on a NOTE that just gives information about potentially useful document developed under SEMI Standards Program. According to Regulations 8.9.5, change existing Note or, add or delete Note is allowed as an editorial change. So even the negative has some reasonable elements the issue can be resolved through an editorial change.		

	<b>Motion by/2nd by</b>	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)			
	<b>Discussion</b>	The voters concern may be eased by an editorial change which reads: NOTE 5: A Safety Guideline named SAFETY GUIDELINE FOR USE OF ENERGETIC MATERIALS IN SEMICONDUCTOR R&D AND MANUFACTURING PROCESSES is under development. The document can be very informative when considering highly reactive energetic nature of some of flammable silicon compounds and their byproducts with other chemicals including water at the locations downstream from the process equipment (e.g. in process gas exhaust piping).			
	<b>Result of Vote (check one)</b>	5-0; Motion passed			
		<input type="checkbox"/>	[Negative is related and persuasive.] >1/3	Is a Technical Change Recommended	Y GO TO "Address by Technical Change Option" subsection
<input type="checkbox"/>		[Negative is related and not persuasive.] <2/3	? (Y/N)	N GO TO "Final" subsection → (E)	
<input type="checkbox"/>		2/3 ≤ [Negative is related and not persuasive.] <90%	GO TO "Final" subsection → (C)		
<input checked="" type="checkbox"/>	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection			
Address by Technical Change Option	<b>Technical Change Recommended by the TF</b>				
	<b>Note: Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.</b>				
	1	FROM: Section/Paragraph XXX			
		TO: Section/Paragraph xxx			
		Justification (if necessary)			
	2	FROM: Section/Paragraph XXX			
		TO: Section/Paragraph xxx			
		Justification (if necessary)			
	<b>Motion</b>		Negative is addressed by the Technical Change.		
	<b>Motion by/2nd by</b>		Name (Company)/Name (Company)		
<b>Discussion</b>					
<b>Result of Vote (check one)</b>		XX-XX; Motion passed/failed.			
<input type="checkbox"/>	2/3 ≤ [Negative is addressed by the Technical Change.]	GO TO "Incorporation of the Technical Change" subsection			
<input type="checkbox"/>	[Negative is not addressed by the Technical Change.] < 2/3	GO TO "Final" subsection → (E)			
Incorporation of the	<b>Motion</b>		To incorporate the Technical Change.		
	<b>Motion by/2nd by</b>		Name (Company)/Name (Company)		
	<b>Discussion</b>				
			XX-XX; Motion passed/failed.		

		<b>Result of Vote (check one)</b>	<input type="checkbox"/> 90% ≤ [Agree to incorporate.]	<b>GO TO “Final” subsection → (F)</b>
			<input type="checkbox"/> [Disagree to incorporate.] > 10%	<b>GO TO “Final” subsection → (E)</b>
<b>Not Significant Finding Option</b>	<b>This option can only be used “if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action”. (Regulations ¶ 9.6.4.4.2)</b>			
	<b>Use of “Not significant finding option” (check one)</b>	<input type="checkbox"/>	It is mutually agreed upon to term the Negative “not significant”.	<b>GO TO “Final” subsection → (D)</b>
		<input checked="" type="checkbox"/>	It is mutually agreed upon to term the Negative “significant”.	<b>GO TO “Final” subsection → (C)</b>
		<input type="checkbox"/>	Whether or not the Negative is “not significant” is decided by a vote.	
	<b>Motion</b>	The Negative is “not significant”.		
	<b>Motion by/2nd by</b>	Name (Company)/Name (Company)		
	<b>Vote</b>	<input type="checkbox"/>	XX-XX; Motion passed with simple majority	<b>GO TO “Final” subsection → (D)</b>
<input type="checkbox"/>		XX-XX; Motion failed with simple majority	<b>GO TO “Final” subsection → (C)</b>	
<b>Final</b>	<b>(check if applicable)</b>	<input type="checkbox"/>	<b>(A)</b>	withdrawn (counted under h in disposition)
		<input type="checkbox"/>	<b>(B)</b>	not related (counted under i in disposition)
		<input checked="" type="checkbox"/>	<b>(C)</b>	related and not persuasive (significant)
		<input type="checkbox"/>	<b>(D)</b>	not significant (counted under j in disposition)
		<input type="checkbox"/>	<b>(E)</b>	related and persuasive and not addressed by Technical Change
	<input type="checkbox"/>	<b>(F)</b>	addressed by Technical Change (counted under k disposition)	
<b>(check if applicable)</b>	<input checked="" type="checkbox"/>	Comment generated. See Section V-(ii) Comment # NC-1.		

**Negative 2 of Voting Interest Reject 1- Voter Reject 1**

	Referenced Section/ Paragraph	*TF/TC Chapter to fill in including text in the ballot if necessary.		
		NOTE 5: A Safety Guideline named SAFETY GUIDELINE FOR USE OF ENERGETIC MATERIALS IN SEMICONDUCTOR R&D AND MANUFACTURING PROCESSES is under development. The document can be very informative when considering energetic nature of some of flammable silicon compounds and their byproducts.		
Negative	Negative Text	*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.		
		<p><b>Negative</b>                  The Note in Section 4 - Referenced Standards and Documents refer to a document (Safety Guideline for Use of Energetic Materials in Semiconductor R&amp;D and Manufacturing Processes) that is neither a released Standard or a released Document.                  According to Section A3-5(8) of the SEMI Procedure Manual, “Be sure to list only published standards or Standards and Safety Guidelines. Never refer to draft documents or Draft Documents being developed by SEMI or any other SDO in this section (or elsewhere in the Standard or Safety Guideline). Note that if it is necessary to reference a Draft Document under development, allude to the material by a descriptive phrase, not necessarily the title. Include a Note to the effect that a Standard or Safety Guideline covering the topic is being developed by a SEMI Standards global technical committee. The global technical committee can be identified, if desired.”</p> <p><b>Proposed Solution:</b>                  Add reference to “Safety Guideline for Use of Energetic Materials in Semiconductor R&amp;D and Manufacturing Processes” when the document is approved and released. If it is necessary to reference the draft document under development, allude to the material by a descriptive phrase which, I believe should contain the definition of “energetics” such that all readers would have a consistent understanding of the ‘descriptive phrase’.</p>		
	TF input (optional)			
	Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO “Related” subsection
		<input type="checkbox"/>	Withdrawal document received by Standards staff on MM/DD/YYYY.	GO TO “Final” subsection → (A)
Related	Motion and Reason (check one)	<input checked="" type="checkbox"/>	‘Related’ is mutually agreed upon. (Needs no Motion.)	GO TO “Persuasive” subsection
		<input type="checkbox"/>	Negative is not related. (Needs ≥2/3 votes to pass.)	
		Reason	XXXX	
	Motion by/2nd by	Name (Company)/Name (Company)		
	Discussion			
	Result of Vote (check one)	XX-XX; Motion passed/failed.		
<input type="checkbox"/>		[Negative is not related.] <2/3	GO TO “Persuasive” subsection	
	<input type="checkbox"/>	2/3≤ [Negative is not related.]	GO TO “Final” subsection → (B)	
	Motion and Reason	Negative is related and persuasive. (Needs >1/3 votes to pass.)		

Persuasive	(check one)	<input checked="" type="checkbox"/>	Negative is related and not persuasive. <b>(Needs ≥2/3 votes to pass.)</b>			
			Reason	Negative on a NOTE that is giving information about the document that may be potentially useful to the reader of the Document. The NOTE does NOT violate the PM A3-5.(8), because as a NOTE it does not add the name of the unpublished document to the list described in the normative part of the section. Referencing a SEMI Safety Guideline under development in a NOTE does not contradict the intent of the PM A3-5(8).		
	Motion by/2nd by	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)				
	Discussion	None				
	Result of Vote (check one)	5-0; Motion passed.				
	<input type="checkbox"/>	[Negative is related and persuasive.] >1/3	Is a Technical Change Recommended	<input type="checkbox"/> Y	GO TO "Address by Technical Change Option" subsection	
	<input type="checkbox"/>	[Negative is related and not persuasive.] <2/3	?	<input type="checkbox"/> N	GO TO "Final" subsection → (E)	
	<input type="checkbox"/>	2/3 ≤ [Negative is related and not persuasive.] <90%	GO TO "Final" subsection → (C)			
	<input checked="" type="checkbox"/>	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection			
<b>Technical Change Recommended by the TF</b>						
<b>Note: Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.</b>						
Address by Technical Change Option	1	FROM: Section/Paragraph <b>XXX</b>				
		TO: Section/Paragraph <b>xxx</b>				
		Justification <b>(if necessary)</b>				
	2	FROM: Section/Paragraph <b>XXX</b>				
		TO: Section/Paragraph <b>xxx</b>				
		Justification <b>(if necessary)</b>				
	Motion		Negative is addressed by the Technical Change.			
	Motion by/2nd by		Name (Company)/Name (Company)			
	Discussion					
	Result of Vote (check one)		XX-XX; Motion passed/failed.			
	<input type="checkbox"/>	2/3 ≤ [Negative is addressed by the Technical Change.]	GO TO "Incorporation of the Technical Change" subsection			
	<input type="checkbox"/>	[Negative is not addressed by the Technical Change.] < 2/3	GO TO "Final" subsection → (E)			
☐ -	Motion	To incorporate the Technical Change.				

	<b>Motion by/2nd by</b>	Name (Company)/Name (Company)			
	<b>Discussion</b>				
	<b>Result of Vote (check one)</b>	XX-XX; Motion passed/failed.			
		<input type="checkbox"/> 90% ≤ [Agree to incorporate.]	GO TO “Final” subsection → (F)		
		<input type="checkbox"/> [Disagree to incorporate.] > 10%	GO TO “Final” subsection → (E)		
Not Significant Finding Option	This option can only be used “if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action”. (Regulations ¶ 9.6.4.4.2)				
	<b>Use of “Not significant finding option” (check one)</b>	<input type="checkbox"/>	It is mutually agreed upon to term the Negative “not significant”.	GO TO “Final” subsection → (D)	
		<input checked="" type="checkbox"/>	It is mutually agreed upon to term the Negative “significant”.	GO TO “Final” subsection → (C)	
		<input type="checkbox"/>	Whether or not the Negative is “not significant” is decided by a vote.		
	<b>Motion</b>	The Negative is “not significant”.			
	<b>Motion by/2nd by</b>	Name (Company)/Name (Company)			
	<b>Vote</b>	<input type="checkbox"/>	XX-XX; Motion passed with simple majority	GO TO “Final” subsection → (D)	
<input type="checkbox"/>		XX-XX; Motion failed with simple majority	GO TO “Final” subsection → (C)		
Final	<b>(check if applicable)</b>	<input type="checkbox"/>	(A)	withdrawn (counted under h in disposition)	
		<input type="checkbox"/>	(B)	not related (counted under i in disposition)	
		<input checked="" type="checkbox"/>	(C)	related and not persuasive (significant)	
		<input type="checkbox"/>	(D)	not significant (counted under j in disposition)	
		<input type="checkbox"/>	(E)	related and persuasive and not addressed by Technical Change	DOCUMENT FAILS
		<input type="checkbox"/>	(F)	addressed by Technical Change (counted under k disposition)	
<b>(check if applicable)</b>	<input type="checkbox"/>	Comment generated. See Section V-(ii) Comment # X.			

### Negative 3 of Voting Interest Reject 1- Voter Reject 1

Negative	Referenced Section/ Paragraph	*TF/TC Chapter to fill in including text in the ballot if necessary.		
	Negative Text	<p>NOTE 20: Many of byproducts of processes using flammable silicon compounds have characteristics of energetic material and need special care whenever downstream sections or systems of the process chamber are maintained.</p> <p>*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.</p> <p><b>Negative</b> A new terminology of “Energetic” is being introduced into this SEMI document, but this non-commonly used terminology term has not been defined and could introduce confusion within the semiconductor manufacturing industry.</p> <p><b>Proposed Solution:</b> Instead of introducing a new terminology (“Energetic Materials” and “energetic nature”) which could have different meaning to different readers, the term “Energetic” should be defined in Section 5 Terminology, or the term “energetic” replaced with the specific and defined characteristics of concern in the Note.</p>		
TF input (optional)				
Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO “Related” subsection	
	<input type="checkbox"/>	Withdrawal document received by Standards staff on MM/DD/YYYY.	GO TO “Final” subsection → (A)	
Related	Motion and Reason (check one)	<input checked="" type="checkbox"/>	‘Related’ is mutually agreed upon. (Needs no Motion.) GO TO “Persuasive” subsection	
		<input type="checkbox"/>	Negative is not related. (Needs ≥2/3 votes to pass.)	
		Reason	XXXX	
	Motion by/2nd by	Name (Company)/Name (Company)		
	Discussion			
Result of Vote (check one)	XX-XX; Motion passed/failed.			
	<input type="checkbox"/>	[Negative is not related.] <2/3	GO TO “Persuasive” subsection	
	<input type="checkbox"/>	2/3≤ [Negative is not related.]	GO TO “Final” subsection → (B)	
Persuasive	Motion and Reason (check one)	<input type="checkbox"/>	Negative is related and persuasive. (Needs >1/3 votes to pass.)	
		<input checked="" type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
		Reason	Negative on a NOTE that is intended just to raise general awareness regarding process byproducts of flammable silicon compounds.	
Motion by/2nd by	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)			



	<b>Discussion</b>	As an editorial change the NOTE can be changed to; NOTE 20: <del>Many of byproducts of processes using flammable silicon compounds have characteristics of energetic material and need</del> are highly reactive to other chemicals including water that can exist in downstream section or systems of the process chamber and may further create unstable conditions. Therefore special care may be necessary whenever downstream sections or systems of the process chamber are maintained.			
	<b>Result of Vote (check one)</b>	5-0; Motion passed.			
		<input type="checkbox"/>	[Negative is related and persuasive.] >1/3	Is a Technical Change Recommended	Y GO TO "Address by Technical Change Option" subsection
		<input type="checkbox"/>	[Negative is related and not persuasive.] <2/3	?	N GO TO "Final" subsection → (E)
		<input type="checkbox"/>	2/3 ≤ [Negative is related and not persuasive.] <90%	(Y/N)	GO TO "Final" subsection → (C)
<input checked="" type="checkbox"/>	90% ≤ [Negative is related and not persuasive.]			GO TO "Not Significant Finding Option" subsection	
<b>Address by Technical Change Option</b>	<b>Technical Change Recommended by the TF</b>				
	<b>Note: Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.</b>				
	1	FROM: Section/Paragraph XXX			
		TO: Section/Paragraph xxx			
		Justification (if necessary)			
	2	FROM: Section/Paragraph XXX			
		TO: Section/Paragraph xxx			
		Justification (if necessary)			
	<b>Motion</b>		Negative is addressed by the Technical Change.		
	<b>Motion by/2nd by</b>		Name (Company)/Name (Company)		
	<b>Discussion</b>				
	<b>Result of Vote (check one)</b>	XX-XX; Motion passed/failed.			
		<input type="checkbox"/>	2/3 ≤ [Negative is addressed by the Technical Change.]		GO TO "Incorporation of the Technical Change" subsection
	<input type="checkbox"/>	[Negative is not addressed by the Technical Change.] < 2/3		GO TO "Final" subsection → (E)	
<b>Incorporation of the Technical Change</b>	<b>Motion</b>		To incorporate the Technical Change.		
	<b>Motion by/2nd by</b>		Name (Company)/Name (Company)		
	<b>Discussion</b>				
			XX-XX; Motion passed/failed.		
<input type="checkbox"/>	90% ≤ [Agree to incorporate.]		GO TO "Final" subsection → (F)		

		Result of Vote (check one)	<input type="checkbox"/> [Disagree to incorporate.]>10%	GO TO "Final" subsection → (E)
Not Significant Finding Option	This option can only be used "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (Regulations ¶ 9.6.4.4.2)			
	Use of "Not significant finding option" (check one)	<input type="checkbox"/>	It is mutually agreed upon to term the Negative "not significant".	GO TO "Final" subsection → (D)
		<input checked="" type="checkbox"/>	It is mutually agreed upon to term the Negative "significant".	GO TO "Final" subsection → (C)
		<input type="checkbox"/>	Whether or not the Negative is "not significant" is decided by a vote.	
	Motion	The Negative is "not significant".		
	Motion by/2nd by	Name (Company)/Name (Company)		
	Vote	<input type="checkbox"/>	XX-XX; Motion passed with simple majority	GO TO "Final" subsection → (D)
<input type="checkbox"/>		XX-XX; Motion failed with simple majority	GO TO "Final" subsection → (C)	
Final	(check if applicable)	<input type="checkbox"/>	(A) withdrawn (counted under h in disposition)	
		<input type="checkbox"/>	(B) not related (counted under i in disposition)	
		<input checked="" type="checkbox"/>	(C) related and not persuasive (significant)	
		<input type="checkbox"/>	(D) not significant (counted under j in disposition)	
		<input type="checkbox"/>	(E) related and persuasive and not addressed by Technical Change	DOCUMENT FAILS
	<input type="checkbox"/>	(F) addressed by Technical Change (counted under k disposition)		
(check if applicable)	<input checked="" type="checkbox"/>	Comment generated. See Section V-(ii) Comment # NC-1.		

### Disposition of Voting Interest Reject 1

3	Original number of Negatives	(g)	
0	# of Negatives withdrawn	(h)	
0	# of Negatives found not related	(i)	
0	# of Negatives found not significant	(j)	
0	# of Negatives addressed by Technical Change (Negative becomes not significant)	(k)	
Final	<input type="checkbox"/>	$g - (h + i + j + k) = 0$	Reject is <b>Not Valid</b> and is not included in the denominator of § VI. <i>Approval Conditions Check</i>
	<input checked="" type="checkbox"/>	$g - (h + i + j + k) > 0$	Reject is included in the denominator of § VI. <i>Approval Conditions Check</i>
	<input type="checkbox"/>	Reject without a Negative	<b>Not Valid</b>

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

There is no other technical issue on Ballot #6289.

# V. Comments

## V- (i) Voters' Comments

### Commenter 1 (Eric Sklar / Safety Guru, LLC) - Comment 1

Comment	*TF/TC Chapter to fill in, if necessary.	
	8.1 Change “including their byproducts” to “and their byproducts”. Reason/Justification: It is not necessarily the case that the relevant byproducts are “flammable silicon compounds”. The suggested change includes a broader group.	
Action	The TC Chapter agreed to do one of the following actions.	
	*No motion is required in this step.	
	<input type="checkbox"/>	Already addressed by Commenter #, Comment #
	<input type="checkbox"/>	No further action was taken by the TC Chapter.
	<input type="checkbox"/>	Refer to the TF for more consideration.
	<input type="checkbox"/>	New Business
	<input checked="" type="checkbox"/>	Editorial Change
Options for Editorial Change (check one)	<input type="checkbox"/>	Case 1: No vote in this section : To be included and voted on in <u>§ VI. Summary of Editorial Changes</u> .
	<input checked="" type="checkbox"/>	Case 2: Voted in this section : Original section number and at least one full sentence are required in “FROM” and “TO” fields.
	<input type="checkbox"/>	
	<input type="checkbox"/>	
Editorial Change	1	FROM: Section/Paragraph 8.1 Everyone who handles flammable silicon compounds should be specially educated about the hazardous properties and safe handling methods of them <u>including their byproducts</u> .
		TO: Section/Paragraph 8.1 Everyone who handles flammable silicon compounds should be specially educated about the hazardous properties and safe handling methods of them <u>and their byproducts</u> .
		Justification (If necessary)
	2	FROM: Section/Paragraph xxx
		TO: Section/Paragraph xxx
		Justification (If necessary)
Motion	To approve above editorial change(s)	
Motion by/2nd by	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)	
Discussion	None	
Vote	5-0; Motion passed.	

Commenter 1 (Eric Sklar / Safety Guru, LLC) - Comment 2

Comment	*TF/TC Chapter to fill in, if necessary.	
	NOTE20 Change “material” to “materials”. Reason/Justification: As this is a grammatical correction to a NOTE, it can be done as an editorial change.	
Action	The TC Chapter agreed to do one of the following actions.	
	*No motion is required in this step.	
	<input type="checkbox"/>	Already addressed by Commenter #, Comment #
	<input checked="" type="checkbox"/>	No further action was taken by the TC Chapter.
	<input type="checkbox"/>	Refer to the TF for more consideration.
	<input type="checkbox"/>	New Business
	<input type="checkbox"/>	Editorial Change
Editorial Change	Options for Editorial Change (check one)	<input type="checkbox"/> Case 1: No vote in this section : To be included and voted on in <u>§ VI. Summary of Editorial Changes.</u>
		<input type="checkbox"/> Case 2: Voted in this section : Original section number and at least one full sentence are required in “FROM” and “TO” fields.
		<input type="checkbox"/>
		<input type="checkbox"/>
Editorial Change	1	FROM: Section/Paragraph xxx
		TO: Section/Paragraph xxx
		Justification (If necessary)
	2	FROM: Section/Paragraph xxx
		TO: Section/Paragraph xxx
		Justification (If necessary)
Motion	To approve above editorial change(s)	
Motion by/2nd by	Name (Company)/Name (Company)	
Discussion	Change/deletion of NOTE5 eliminates the perceived issue.	
Vote	XX-XX; Motion passed/failed.	

Commenter 1 (Eric Sklar / Safety Guru, LLC) - Comment 3

Comment	*TF/TC Chapter to fill in, if necessary.	
	<p>Table R1-1                  Change the Vapor Pressure to “0.00041”.                  Reason/Justification: The value proposed is not consistent with the value computed from the Antoine equation parameters provided by <b>NIST</b>. (Several values I found published elsewhere do agree reasonably well with values computed that way.) Although this is a technical change, it is in an RI, so it can be done as an editorial change.</p>	
Action	The TC Chapter agreed to do one of the following actions.	
	*No motion is required in this step.	
	<input type="checkbox"/>	Already addressed by Commenter #, Comment #
	<input type="checkbox"/>	No further action was taken by the TC Chapter.
	<input type="checkbox"/>	Refer to the TF for more consideration.
	<input type="checkbox"/>	New Business
<input checked="" type="checkbox"/>	Editorial Change	
Options for Editorial Change (check one)	<input checked="" type="checkbox"/>	<b>Case 1: No vote in this section :</b> To be included and voted on in <b>§ VI. Summary of Editorial Changes</b> .
	<input type="checkbox"/>	<b>Case 2: Voted in this section :</b> Original section number and at least one full sentence are required in “FROM” and “TO” fields.
Editorial Change	1	FROM: Section/Paragraph
		TO: Section/Paragraph
		Justification (If necessary)
	2	FROM: Section/Paragraph xxx
		TO: Section/Paragraph xxx
		Justification (If necessary)
Motion	To approve above editorial change(s)	
Motion by/2nd by	Name (Company)/Name (Company)	
Discussion	XXXX	
Vote	XX-XX; Motion passed/failed.	

Commenter 1 (Eric Sklar / Safety Guru, LLC) - Comment 4

Comment	*TF/TC Chapter to fill in, if necessary.	
	<p>Table R1-1                  Change the Vapor Density to "9.28".                  Reason/Justification: The proposed value appears rather low, given the molecular weight (269g/mol). Vapor density can be estimated by dividing the molecular weight by 29 (the effective "molecular weight" of air) and 269/29=9.28. It appears the proposed value was taken from published sources, but <i>not</i> for the same physical characteristic. Linde and SigmaAldrich both report that the <i>liquid</i> density is 1.562 g/ml at 25 °C. Although this is a technical change, it is in an RI, so it can be done as an editorial change.</p>	
Action	The TC Chapter agreed to do one of the following actions.	
	*No motion is required in this step.	
	<input type="checkbox"/>	Already addressed by Commenter #, Comment #
	<input type="checkbox"/>	No further action was taken by the TC Chapter.
	<input type="checkbox"/>	Refer to the TF for more consideration.
	<input checked="" type="checkbox"/>	Editorial Change
Options for Editorial Change (check one)	<input checked="" type="checkbox"/>	Case 1: No vote in this section : To be included and voted on in <u>§ VI. Summary of Editorial Changes.</u>
	<input type="checkbox"/>	Case 2: Voted in this section : Original section number and at least one full sentence are required in "FROM" and "TO" fields.
Editorial Change	1	FROM: Section/Paragraph xxx
		TO: Section/Paragraph xxx
		Justification (If necessary)
	2	FROM: Section/Paragraph xxx
		TO: Section/Paragraph xxx
		Justification (If necessary)
Motion	To approve above editorial change(s)	
Motion by/2nd by	Name (Company)/Name (Company)	
Discussion	XXXX	
Vote	XX-XX; Motion passed/failed.	

**V-(ii) Comments Created by handling Negative Comment (Created by handling Negative) NC – 1**

Comment	*TF/TC Chapter to fill in	
	The Reject voter’s concerns on NOTE 5 and NOTE 20 may be eased by an editorial change	
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
Editorial Change	Options for Editorial Change (check one)	Case 1: No vote in this section : To be included and voted on in § VI. Editorial Changes other than those dealt with in Section V.
		Case 2: Voted in this section : Original section number and at least one full sentence are required in “FROM” and “TO” fields.
	1	FROM: Section/Paragraph NOTE 5 NOTE 5: A Safety Guideline named SAFETY GUIDELINE FOR USE OF ENERGETIC MATERIALS IN SEMICONDUCTOR R&D AND MANUFACTURING PROCESSES is under development. The document can be very informative when considering energetic nature of some of flammable silicon compounds and their byproducts.
		TO: Section/Paragraph NOTE 5 NOTE 5: A Safety Guideline named SAFETY GUIDELINE FOR USE OF ENERGETIC MATERIALS IN SEMICONDUCTOR R&D AND MANUFACTURING PROCESSES is under development. The document can be very informative when considering highly reactive energetic nature of some of flammable silicon compounds and their byproducts with other chemicals including water at the locations downstream from the process equipment (e.g., in process gas exhaust piping).
2	Justification (If necessary)	
	FROM: Section/Paragraph NOTE 20 NOTE 20: Many of byproducts of processes using flammable silicon compounds have characteristics of energetic material and need special care whenever downstream sections or systems of the process chamber are maintained.	
	TO: Section/Paragraph NOTE 20 NOTE 20: Many of byproducts of processes using flammable silicon compounds <del>have characteristics of energetic material and need</del> are highly reactive to other chemicals including water that can exist in downstream section or systems of the process chamber and may further create unstable conditions. Therefore special care may be necessary whenever downstream sections or systems of the process chamber are maintained.	
	Justification (If necessary)	
Motion	To approve above editorial change(s)	
Motion by/2nd by	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)	
Discussion	None	
Vote	5-0; Motion passed.	

## VI. Editorial Changes other than those dealt with in Section V.

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

Origin of this editorial change (Check one)	<input checked="" type="checkbox"/>	Committer 1 / Comment(s) 2 and 3								
	<input type="checkbox"/>	Other [ ]								
<b>FROM: Section/Paragraph Table R1-1</b>										
Name	Chemical formula	CAS Number	Form <sup>#1</sup>	Vapor Pressure at 20°C [MPa]	Vapor Density Relative to Air at 20°C	AIT [°C]	LFL [%]	UFL [%]	TLV-TWA [ppm]	Acute Toxicity [LC50 (1 hr, rat) ppm]
Silane	SiH <sub>4</sub>	7803-62-5	CG	N/A	1.1	-50 -100	1.4	96	5	: 19,200
Disilane	Si <sub>2</sub> H <sub>6</sub>	1590-87-0	LG	0.345	2.2	-75	0.5	99.8	#2	unknown
Trisilane	Si <sub>3</sub> H <sub>8</sub>	7783-26-8	L	0.037	unk	unk	unk	unk	#2	unknown
monomethylsilane	SiCH <sub>3</sub> H <sub>3</sub>	992-94-9	LG	1.296	1.6	unk	1.3	88.0	#2	unknown
dimethylsilane	Si(CH <sub>3</sub> ) <sub>2</sub> H <sub>2</sub>	1111-74-6	LG	0.385	unk	unk	unk	unk	#2	unknown
trimethylsilane	Si(CH <sub>3</sub> ) <sub>3</sub> H	993-07-7	LG	0.168	2.66	245	1.4	51.3	#2	unknown
tetramethylsilane	Si(CH <sub>3</sub> ) <sub>4</sub>	75-76-3	L	0.080	unk	325	0.9	36.5	#2	unknown
monochlorosilane	SiH <sub>3</sub> Cl	13465-78-6	LG	0.561	2.34	<30	4.6 4.8	98.0 94.0	#3	3262 <sup>#4</sup>
dichlorosilane	SiH <sub>2</sub> Cl <sub>2</sub>	4109-96-0	LG	0.160	3.5	58	4.1 4.7	98.8 96.0	#3	314 1629
trichlorosilane	SiHCl <sub>3</sub>	10025-78-2	L	0.065	4.7	185 215	6.9	80	#3	: 2767
hexachlorodisilane	Si <sub>2</sub> Cl <sub>6</sub>	13465-77-5	L	0.00033	1.56	unk	unk	unk	#3	unknown
methylchlorosilane	SiCH <sub>3</sub> ClH <sub>2</sub>	993-00-0	L	0.018	unk	unk	unk	unk	#3	2810
methyldichloro-silane	SiCH <sub>3</sub> Cl <sub>2</sub> H	75-54-7	L	0.047	4.0	230	3.1	70.0	#3	1785
methyltrichloro-silane	SiCH <sub>3</sub> Cl <sub>3</sub>	75-79-6	L	0.018	5.2	345 395	7.2	11.9	#3	1066 <sup>#4</sup>
dimethyldichloro-silane	Si(CH <sub>3</sub> ) <sub>2</sub> Cl <sub>2</sub>	75-78-5	L	0.015	4.5	425	3.4	10.4	#3	1629 <sup>#4</sup>
trimethylchloro-silane	Si(CH <sub>3</sub> ) <sub>3</sub> Cl	75-77-4	L	0.015	3.8	400	2.0	6.4	#3	3262 <sup>#4</sup>
<b>TO: Section/Paragraph Table R1-1</b>										
Name	Chemical formula	CAS Number	Form <sup>#1</sup>	Vapor Pressure at 20°C [MPa]	Vapor Density Relative to Air at 20°C	AIT [°C]	LFL [%]	UFL [%]	TLV-TWA [ppm]	Acute Toxicity [LC50 (1 hr, rat) ppm]
Silane	SiH <sub>4</sub>	7803-62-5	CG	N/A	1.1	-50 -100	1.4	96	5	: 19,200
Disilane	Si <sub>2</sub> H <sub>6</sub>	1590-87-0	LG	0.345	2.2	-75	0.5	99.8	#2	unknown
Trisilane	Si <sub>3</sub> H <sub>8</sub>	7783-26-8	L	0.037	unk	unk	unk	unk	#2	unknown
monomethylsilane	SiCH <sub>3</sub> H <sub>3</sub>	992-94-9	LG	1.296	1.6	unk	1.3	88.0	#2	unknown
dimethylsilane	Si(CH <sub>3</sub> ) <sub>2</sub> H <sub>2</sub>	1111-74-6	LG	0.385	unk	unk	unk	unk	#2	unknown
trimethylsilane	Si(CH <sub>3</sub> ) <sub>3</sub> H	993-07-7	LG	0.168	2.66	245	1.4	51.3	#2	unknown
tetramethylsilane	Si(CH <sub>3</sub> ) <sub>4</sub>	75-76-3	L	0.080	unk	325	0.9	36.5	#2	unknown
monochlorosilane	SiH <sub>3</sub> Cl	13465-78-6	LG	0.561	2.34	<30	4.6 4.8	98.0 94.0	#3	3262 <sup>#4</sup>
dichlorosilane	SiH <sub>2</sub> Cl <sub>2</sub>	4109-96-0	LG	0.160	3.5	58	4.1 4.7	98.8 96.0	#3	314 1629
trichlorosilane	SiHCl <sub>3</sub>	10025-78-2	L	0.065	4.7	185 215	6.9	80	#3	: 2767
hexachlorodisilane	Si <sub>2</sub> Cl <sub>6</sub>	13465-77-5	L	<del>0.00033</del> 0.00041	<del>1.56</del> 9.28	unk	unk	unk	#3	unknown
methylchlorosilane	SiCH <sub>3</sub> ClH <sub>2</sub>	993-00-0	L	0.018	unk	unk	unk	unk	#3	2810
methyldichloro-silane	SiCH <sub>3</sub> Cl <sub>2</sub> H	75-54-7	L	0.047	4.0	230	3.1	70.0	#3	1785
methyltrichloro-silane	SiCH <sub>3</sub> Cl <sub>3</sub>	75-79-6	L	0.018	5.2	345 395	7.2	11.9	#3	1066 <sup>#4</sup>
dimethyldichloro-silane	Si(CH <sub>3</sub> ) <sub>2</sub> Cl <sub>2</sub>	75-78-5	L	0.015	4.5	425	3.4	10.4	#3	1629 <sup>#4</sup>
trimethylchloro-silane	Si(CH <sub>3</sub> ) <sub>3</sub> Cl	75-77-4	L	0.015	3.8	400	2.0	6.4	#3	3262 <sup>#4</sup>
<b>Justification: (if necessary)</b>										



2	Origin of this editorial change (Check one)	<input type="checkbox"/>	Committer(s) / Comment(s) #
		<input type="checkbox"/>	Other [ ]
	FROM: Section/Paragraph XXX		
	TO: Section/Paragraph XXX		
Justification: (If necessary)			
Motion	To approve the above editorial change(s).		
Motion by/2nd by	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)		
Discussion	None		
Vote	5-0; Motion passed		

## 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.

		Accepts		(Accepts + Valid Rejects)					
Approval Rate	=	45	/	46	=	97.8%		>=90%	

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

See § 9.7.2 of the *Regulations* for further information

- The Letter Ballot meets the Letter Ballot Approval Conditions for the global technical committee
- The Letter Ballot the Letter Ballot Approval Conditions for the TC Chapter and a Ratification Ballot will be issued to verify Technical Changes

## VIII. Safety Check

See § 15 of the *Regulations* for further information.

Motion.	<input type="checkbox"/>	This is not a <b>Safety Document</b> , when all safety-related information is removed, the Document is still technically sound and complete. ( <i>Regulations</i> ¶ 8.7.1)
	<input checked="" type="checkbox"/>	This is a <b>Safety Document</b> , when all safety-related information is removed, the Document is not technically sound and complete. ( <i>Regulations</i> ¶ 8.7.2)
	<input checked="" type="checkbox"/>	Safety Checklist ( <i>Regulations</i> ¶ 15.3) is complete and has been included with the Document throughout the balloting process. ( <i>Regulations</i> ¶¶ 15.1.2)
<b>Motion by/2nd by</b>		Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)
<b>Discussion</b>		None
<b>Vote</b>		5-0; Motion <b>passed</b>

## 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 § 16 of the *Regulations* 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. ( <i>Regulations</i> ¶ 8.8.1)	
X	No potentially material patented technology or reproduction of copyrighted items are known.	<b>GO TO SECTION X</b>
<input type="checkbox"/>	Potentially material patented technology or reproduction of copyrighted items are known, but a Letter of Assurance (LOA) or copyright release letter for such items has been obtained or presented to the TC Chapter.	<b>GO TO SECTION X</b>
<input type="checkbox"/>	Potentially material patented technology or reproduction of copyrighted items are 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	<input type="checkbox"/>	Ask ISC for special permission to publish.
	<input type="checkbox"/>	Quit activity.
	<input type="checkbox"/>	Wait for LOA for patented technology or release of copyrighted items.
<b>Motion by/2<sup>nd</sup> by</b>		Name (Company)/Name (Company)
<b>Discussion</b>		XXXX
<b>Vote</b>		XX-XX
<b>Final Action</b>		<input type="checkbox"/> Motion Passed
		<input type="checkbox"/> 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

<b>Motion</b>	<input type="checkbox"/>	This Document passed TC Chapter review as balloted and will be forwarded to the A&R SC for procedural review.
	<input checked="" type="checkbox"/>	This Document passed TC Chapter review with editorial changes and will be forwarded to the A&R SC for procedural review.
	<input type="checkbox"/>	This Document passed TC Chapter review with Technical Changes and with or without editorial changes and will be forwarded to the A&R SC for procedural review. A Ratification Ballot will be issued to verify the Technical Changes.
	<input type="checkbox"/>	This Document failed TC Chapter review and will be returned to the TF for rework.
	<input type="checkbox"/>	This Document failed TC Chapter review and work will be discontinued.
<b>Motion by/2nd by</b>	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)	
<b>Discussion</b>	None	
<b>Vote</b>	5-0	
<b>Final Action</b>	<input checked="" type="checkbox"/>	Motion passed
	<input type="checkbox"/>	Motion failed

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

<b>A&amp;R</b>	<input type="checkbox"/>	<b>Approved for publication</b>
	<input type="checkbox"/>	<b>Approved pending for acceptance of the Ratification Ballot</b>
	<input type="checkbox"/>	<b>Not approved</b>
	<b>Reason:</b>	