Record of Ratification Ballot Results for Procedural Review

Region/Locale: North America
Global Primary Technical Committee: Liquid Chemicals
Advisory Global Technical Committee(s): Liquid Chemicals
TC Chapter Cochairs: David Kandiyeli (Exentec), Per Nelson (Daikin America), Don Hadder (Intel), Laura Ledenbach (Evonik)
Standards Staff: Laura Nguyen

I. Document Number and Title

Document Number	Document Title
R7086A	Revision to SEMI F61–0521, Guide for Design and Operation of a Semiconductor Ultrapure Water System, with title change to: Guide for Design, Construction, Installation, and Operation of a Semiconductor Ultrapure Water System

II. Tally

Standards staff to fill in.

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

Note 1: Only TC Members of the Primary Global Technical Committee (GTC) or Advisory GTC who are registered on the issue date of the Letter Ballot for which the Ratification Ballot is issued are eligible to vote on the Ratification Ballot. (*Regulations* ¶ 10.3)

Note 2: The total number of Primary GTC Voting Interest Votes that are recorded as Approve per *Regulations* ¶ 10.5.1.2 shall be equal to or greater than 30% of the Primary GTC Voting Interests that have at least one eligible TC Member. (*Regulations* ¶ 10.5.2.1)

Note 3: The total number of valid Disapprove Votes counted per *Regulations* ¶ 10.5.1.3 shall be less than 10% of the total number of Voting Interests that received the Ratification Ballot. (*Regulations* ¶ 10.5.2.2)

a)	The # of eligible (Note 1) Voting Interests of the Primary GTC	103
b)	The # of eligible Primary GTC Voting Interests that returned Vote(s)	54
c)	The total # of eligible Primary GTC Voting Interest Approve Votes	39
d)	Percentage (%) of eligible Primary GTC Voting Interests Approve Votes (Note 2)	37.86%
e)	The total # of eligible Primary & Advisory GTCs Voting Interests	103
f)	The # of Valid Disapprove Votes	2
g)	The # of Invalid Disapprove Votes	0
h)	Percentage (%) of Primary & Advisory GTCs Voting Interests Valid Disapprove Votes (Note 3)	1.94%

Note: See *Regulations* § 10.7 for additional information.

III. Valid Disapprove Votes

The Originating TC Chapter is required to either assign the technical reasons accompanying Disapprove Votes on the Ratification Ballot either to a TF or place it on the agenda of the earliest TC Chapter meeting after the Ratification Ballot is concluded for consideration as new business regardless of whether or not the Ratification Ballot is accepted. (*Regulations* ¶ 10.6.2)

1) Voting Interest Name 1: Safety Guru, LLC

Voter: Name and company: Eric Sklar / Safety Guru, LLC

Details of Disapprove vote:

Number	Location	Comment/Negative
SG01	Table A1-1	*Negative:* Remove "ECTFE" from "Perfluoro- and fluoro- compounds" or change the title to "Perhalo- and Halo-compounds". *Reason/Justification:* ECTFE is not a fluoro-compound. It's a chloro-fluoro compound.
SG02	Table A1-1	*Negative:* Delete the rows and columns that are emptied. *Reason/Justification:* The ballot shows deletion of all the contents of some rows and columns, but not the deletion of the empty rows and columns.
SG03	A5-1.4	*Negative:* Change from requiring the "targets" of properties be "maintained" to requiring the properties, themselves, be maintained by deleting the word "target" from the last sentence.. *Reason/Justification:* Maintaining a "target" is an administrative act, not one that directly affects the water. What needs to be maintained are the properties of the water.
SG04	Table A6-1	*Negative:* Change from "operator response to" to "correction of" *Reason/Justification:* "Operator response" is not necessarily corrective. An operator ordering a replacement part or, worst case, merely reporting the failure is a "response", but only "correction" maintains operation. Also, I note that the instances of "Operator response time" in the "RO Tank" row and under "Polishing System" were not fixed.
SG05	A9-5.1	*Negative:* Correct from the false claim that analysis improves robustness to a correct claim that appropriate remediation based on such an analysis improves robustness. *Reason/Justification:* A stress analysis has no effect on how robust a system is, just on how robust one knows it to be. Only acting correctly based on the results of a stress analysis can improve the system.
SG06	Table A10-2	*Negative:* Provide column headers and instructions that are clear, consistent, and not redundant. If necessary, restructure the table to facilitate this. *Reason/Justification:* This still makes no sense, and adding a second "Units" column adds to the confusion. Perhaps an example would clarify things. Consider, for example, the "Raw Water Flow" row. The obvious, if not intended, thing to put in the next column is a number and, the third column, the units in which that number expresses the flow of raw water into the UPW plant. For example, "1000" and "lpm". However, that doesn't explain "Allowable Deviation". Also, one of the next two columns, "Average Usage" and "Peak Load" appears to be a repeat of the "Value". Table Footnote #2 replaces that confusion with different confusion. According to #2, the "Value" column is "to capture the primary defining characteristics of each utility". However, there's no place designated to state what characteristic is being specified, just the "Value", "Units", and "Allowable Deviation". One could, I suppose, infer the "characteristic" from the units, but that seems an unreliable process. Also, there's only one row of the table for the characteristics of utility, but there may be more than one characteristic of a utility. For example, both turbidity and odor of the raw water may be of interest. I have provided, at the end of this file, a partial example of a table format that I believe addresses these concerns.
SG07	A12-2.2	*Negative:* Delete "lockout and" *Reason/Justification:* "Lockout" is both obsolete and US-centric, as it comes from OSHA regulations. "Appropriate isolation" is what is needed.
SG08	A12-2.2	*Negative:* Change "any required purging" to "purging" and arrange the steps in the order in which they are to be performed. *Reason/Justification:* There is no doubt whatsoever in my mind that to make an "inert" atmosphere "breathable", one needs to replace it. There's little point, from a safety perspective, to performing "atmospheric testing" before the inert atmosphere is replaced. Testing is, however, important between replacing the atmosphere and attempting to breathe it.
SG09	A12-4.8	*Negative:* Do not replace "control of hazardous energy (CoHE)" with "Lockout-Tagout". *Reason/Justification:* As stated above, "Lockout" is both obsolete and US-centric. "Tagout", the reliance on tagging of a control to prevent its actuation, hasn't been legal in the US (except for grandfathered equipment) for several decades.

Number	Location	Comment/Negative
SG10	Overall	*Negative:* The Background Statement does not fulfill the requirements for a Ratification Ballot. *Reason/Justification:* Not all of the text to be deleted is in red. The numbering of some of the parts of the Document to be changes is incorrect. There are, for example, two different "Table A1-1"s.

Example format to replace Table A10-2:

Table A10-2 Typical Utility Matrix

Utility or Supply	*Characteristic*	*Value*	*Units*	*Allowable Deviation*	*Comments*
Raw Water	Average Flow				
	Peak Flow				
	Pressure				
	Turbidity				
	Odor				
Power, Normal	Voltage				
	Configuration				
	Average Current				
	Peak Current				
	Voltage Sag				
Power, Emergency	Voltage				
	Configuration				
	Average Current				
	Peak Current				
	Voltage Sag				
Power, Uninterruptible	Voltage				
	Configuration				
	Average Current				
	Peak Current				
	Voltage Sag				

2) Voting Interest Name 2: Georg Fischer Piping Systems

Voter: Name and company: Katrin Wallheinke / Georg Fischer Piping Systems

Details of Disapprove vote:

First negative on A1-5.2.5

Table A1-1 gives recommendations for elastomer material compatibility in various applications in the typical UPW system.

- Compatibility is not defined
- is this resistance to the media, particle generation, purity...?

Second negative on Table A1-1 Elastomer Material Compatibility

- Compatibility is not defined
- is this resistance to the media, particle generation, purity...?
- Remove trade names
- Silicone vs. Clear Silicone: usually silicone is clear and seems to be purely promotional for one brand.
- Use ISO names instead of "rubber"
- Elastomers themselves can be produced with different polymerization methods, leading to different materials. In addition, most elastomers are formulations containing additives and are thus widely different in properties, purity and quality
- What is the source of information? Some content is wrong, some is misleading.
- what is the database for the decision to change EPDM from A to N/A?
- why is FKM N/A for ozonated water? GF has tested extensively and found that resistance depends on the grade of KKM (published info)
- general inconsistency of A, R (several question marks for me)
- this table generally says that non-PFAS elastomers are not usable for HUPW. This has far reaching consequences for the ME industry/ suppliers though the data source may not be scientifically based.
- comment on footnote number 1: what defines the rating?
- comment on footnote number 2: what is a "resilient material"?

Third negative on A1-5 Gaskets and seals
- "Gaskets should meet SEMI F57 requirements and should be manufactured in a clean environment."
- SEMI F57 is not valid for gaskets and seals, thus two SEMI documents will be contradicting

IV. Invalid Disapprove Votes

Details of any assessment required per *Regulations* ¶ 10.5.3.1.2 (e.g., who performs the assessment, reason for the finding) that finds a Disapprove Vote to be invalid).

None

1) **Voting Interest Name 1: XXXXXX**

Voter: Name and company
Details of Disapprove Vote:
Name and company of the TC Chapter cochairs who perform the assessment:
Reason for the finding of invalid:

2) **Voting Interest Name 2: XXXXXX**

Voter: Name and company
Details of Disapprove Vote:
Name and company of the TC Chapter cochairs who perform the assessment:
Reason for the finding of invalid: