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	04/24/2018	04/24/2018
Location	Tokyo, Japan	Tokyo, Japan

I. Document Number and Title

Document Number 6289	Document Title
	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

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):

Returned Votes		Distribution		Return Rate	
57	÷	94	=	60.6%	>=60%
35					
1		Total V	oter	with Rejects	1
45					
	57 35 1	1	57 ÷ 94 35 1 Total V	57 ÷ 94 = 35 1 Total Voter	57 ÷ 94 = 60.6% 35 1 Total Voter with Rejects

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

INEG	alive i di voli	ng Interest Reject 1- \	-						
		*TF/TC Chapter to fill in in	ncluding text in the ballot if neces	ssary.					
	Referenced								
	Section/		ne named SAFETY GUIDELINE F						
	Paragraph		MATERIALS IN SEMICONDUCTOR R&D AND MANUFACTURING PROCESSES is under development. The document can be very informative when considering						
			ocument can be very informative of flammable silicon compounds						
			ive text (e.g., issue, justification,						
Negative		copied.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
ati			nergetic" is being introduced into						
è			terminology term has not been d						
	Negative Text	confusion within the sem	niconductor manufacturing indust	rry.					
	Hogalive Text	Proposed Solution:							
		Instead of introducing a r	new terminology ("Energetic Mate						
			re different meaning to different re						
			efined in Section 5 Terminology, of and defined characteristics of c						
TE	input (optional)	- opiaooa mini mo opoomi							
	input (optional)								
	Withdrawal	X No Negative withdraw	al made by Voter.	GO TO "Related" subsection					
	(check one)	Withdrawal document	Withdrawal document received by Standards staff on						
	(MM/DD/YYYY.		subsection → (A)					
	Motion and Reason (check one)	X 'Related' is mutually a	X 'Related' is mutually agreed upon. (Needs no Motion.)						
		Negative is not related	d. (Needs ≥2/3 votes to pass.)						
		D	XXXX						
		Reason							
	Motion by/2nd	Name (Company)/Name (C							
ela	by	rtamo (company)/rtamo (c							
Related	Discussion								
		XX-XX; Motion passed/faile	ed.						
	Result of Vote	[Negative is not related	d.] <2/3	GO TO "Persuasive" subsection					
	(check one)	2/3≤ [Negative is not re	olated 1	GO TO "Final"					
		2/32 [Negative is not in	elateu.j	subsection → (B)					
		Negative is related and	d persuasive. (Needs >1/3 votes to	pass.)					
		Ŭ		. ,					
Persuasive	Motion and	X Negative is related and	d not persuasive. (Needs ≥2/3 vote	s to pass.)					
ia:	Reason		Negative on a NOTE that just give						
Siv	(check one)		useful document developed under According to Regulations 8.9.5, ch						
10		Reason	delete Note is allowed as an ed						
			negative has some reasonable	elements the issue can be					
			resolved through an editorial chan	ge.					

	Moti	ion I by	oy/2nd	Supika N	/lash	niro (Tokyo Electron) / N	/loray (Crawford (Hatsuta	a Sei	isakusho)
	Dis	scus	ssion	NOTE 5: A SEMICONI very infor compound	Safe DUCT mativ ds an	ve when considering highly	Y GUID URING y reacti her che	ELINE FOR USE OF I PROCESSES is under ve energetic nature of micals including wat	ENEF dev	RGETIC MATERIALS IN elopment. The document can be
				5-0; Mot	ion p	passed				
				>1/3	3	gative is related and persuasive.]				GO TO "Address by Technical Change Option" subsection
			of Vote one)	ners	gativ suas	sive 1 < 2/3		(Y/N)		GO TO "Final" subsection → (E)
	,		ŕ	2/3≤	≦ [N	legative is related ansive.] <90%	d not	GO TO "Final" s	subs	section → (C)
				× 90% pers		Negative is related and sive.]	not	GO TO "Not Sign subsection	nific	ant Finding Option"
	Note:	Ori	ginal se			ended by the TF raph number and at le	ast or	ne full sentence a	are r	equired in "FROM" and
	"TO"	fiel	ds.							
			FROM: \$	Section/I	Para	agraph XXX				
		1	TO: Sec	ction/Paragraph xxx						
	Techni		Justific	ation (If	nece	essary)				
Addres	Technical Change		FROM: \$	Section/I	Para	agraph XXX				
Address by Technical Change Option	ange	TO: Se	TO: Sec	ction/Par	agra	aph xxx				
chnica			Justific	ation (If	nece	essary)				
Cha	Motic	on			Neg	gative is addressed by t	he Ted	chnical Change.		
ınge	Motic	on b	y/2nd by	y	Nan	me (Company)/Name (C	Compa	ıny)		
Optio	Discu	ussi	on							
on					XX-	-XX; Motion passed/fail	ed.			
	Result of Vote (check one)			(check		2/3≤ [Negative is addr Change.]	essed	by the Technical		GO TO "Incorporation of the Technical Change" subsection
						[Negative is not addre Change.] < 2/3	ssed b	y the Technical		GO TO "Final" subsection → (E)
		Mot	tion		To i	incorporate the Techn	ical Cl	nange.		
	corp		tion by/2		Nan	me (Company)/Name (C	Compa	iny)		
	Incorporation of the	Dis	cussion)						
	2				XX-	-XX; Motion passed/faile	ed.			

		Result o	f Vote	90%	≤ [Agree to incorporate.]	GO TO "Final" subsection → (F)		
		(check one)		[Disa	agree to incorporate.]>10%	GO TO "Final" subsection → (E)		
					he TC Chapter finds a Negative not persua oting on the action". (<i>Regulations</i> ¶ 9.6.4.4			
Not	Use	of "Not		is mutually ignificant".	y agreed upon to term the Negative "not	GO TO "Final" subsection → (D)		
Not Significant Finding Option	sig findin	nificant ng option" eck one)	X It	is mutually a	agreed upon to term the Negative "significant".	GO TO "Final" subsection → (C)		
t Fin		-	V	Whether or not the Negative is "not significant" is decided by a vote.				
ding	N	lotion	The N	egative is "n	ot significant".			
Optio	Motio	on by/2nd by	Name	(Company)/	Name (Company)			
-	,	Vote.	X	X-XX; Motio	n passed with simple majority	GO TO "Final" subsection → (D)		
	Vote		×	X-XX; Motion	n failed with simple majority	GO TO "Final" subsection → (C)		
				(A)	withdrawn (counted under h in dispositio	n)		
				(B)	not related (counted under i in disposition	n)		
_	•	heck if	Х	(C)	related and not persuasive (significant)			
Fina	app	olicable)		(D)	not significant (counted under j in dispos	ition)		
<u> </u>				(E)	related and persuasive and not addressed by Technical Change	DOCUMENT FAILS		
				(F)	addressed by Technical Change (counte	d under k disposition)		
	•	heck if olicable)	Х	comment ger	nerated. See Section V-(ii) Comment # NC-1.			

Negative 2 of Voting Interest Reject 1- Voter Reject 1

neg	alive 2 or voli		nterest Reject 1- V							
		*TF/	TC Chapter to fill in in	cluding text in the ballot if nece	ssary.					
	Referenced Section/ Paragraph	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	Neg The (Sat Mar Doc Acc pub doc sec to re	ied. Tative Note in Section 4 - Refety Guideline for Use nufacturing Processes ument. Tording to Section A3-dished standards or Secuments or Draft Documents or Oraft Documents of Draft Documeriptive phrase, not ne	eferenced Standards and Docum of Energetic Materials in Semico) that is neither a released Standards and Safety Guidelines. ments being developed by SEMI he Standard or Safety Guideline ment under development, allude ecessarily the title. Include a No	nents refer to a document onductor R&D and dard or a released ual, "Be sure to list only Never refer to draft or any other SDO in this). Note that if it is necessary to the material by a ote to the effect that a					
TF		Propagation Add R&I If it mat	ndards global technicantified, if desired." posed Solution: I reference to "Safety of and Manufacturing Fisheres is necessary to refereerial by a descriptive particular in the second control of the	line covering the topic is being of all committee. The global technical committee. The global technical committee of Energetic Morocesses" when the document ince the draft document under dephrase which, I believe should coreaders would have a consister	laterials in Semiconductor is approved and released. evelopment, allude to the ontain the definition of					
	input (optional)		<u> </u>		GO TO "Related"					
	Withdrawal	Χ	No Negative withdrawa	al made by Voter.	subsection					
	(check one)		Withdrawal document MM/DD/YYYY.	received by Standards staff on	GO TO "Final" subsection → (A)					
		Х	'Related' is mutually aç	greed upon. (Needs no Motion.)	GO TO "Persuasive" subsection					
	Motion and Reason		Negative is not related	(Needs ≥2/3 votes to pass.)						
	(check one)		Reason	xxxx						
Rel	Motion by/2nd by	Nan	ne (Company)/Name (C	ompany)						
Related	Discussion									
		XX-	XX; Motion passed/faile	ed.						
	Result of Vote (check one)		[Negative is not related	i.] <2/3	GO TO "Persuasive" subsection					
	(CHOOK OHE)		2/3≤ [Negative is not re	elated.]	GO TO "Final" subsection → (B)					
	Motion and Reason		Negative is related and persuasive. (Needs >1/3 votes to pass.)							

	/oh	ook one)							
	(check one) X			Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)					
			Rea	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).					
Persuasive	Moti	on by/2nd by	Supika N	/lashiro (Tokyo	Electron) / Moray	Crawford (Hatsuta S	eisakusho)		
ıasi	Dis	scussion	None						
У́е			5-0; Mot	ion passed.					
	Result of Vote (check one) [Ne >1/3 [Ne pers			gative is re	d and persuasive.] elated and not related and not	Change Recommended	GO TO "Address by Technical Change Option" subsection GO TO "Final" subsection → (E) Desection → (C)		
			y 90%		related and not		icant Finding Option"		
Address by Technical Change Option	Technical Change	TO: Se	ection/Par cation (If Section/Par	Paragraph XXX ragraph xxx necessary) Paragraph XXX ragraph xxx					
hange	Motic	<u> </u>		Negative is add	dressed by the Te	chnical Change			
Opti		on by/2nd b)V		ny)/Name (Compa				
on		-	' J	radine (Compa	ny // Taume (Oompa	411 <i>y</i> /			
	וSCI	ussion		VV VV NA C	116 19 1				
	Result of Vote (check one)			2/3< [Noa	n passed/failed. ative is addressed	l by the Technical	GO TO "Incorporation of the Technical Change" subsection		
		one)					34536611		
		one)		[Negative Change.]	is not addressed t < 2/3	by the Technical	GO TO "Final" subsection → (E)		

	Motion by/	2nd by	Name (C	Company)/Name (Company)	
	Discussion	1			
			XX-XX; I	Motion passed/failed.	
	Result o		90%	6 ≤ [Agree to incorporate.]	GO TO "Final" subsection → (F)
	(check	one)	[Dis	agree to incorporate.]>10%	GO TO "Final" subsection → (E)
				the TC Chapter finds a Negative novoting on the action". (Regulations	ot persuasive by a vote equal to or ¶ 9.6.4.4.2)
Not :	Use of "Not		is mutuallignificant".	ly agreed upon to term the Nega	tive "not GO TO "Final" subsection → (D)
Not Significant Finding Option	significant finding option" (check one)	X It	is mutually	agreed upon to term the Negative "siç	gnificant". → (C)
t Fin		V	Vhether or n	oot the Negative is "not significant" is	decided by a vote.
ding	Motion	The N	egative is "r	not significant".	
Optio	Motion by/2nd by	Name	(Company)	/Name (Company)	
,	Vote	X	X-XX; Motio	on passed with simple majority	GO TO "Final" subsection → (D)
	vote	X	X-XX; Motio	on failed with simple majority	GO TO "Final" subsection → (C)
			(A)	withdrawn (counted under h in o	disposition)
			(B)	not related (counted under i in o	disposition)
	(check if	Х	(C)	related and not persuasive (sign	nificant)
Final	applicable)		(D)	not significant (counted under j	in disposition)
<u> </u>			(E)	related and persuasive and not addressed by Technical Change	
			(F)	addressed by Technical Change	e (counted under k disposition)
	(check if applicable)	С	comment ge	nerated. See Section V-(ii) Comment	# X.

Negative 3 of Voting Interest Reject 1- Voter Reject 1

Neg	ative 3 of Voti			Voter Reject 1				
		*TF/TC Chapt	er to fill in i	ncluding text in the ballot if nec	essary.			
	Referenced Section/							
	Paragraph			ducts of processes using flamm nergetic material and need spec				
		downstream	sections or	systems of the process chambe	er are maintained.			
z		*Original con copied.	plete Negat	ive text (e.g., issue, justification	n, suggestion) should be			
Negative		Negative						
tive				nergetic" is being introduced in terminology term has not been				
	Negative Text			iconductor manufacturing indu				
		Proposed So	lution:					
				new terminology ("Energetic Ma re different meaning to different				
		"Energetic" s	hould be de	fined in Section 5 Terminology	, or the term "energetic"			
		replaced with	the specific	and defined characteristics of	concern in the Note.			
TF	input (optional)							
	Withdrawal	X No Nega	ive withdraw	al made by Voter.	GO TO "Related" subsection			
	(check one)			received by Standards staff on	GO TO "Final"			
		MM/DD/\			subsection → (A) GO TO "Persuasive"			
	Motion and			greed upon. (Needs no Motion.)	subsection			
	Reason	Negative	is not related	d. (Needs ≥2/3 votes to pass.)				
	(check one)	Reason		xxxx				
Rel	Motion by/2nd by	Name (Compa	any)/Name (C	Company)				
Related	Discussion							
		XX-XX; Motio	n passed/fail	ed.				
	Result of Vote (check one)	[Negative	is not relate	d.] <2/3	GO TO "Persuasive" subsection			
	(oncon onc)	2/3≤ [Neg	ative is not r	elated.]	GO TO "Final" subsection → (B)			
		Negative	is related and	d persuasive. (Needs >1/3 votes	to pass.)			
Persu	Motion and Reason	X Negative	is related an	d not persuasive. <mark>(Needs ≥2/3 vo</mark>	ites to pass.)			
Persuasive	(check one)	Reason			intended just to raise general byproducts of flammable silicon			
	Motion by/2nd by	Supika Mashir	o (Tokyo Ele	ectron) / Moray Crawford (Hatsuta	Seisakusho)			
<u> </u>	IJ							

	Dis	scussio	NOTE 20: <u>energetic</u> <u>downstre</u>	ditorial change the NOTE can be of Many of byproducts of processes usi material and need are highly reactive am section or systems of the processes special care may be necessary whenever ained.	ing flammable silico ve to other chemica s chamber and may	als in 7 fur	icluding water that can exist in the create unstable conditions	
				ion passed. gative is related and persuasive.]	Is a Technical	Υ	GO TO "Address by	
	Boo	ult of Vo	>1/3	3	Recommended		Technical Change Option" subsection	
		neck one	ner	gative is related and not suasive.] <2/3	(Y/N)		GO TO "Final" subsection → (E)	
			00%	[Negative is related and not suasive.] <90% % ≤ [Negative is related and not			ection → (C) cant Finding Option"	
					subsection		5 .	
Address by Tech	Technical Change	Jus FRO TO:	Section/Partification (If Section/Partification (If	necessary) Paragraph XXX ragraph xxx				
	Motio	<u> </u>		Negative is addressed by the Tor	chnical Change			
Cha	-	on by/2n	d by	Negative is addressed by the Technical Change. Name (Company)/Name (Company)				
nical Change Option	Disc	ussion						
ption	Resu	ult of Vot	. `	the Tecles Change.] [Negative is not addressed by the Technical subsection of the Tec			GO TO "Incorporation of the Technical Change" subsection GO TO "Final" subsection → (E)	
	. =	Motion		Change.] < 2/3 To incorporate the Technical Ch	nange.		(-)	
	Incorporation of the Technical Change	Motion	by/2nd by	Name (Company)/Name (Compa				
	orationical (Discuss	sion					
	on on Char			XX-XX; Motion passed/failed.				

	Result o (check		[Disag	gree to incorporate.]>10%	GO TO "Final" subsection → (E)				
				e TC Chapter finds a Negative not persuting on the action". (<i>Regulations</i> ¶ 9.6.4.					
Not	Use of "Not		is mutually gnificant".	agreed upon to term the Negative "no	t GO TO "Final" subsection → (D)				
Not Significant Finding Option	significant finding option" (check one)	X It	is mutually ag	greed upon to term the Negative "significant"	GO TO "Final" subsection . → (C)				
Į fin		٧	/hether or not	the Negative is "not significant" is decided	by a vote.				
ding	Motion	The N	egative is "no	t significant".					
Option	Motion by/2nd by	Name	ne (Company)/Name (Company)						
	Vote	X	X-XX; Motion	passed with simple majority	GO TO "Final" subsection → (D)				
	vote	X	X-XX; Motion	failed with simple majority	GO TO "Final" subsection → (C)				
			(A)	withdrawn (counted under h in disposition	on)				
			(B)	not related (counted under i in disposition	on)				
	(check if	X	(C)	related and not persuasive (significant)					
Final	applicable)		(D)	not significant (counted under j in dispos	sition)				
<u> </u>			(E)	related and persuasive and not addressed by Technical Change	DOCUMENT FAILS				
			(F)	addressed by Technical Change (count	ed under k disposition)				
	(check if applicable)	X C	omment gene	erated. See Section V-(ii) Comment # NC-1.					

Disposition of Voting Interest Reject 1

	recinion of realing interest reject :										
3	Original number	r of N	(g)								
0	# of Negatives \	withd	rawn		(h)						
0	# of Negatives f	ound		(i)							
0	# of Negatives f	ound		(j)							
0	# of Negatives a not significant)	addre	ange (Negative becomes	(k)							
			g - (h + i + j + k) = 0	Reject is Not Valid and is not included in the denominator of § VI. <i>Approval Conditions Check</i>							
	Final $X = g - (h + i + j + k) > 0$			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

There is no other technical issue on Ballot #6289.

V. Comments

V- (i) Voters' Comments
Commenter 1 (Eric Sklar / Safety Guru, LLC) - Comment 1

	*TF/TC Chapter to fill in, if necessary.									
Comment	Rea	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.								
	The	e TC Chapte	r agreed to do one of the following actions.							
	*No	motion is r	equired in this step.							
Δ		Already add	dressed by Commenter #, Comment #							
Action		No further a	action was taken by the TC Chapter.							
P		Refer to the	TF for more consideration.							
		New Busine	ess							
	Χ	Editorial Ch								
		Options	Case 1: No vote in this section :							
		for Editorial	To be included and voted on in § VI. Summary of Editorial Changes.							
		Change	Case 2: Voted in this section :							
		(check one)	Original section number and at least one full sentence are required in "FROM" and "TO" fields.							
	FROM: Section/Paragraph 8.1									
			to handles flammable silicon compounds should be specially educated about the hazardous d safe handling methods of them <u>including their byproducts</u> .							
Edi	1	1 TO: Section/Paragraph 8.1								
Editorial C		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> .								
hange		Justification (If necessary)								
Gе		FROM: Se	ction/Paragraph xxx							
	2	TO: Section	on/Paragraph xxx							
		Justificati	on (If necessary)							
М	otior	1	To approve above editorial change(s)							
М	otior	by/2nd by	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)							
Di	iscus	sion	None							
V	ote		5-0; Motion passed.							

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

Ī							
*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.							
<u>changes</u> .							
required in							

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

	<u> </u>	i i (Lile oi	· VI CA	17 Garety Gara, ELG) - Gomment G					
	*TF	/TC Chapter	to	fill in, if necessary.					
Comment	Cha Rea the else	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 NIST . (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.							
	Th	e TC Chapte	r aç	greed to do one of the following actions.					
	*No	motion is r	equ	uired in this step.					
A		Already add	dres	ssed by Commenter #, Comment #					
Action		No further a	actio	on was taken by the TC Chapter.					
				for more consideration.					
		New Busine							
	Х	Editorial Ch	anç	Case 1: No vote in this section :					
		Options for	Χ						
		Editorial		To be included and voted on in § VI. Summary of Editorial Changes. Case 2: Voted in this section :					
		Change (check one)		Original section number and at least one full sentence are required in "FROM" and "TO" fields.					
		FROM: Se	ctic	ction/Paragraph					
	1	TO: Sectio	n/P	aragraph					
Εd	•								
itorial		Justification (If necessary)							
Editorial Change		FROM: Se	ctic	on/Paragraph xxx					
	2	TO: Section	on/F	n/Paragraph xxx					
		Justification	on ((If necessary)					
N	lotio	1	Т	o approve above editorial change(s)					
N	lotio	by/2nd by		lame (Company)/Name (Company)					
D	iscus	ssion	X	XXXX					
۷	ote		X	XX-XX; Motion passed/failed.					

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

<u>me</u>	ente	r 1 (Eric S	klar / Safety Guru, LLC) - Comment 4						
	*TF	/TC Chapte	r to fill in, if necessary.						
Comment	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 not for the same physical characteristic. Linde ar SigmaAldrich both report that the liquid density is 1.562 g/ml at 25 °C. Although this is technical change, it is in an RI, so it can be done as an editorial change.								
	The	e TC Chapte	er agreed to do one of the following actions.						
	*No	motion is	required in this step.						
A		Already ad	dressed by Commenter #, Comment #						
Action		No further	action was taken by the TC Chapter.						
		Refer to the	e TF for more consideration.						
		New Busin	ess						
	Χ	Editorial Cl							
		Options	Case 1: No vote in this section :						
		for Editorial	To be included and voted on in § VI. Summary of Editorial Changes.						
		Change (check	Case 2: Voted in this section :						
		one)	Original section number and at least one full sentence are required in "FROM" and "TO" fields.						
		FROM: Section/Paragraph xxx							
E	1	TO: Section	on/Paragraph xxx						
ditorial		Justification (If necessary)							
Editorial Change		FROM: Section/Paragraph xxx							
	2	TO: Section	on/Paragraph xxx						
		Justificati	on (If necessary)						
M	otion	1	To approve above editorial change(s)						
M	otion	by/2nd by	Name (Company)/Name (Company)						
Discussion									
	Vote XX-XX; Motion passed/failed.								

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

	_ ,			<u> </u>					
	*TF	/TC Chapte	r to fi	ill in					
Comment									
ame	The Reject voter's concerns on NOTE 5 and NOTE 20 may be eased by an editorial change								
P‡									
				reed to do one of the following actions.					
	*No			red in this step.					
A		Already ad	dress	sed by Commenter #, Comment #					
Action				n was taken by the TC Chapter.					
				for more consideration.					
		New Busin	ess						
	Χ	Editorial Ch							
		Options		Case 1: No vote in this section :					
		for Editorial		To be included and voted on in § VI. Editorial Changes other than those dealt with in Section V.					
		Change		Case 2: Voted in this section :					
		(check one)		Original section number and at least one full sentence are required in					
		,		"FROM" and "TO" fields.					
		NOTE 5: A	Ctioi Safet	n/Paragraph NOTE 5 y Guideline named SAFETY GUIDELINE FOR USE OF ENERGETIC MATERIALS IN					
		SEMICONDUCTOR R&D AND MANUFACTURING PROCESSES is under development. The doc yery informative when considering energetic nature of some of flammable silicon compou							
		byproducts.	auve v	when considering energetic nature of some of naminable shicon compounds and then					
	1			aragraph NOTE 5					
		NOTE 5: A Safety Guideline named SAFETY GUIDELINE FOR USE OF ENERGETIC MATERIALS SEMICONDUCTOR R&D AND MANUFACTURING PROCESSES is under development. The document can							
Ed		very informative when considering highly reactive energetic nature of some of flammable silico compounds and their byproducts with other chemicals including water at the locations downstream from							
itor		the process equipment (e.g., in process gas exhaust piping).							
Editorial Ch		Justification (If necessary)							
har				n/Paragraph NOTE 20 f byproducts of processes using flammable silicon compounds have characteristics of					
ange		energetic ma	<u>iterial</u>	and need special care whenever downstream sections or systems of the process chamber					
		are maintain		oragraph NOTE 20					
	2			aragraph NOTE 20 f byproducts of processes using flammable silicon compounds have characteristics of					
				l and need are highly reactive to other chemicals including water that can exist in on 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							
		chamber are							
M	otion		_ `	f necessary) o approve above editorial change(s)					
			_	· · · · · · · · · · · · · · · · · · ·					
		by/2nd by		ıpika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)					
	iscus	ssion		One					
V	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 edi (Check one)		Ŭ	Othe	r[]						
FROM: Section	/Daragra	nh Table								
Name	Chemical formula	CAS Number	Form ^{#1}	Vapor Pressure at 20°C [MPa]	Vapor Density Relative to Air at 20°C	AIT [°C]	LFL [%]	UFL [%]	TLV-TWA [ppm]	Ac [LC
Silane	SiH ₄	7803-62-5	CG	N/A	1.1	-50 -100	1.4	96	5	: 19
Disilane	Si ₂ H ₆	1590-87-0	LG	0.345	2.2	-75	0.5	99.8	#2	unk
Trisilane	Si ₃ H ₈	7783-26-8	L	0.037	unk	unk	unk	unk	#2	unk
monomethylsilane	SiCH ₃ H ₃	992-94-9	LG	1.296	1.6	unk	1.3	88.0	#2	unk
dimethylsilane	Si(CH ₃) ₂ H ₂	1111-74-6	LG	0.385	unk	unk	unk	unk	#2	unk
trimethylsilane	Si(CH ₃) ₃ H	993-07-7	LG	0.168	2.66	245	1.4	51.3	#2	unk
tetramethylsilane	Si(CH ₃) ₄	75-76-3	L	0.080	unk	325	0.9	36.5	#2	unk
monochlorosilane	SiH ₃ Cl	13465-78-6	LG	0.561	2.34	<30	4.6 4.8	98.0 94.0	#3	326
dichlorosilane	SiH ₂ Cl ₂	4109-96-0	LG	0.160	3.5	58	4.1 4.7	98.8 96.0	#3	314 162
trichlorosilane	SiHCl ₃	10025-78-2	L	0.065	4.7	185 215	6.9	80	#3	: 27
hexachlorodisilane	Si ₂ Cl ₆	13465-77-5	<u>L</u>	0.00033	<u>1.56</u>	<u>unk</u>	<u>unk</u>	<u>unk</u>	#3	unk
methylchlorosilane	SiCH ₃ ClH ₂	993-00-0	L	0.018	unk	unk	unk	unk	#3	281
methyldichloro-silane	SiCH ₃ Cl ₂ H	75-54-7	L	0.047	4.0	230	3.1	70.0	#3	178
methyltrichloro-silane	SiCH ₃ Cl ₃	75-79-6	L	0.018	5.2	345 395	7.2	11.9	#3	106
dimethyldichloro-silane	Si(CH ₃) ₂ Cl ₂	75-78-5	L	0.015	4.5	425	3.4	10.4	#3	162
trimethylchloro-silane	Si(CH ₃) ₄ Cl	75-77-4	L	0.015	3.8	400	2.0	6.4	#3	326
TO: Section/Pa	ragrapn	able R1-	1	1			l		I	1
Name	Chemical formula	CAS Number	Form ^{#1}	Vapor Pressure at 20°C [MPa]	Vapor Density Relative to Air at 20°C	AIT [°C]	LFL [%]	UFL [%]	TLV-TWA [ppm]	Ac [LC
Silane	SiH ₄	7803-62-5	CG	N/A	1.1	-50 -100	1.4	96	5	: 19
Disilane	Si ₂ H ₆	1590-87-0	LG	0.345	2.2	-75	0.5	99.8	#2	unk
Trisilane	Si ₃ H ₈	7783-26-8	L	0.037	unk	unk	unk	unk	#2	unk
monomethylsilane	SiCH ₃ H ₃	992-94-9	LG	1.296	1.6	unk	1.3	88.0	#2	unk
dimethylsilane	Si(CH ₃) ₂ H ₂	1111-74-6	LG	0.385	unk	unk	unk	unk	#2	unk
trimethylsilane	Si(CH ₃) ₃ H	993-07-7	LG	0.168	2.66	245	1.4	51.3	#2	unk
tetramethylsilane	Si(CH ₃) ₄	75-76-3	L	0.080	unk	325	0.9	36.5	#2	unk
monochlorosilane	SiH ₃ Cl	13465-78-6	LG	0.561	2.34	<30	4.6 4.8	98.0 94.0	#3	326
dichlorosilane	SiH ₂ Cl ₂	4109-96-0	LG	0.160	3.5	58	4.1 4.7	98.8 96.0	#3	314 162
trichlorosilane	SiHCl ₃	10025-78-2	L	0.065	4.7	185 215	6.9	80	#3	: 27
hexachlorodisilane	Si ₂ Cl ₆	13465-77-5	<u>L</u>	<u>0.00033</u> <u>0.00041</u>	<u>1.56</u> <u>9.28</u>	<u>unk</u>	<u>unk</u>	<u>unk</u>	<u>#3</u>	unk
methylchlorosilane	SiCH ₃ ClH ₂	993-00-0	L	0.018	unk	unk	unk	unk	#3	281
methyldichloro-silane	SiCH ₃ Cl ₂ H	75-54-7	L	0.047	4.0	230	3.1	70.0	#3	178
methyldicinoro-shane	SiCH ₃ Cl ₃	75-79-6	L	0.018	5.2	345 395	7.2	11.9	#3	106
methyltrichloro-silane				0.015	4.5	425	3.4	10.4	#3	162
•	Si(CH ₃) ₂ Cl ₂ Si(CH ₃) ₄ Cl	75-78-5 75-77-4	L	0.015 0.015	3.8	400	2.0	10	#3	326

	Origin of this editorial change			Commenter(s) / Comment(s) #						
	(Check on	e)		Other []						
2	FROM: Se	FROM: Section/Paragraph XXX								
	TO: Section	O: Section/Paragraph XXX								
	Justification: (If necessary)									
	Motion	To approve the above editorial change(s).								
Mot	tion by/2nd by	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)								
Dis	scussion	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.

<u>s</u>		This is not a Safety Document, when all safety-related information is removed, the Docu is still technically sound and complete. (Regulations ¶ 8.7.1)									
lotion	This is a Safety Document, when all safety-related information is removed, the Document technically sound and complete. (Regulations ¶ 8.7.2)										
		х	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)								
I	Motion by/2nd by			Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)							
	Discussion			None							
	Vote			5-0; 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 § 16 of the Regulations for further information.

Х		C Chapter meeting chair asked those participating, if they were aware of any potentially material ed technology or copyrighted items* in the Standard or Guideline. (<i>Regulations</i> ¶ 8.8.1)									
	Х		otentially n righted iter		patented technology or reproduction of known.	GO TO SECTION X					
		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. GO TO SECTION X									
		ted items are known and an LOA or copyright sented to the TC Chapter.									
	M		Ask ISC f	or spec	or special permission to publish.						
	MOTION		Quit activ	ity.	ty.						
	ž		Wait for L	OA for	patented technology or release of copyrighted	d items.					
	Moti	on by	2 nd by	Name (Company)/Name (Company)							
	Di	scuss	sion	XXXX							
		Vote)	XX-XX							
	E:.	nal Ac	ation		Motion Passed						
	FII	idi AC	LION		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 A&R SC for procedural review.			
	X	This Document passed TC Chapter review with editorial changes and will be forwarded to the A&R SC for procedural review.			
		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.			
		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		on by/2nd by	Supika Mashiro (Tokyo Electron) / Moray Crawford (Hatsuta Seisakusho)		
Discussion		cussion	None		
Vote		Vote	5-0		
	Fina	nal Action	X Motion passed		
i iliai Action		ii Action	Motion failed		

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

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