

Record of Line-item Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: **North America**

Global Technical Committee: **EH&S**

TC Chapter Cochairs: **Bert Planting (ASML), Chris Evanston (Salus Engineering), Sean Larsen (Lam Research)**

Standards Staff: **Kevin Nguyen**

	Scheduled in Background Statement	Actual
Date	3/28/2024	3/28/2024
Location	SEMI HQ, Milpitas, CA	SEMI HQ, Milpitas, CA
Reason for Change of Date and/or Location (if changed)		

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

Document Information

I. Document Number, Title, Lists of Line Items

Document Number 6980	Document Title Line Item Revision to SEMI S2-0821Eb, ENVIRONMENTAL, HEALTH, AND SAFETY GUIDELINE FOR SEMICONDUCTOR MANUFACTURING EQUIPMENT (Delayed Revision Related to Flammable Substances)
<input type="checkbox"/> <input type="checkbox"/>	Line Item 1 Line Item Title Delayed Revision Related to Flammable Substances

Line Item 1 Adjudication

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* ¶ 9.6.2.1.1)

Voting Tally:

Voting Interest:	Returned Votes	Distribution	Return Rate	
Letter Ballot	61	÷ 101	= 60.4%	≥60%
Intercommittee Ballot	37			
Voting Interest Reject(s)	1	Total Voters with Rejects		1
Voting Interest Accept(s)	47			

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

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: LAM)

Voter Reject 1 (Voter: Lauren Crane (LAM))

Negative 1

Negative	Referenced Section/ Paragraph	*TF/TC Chapter to fill in, including text in the ballot if necessary.
	Negative Text	*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.

		<p>Negative</p> <p>Ballot action → “5.2.58 <i>material safety data sheet (MSDS)</i> — written or printed material concerning chemical elements and compounds, including hazardous materials, prepared in accordance with applicable standards.”</p> <p>The term “material safety data sheet” is use normatively in 23.1 (and also where 23.1 is repeated in DR3). Changing the definition without also changing the term in 23.1 could introduce uncertainty.</p> <p>S13 incorporates the definitions of S2 by reference (i.e., “Terminology defined in SEMI S1, SEMI S2... is incorporated herein by referenced.”), and includes a section titled “Material Safety Data Sheet (MSDS)”. Changing the definition in S2 without also changing the term in S13 could introduce uncertainty.</p> <p>This is a very vague definition of an SDS.</p> <p>===</p> <p>Replace the definition with text to the effect of</p> <p style="padding-left: 40px;">“a document which contains information about a specific chemical substance or mixture based on the UN GHS framework, including information of</p> <ol style="list-style-type: none"> 1 Identification of the substance or mixture and of the supplier; 2 Hazard identification; 3 Composition/information on ingredients; 4 First-aid measures; 5 Fire-fighting measures; 6 Accidental release measures; 7 Handling and storage; 8 Exposure controls/personal protection; 9 Physical and chemical properties; 10 Stability and reactivity; 11 Toxicological information; 12 Ecological information; 13 Disposal consideration; 14 Transport information; 15 Regulatory information; 16 Other information.” <p>And: change S2 23.1 in the main body (and in an appropriate manner for DR3) to: “...or irritant chemicals (according to their <i>material</i> safety data sheets), should also be identified.”</p> <p>And: change S13 uses of MSDS (§5.2.2, §11, & ToC) to SDS etc.. – or provide S13 with a stand-alone definition of MSDS, as appropriate. Delete S13 Note 14 if the above definition is accepted as Note 14 is essentially redundant.</p> <p>Note that most national/regional SDS criteria are based on the GHS, but that GHS itself is not globally harmonized. That is to say that SDS written to satisfy the regulations of Country A and Country B may not be exactly the same, but since both are likely based on GHS (as would be demonstrated by their requiring the 16 sections) either could satisfy the definition criteria.</p> <p>GHS = Globally Harmonized System of Classification and Labeling of Chemicals.</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 Y-XX N; 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 checked="" type="checkbox"/>	Negative is related and persuasive. (Needs >1/3 votes to pass.)			
		<input type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)			
		Reason	XXXX			
	Motion by/ 2nd by	By: Bert Planting / ASML Netherlands BV Second: Clifton Brick / Axcelis Technologies				
	Discussion					
	Result of Vote (check one)	Result: 13-Y 0-N Voting Result: Pass - 100.00%				
<input checked="" type="checkbox"/>		[Negative is related and persuasive.] > 1/3	Is a technical change recommended? (check one)	<input checked="" 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 type="checkbox"/>	90% ≤ [Negative is related and not persuasive.]	GO TO “Not Significant Finding Option” subsection				
Technical Change	Address by Technical Change					
	Technical Change Recommendations Original section/paragraph number and at least one full sentence are required in “FROM” and “TO” fields.					
	FROM:					
	1	5.1.x SDS — safety data sheet				

	<p>TO:</p> <p>5.1.x <i>SDS</i> — safety data sheet</p> <p>5.1.y MSDS — Material Safety Data Sheet</p> <p>NOTE Z: “MSDS” has been replaced by “SDS”.</p>
	<p>Justification (if necessary)</p>
	<p>FROM:</p> <p>5.2.58 <i>safety data sheet (SDS)</i> — written or printed material concerning chemical elements and compounds, including hazardous materials, prepared in accordance with applicable standards.</p>
	<p>TO:</p> <p>5.2.n material safety data sheet (MSDS) — This term has been replaced by Safety Data Sheet (SDS).</p>
2	<p>5.2.58 <i>safety data sheet (SDS)</i>—written or printed material concerning chemical elements and compounds, including hazardous materials, prepared in accordance with applicable standards. a document which contains information about a specific chemical substance or mixture based on the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Framework.¹</p>
	<p>¹The United Nations Economic Commission for Europe, CH-1211, Geneva, Geneva 10, Switzerland, https://unece.org/about-ghs</p>
	<p>Justification (if necessary)</p>

Motion	Negative is addressed by the technical change(s).			
Motion by/2nd by	By: Bert Planting / ASML Netherlands BV Second: Clifton Brick / Axcelis Technologies			
Discussion				
Result of Vote (check one)	Result: 10-Y 0-N Voting Result: Pass - 100.00%			
	<input checked="" type="checkbox"/>	2/3 ≤ [Negative is addressed by the technical change(s).]	GO TO “Incorporation of the Technical Change” subsection	
	<input type="checkbox"/>	[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	By: Eric Sklar / Safety Guru, LLC Second: Lauren Crane / Lam Research		
	Discussion			
	Result of Vote (check one)	Result: 13-Y 0-N Voting Result: Pass - 100.00%		
		<input checked="" 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 be used only “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 ¶ 9.6.1.4.5.2)			
	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 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 Y-XX N; Motion passed with simple majority	GO TO “Final” subsection → (D)
<input type="checkbox"/>		XX Y-XX N; 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 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
	<input checked="" type="checkbox"/>	(F)	Addressed by technical change (counted under k disposition)	
(check if applicable)	<input type="checkbox"/>	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	<input type="checkbox"/>	$g - (h + i + j + k) = 0$	Reject is Not Valid and is not included in the denominator of § VI. Approval Conditions Check
	<input type="checkbox"/>	$g - (h + i + j + k) > 0$	Reject is included in the denominator of § VI. Approval Conditions Check
	<input type="checkbox"/>	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 ¶ 9.6.1.4.5.2)

IV. Other Technical Issues

Note: TC Chapter may choose to address a technical issue that is not part of a Negative received on a Letter Ballot (i.e., a Comment or a reason not addressed by a Vote response) by handling it as a Negative and finding it related and technically persuasive. The TC Chapter may then fail the Document or address such technical issue by using the procedure defined in *Regulations* § 9.6.1.4.3 to make a technical change to the Document. (*Regulations* ¶ 9.6.1.4.2.5)

Technical Issue	Origin	*TF/TC Chapter to choose Comment LAM LC2 (Voter: Lauren Crane/LAM) / A reason not addressed by a Vote response		
	Referenced Section/ Paragraph	*TF/TC Chapter to fill in including text in the ballot as appropriate. 13.7		
	Reason	<p>*Original Comment text, if applicable, and problem statement, including justification and suggestion, should be copied.</p> <p>Comment The meaning of “approved components” is vague. === Change to the effect of “(e.g., purging, <u>ventilation, use of enclosures, approved components components certified by an accredited testing laboratory for use in potentially explosive atmospheres</u>)”.</p> <p>It would be also great for ATL to be an official acronym in §5.1, particularly as it is used in the flowchart in 14.2.4.</p>		
Handle technical issue identified above as a Negative.				
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 and assigned to TF. (Needs ≥2/3 votes to pass.)	
		<input type="checkbox"/>	Negative is not related and placed on agenda of current TC Chapter meeting as new business. (Needs ≥2/3 votes to pass.)	
		Reason	XXXX	
	Motion by/ 2nd by	Name (Company)/Name (Company)		
	Discussion			
Result of Vote (check one)	XX Y-XX N; 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] and assigned to TF.	GO TO “Final” subsection → (B)	
Persuasive	Motion and Reason (check one)	<input checked="" type="checkbox"/>	Negative is related and persuasive. (Needs >1/3 votes to pass.)	
		<input type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
		Reason	XXXX	
Motion by/ 2nd by	By: Bert Planting / ASML Netherlands BV Second: Lauren Crane / Lam Research			

Discussion						
Result of Vote (check one)		Result: 12-Y 1-N Voting Result: Pass - 92.31%				
<input checked="" type="checkbox"/>	[Negative is related and persuasive.] > 1/3	Is a technical change recommended? (check one)	<input checked="" 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)				
Technical Change Recommendations						
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.						
Technical Changes	1	FROM: 13.7 Equipment in which flammable liquids or gases are used should be assessed to determine if additional precautions (e.g., purging, ventilation, use of enclosures, approved components) in the electrical design are necessary.				
		TO: 13.7 Equipment in which flammable liquids or gases are used should be assessed to determine if additional precautions (e.g., purging, ventilation, use of enclosures, use of enclosures, approved components <u>components certified by an accredited testing laboratory for use in potentially explosive atmospheres</u>) in the electrical design are necessary.				
		Justification (if necessary)				
Motion		Negative is addressed by the technical change(s).				
Motion by/2nd by		By: Bert Planting / ASML Netherlands BV Second: Lauren Crane / Lam Research				
Discussion						
Result of Vote (check one)		Result: 12-Y 0-N Voting Result: Pass - 100.00%				
<input checked="" type="checkbox"/>	2/3 ≤ [Negative is addressed by the technical change(s).]	GO TO "Incorporation of the Technical Change" subsection				
<input type="checkbox"/>	[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		By: Bert Planting / ASML Netherlands BV Second: Clifton Brick / Axcelis Technologies			
	Discussion					
	Result of Vote (check one)		Result: 11-Y 1-N Voting Result: Pass - 91.67%			
<input checked="" type="checkbox"/>	90% ≤ [Agree to incorporate.]	GO TO "Final" subsection → (F)				
<input type="checkbox"/>	[Disagree to incorporate.] > 10%	GO TO "Final" subsection → (E)				
Final	(check one)	<input type="checkbox"/>	(B)	Not related		
		<input type="checkbox"/>	(C)	Related and not persuasive		
		<input type="checkbox"/>	(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS	
		<input checked="" type="checkbox"/>	(F)	Addressed by technical change		
	(check if applicable)	<input type="checkbox"/>	Comment generated. See Section V-(ii) Comment # X.			

V. Comments

V- (i) Voters' Comments

Commenter 1 (Lauren Crane/LAM) - Comment 1

Comment	<p>*TF/TC Chapter to fill in section/paragraph #, if necessary. LAM LC4, LI1- R99-4.2.1, note 1</p>		
	<p>Comment Announcing the existence of a document without providing a title and where it can be obtained is not very useful.</p> <p>There is little value in citing the memory size of one of the documents.</p> <p>“non-binding” seems a bit redundant to “guide” → even though this construct is used in the official title of the document.</p> <p>====</p> <p>Change to the effect of “A guidance document on the ATEX directive transition from 94/9/EC to 2014/34/EU (371 KB) is available, with a list of frequently asked questions and answers. Refer to “ATEX 2014/34/EU Guidelines” which can be downloaded from https://ec.europa.eu/docsroom/documents/52840. There is a non-binding also a guide to good practice for implementing Directive 1999/92/EC. Refer to “Non-binding guide to good practice for implementing the European Parliament and Council Directive 1999/92/EC on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres” which can be downloaded from https://op.europa.eu/en/publication-detail/-/publication/c23f5429-1632-4b61-9eb1-a6c0e60828e0</p>		
	<p>The TC Chapter agreed to do one of the following actions.</p> <p>*No motion is required in this step.</p>		
Action	<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	
	Editorial	Options for editorial change (check one)	<input type="checkbox"/>
<input checked="" type="checkbox"/>			<p>Case 2: Voted in this section:</p> <p>Original section number and at least one full sentence are required in “FROM” and “TO” fields.</p>
1		FROM:	
		NOTE 1: A guidance document on the ATEX directive transition from 94/9/EC to 2014/34/EU (371 KB) is available, with a list of frequently asked questions and answers. There is a non-binding guide to good practice for implementing Directive 1999/92/EC.	

	<p>TO: NOTE 1: A guidance document on the ATEX directive transition from 94/9/EC to 2014/34/EU (371 KB) is available, with a list of frequently asked questions and answers. There is a non-binding guide to good practice for implementing Directive 1999/92/EC. ATEX 2014/34/EU Guidelines¹ provides guidance on the ATEX directive transition from 94/9/EC to 2014/34/EU available, with a list of frequently asked questions and answers. There is also a guide to good practice for implementing Directive 1999/92/EC, “Non-binding guide to good practice for implementing the European Parliament and Council Directive 1999/92/EC on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres”².</p> <p>¹https://ec.europa.eu/docsroom/documents/52840</p> <p>² https://op.europa.eu/en/publication-detail/-/publication/c23f5429-1632-4b61-9eb1-a6c0e60828e0</p>
	<p>Justification (If necessary) Clarification</p>
Motion	To approve above editorial change(s)
Motion by/2nd by	By: Lauren Crane / Lam Research Second: Bert Planting / ASML Netherlands BV
Discussion	XXXX
Vote	Result: 12-Y 0-N Voting Result: Pass - 100.00%

V-(ii) Comments Created by Handling Negative

None

VI. Editorial Changes Other than Those Voted on in § V

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

None other than above.

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 ¶ 9.6.2.1.2)

APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (Regulations ¶ 9.6.2.1.3)

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

		Accepts		(Accepts + Valid Rejects)					
Approval Rate	=	47	/	47	=	100.0%		≥90%	

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

Note: See *Regulations* § 9.6.2 for further information.

	<p>Globally Approved (No Ratification Ballot needed): Line Item 1 meets the Letter Ballot approval conditions for the global technical committee.</p>
x	<p>Need a Ratification Ballot: Line Item 1 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.</p>

Checks for Entire Document Including All Approved Line Items

VIII. Safety Check

Note: This Safety check applies to the entire Standard or Safety Guideline including all the approved Line Items. See § 15 of the *Regulations* for further information.

Motion		This is not a Safety Document, when all safety-related information is removed, the Document is still technically sound and complete. (<i>Regulations</i> ¶ 8.7.1)
	x	This is a Safety Document, when all safety-related information is removed, the Document is not technically sound and complete. (<i>Regulations</i> ¶ 8.7.2)
		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)
Motion by/2 nd by		By: Andrew Petraszak / TEL Technology Center America Second: Bert Planting / ASML Netherlands BV
Discussion		XXXX
Vote		Result: 11-Y 0-N Voting Result: Pass - 100.00%

IX. Intellectual Property (IP) Check

Note: This Letter Ballot may cover all or part of a Standard or Safety Guideline. Regardless of the coverage, this IP check applies to the entire Standard or Safety Guideline including all the approved Line Items*. See *Regulations* § 16 for further information.

x	The TC Chapter meeting chair asked those participating, if they were aware of any patented technology that might be relevant (see <i>Regulations</i> ¶ 16.3.1.1) to the Standard or Safety Guideline; or, any copyrighted items or trademarks that are used/reproduced (see <i>Regulations</i> ¶ 16.4.1.2) in the Standard or Safety Guideline. (Also see, <i>Regulations</i> § 8.8)	
x	The question is NOT answered in affirmative (No potentially material patented technology or use/reproduction of copyrighted items/trademarks is known.)	GO TO SECTION X.

		The question is answered in affirmative	Is any of the known IPs a patented technology?	Yes, at least one of them is a patented technology	GO TO IX (a) "Patented Technology" subsection
				No	GO TO IX (b) "Copyright items" subsection

X. Action for This Document

Motion (Check all applicable items)	<input type="checkbox"/>	Line item(s) [X], [X] and [X] passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
	<input type="checkbox"/>	Line item(s) [X], [X] and [X] passed TC Chapter review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.
	<input checked="" type="checkbox"/>	Line item(s) [1] 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.
	<input type="checkbox"/>	Line item(s) [X], [X] and [X] failed TC Chapter review and will be returned to the TF for rework.
	<input type="checkbox"/>	Line item(s) [X], [X] and [X] failed TC Chapter review and work will be discontinued.
Motion by/ 2nd by	By: Bert Planting / ASML Netherlands BV Second: Lauren Crane / Lam Research	
Discussion	XXXX	
Vote	9 Y-1N	
Final Action	<input checked="" type="checkbox"/>	Motion passed
	<input type="checkbox"/>	Motion failed

Note: If the use of PMPT or copyrighted item is justified by the TC Chapter, LOA or release form must be received before publication can proceed.