

# DRAFT Minutes

## ASHRAE SSPC 52.2

MOT - General Ventilation Air-Cleaning Devices for Removal Eff. by Particle Size  
June 14, 2021 9:00:00 AM– 12:00:00 PM EDT

<https://ashrae-org.zoom.us/j/99512256151?pwd=OE1xZGxUQ25paTNXYmUwZEVrWmRZdz09>

**Votes: Font is Bold, Black**  
**Task Groups: Font is Bold, Blue**  
**Action Items: Font is Bold, Red**

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### *Code of Ethics Commitment*

*In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and we shall avoid all real or perceived conflicts of interests.*

- 1) Call to Order – 9:03 am
- 2) Chair Remarks – Welcome. Please enter name/company/email in chat to serve as our attendance list. This is my last meeting as chair. Incoming leadership is Todd, Mark and Jenny. 52.2 will be in good hands.
- 3) Roll call for voting committee members - 5 min

	Present (for Quorum)	App E removal	Bio
	16 present at quorum call, then 17, 18, 19		
Kathleen Owen	Y	CNV	CNV
Mark Tucker	Y	Y	Y
Tim Ahn	Y, came in late	-	Y
Jenny Berens	Y	Y	Y
Rahul Bharadwaj	Y	Y	Abs
Randy Brannen	N	-	-
Michael Corbat	Y	Y	Y
Zied Driss	Y (came in after minutes)	Y	Y
Leonard Duello	Y	Y	Y
Michael Flom	Y	Y	Y
Marisa Jimenez-Segovia	Y	Y	Y
Chrystal Jolliffe	Y	Y	Abs
Gemma Kerr	Y	Y	Y
Kevin Kwong	Y	Y	Y
Bruce McDonald	Y	Y	Y
Jonathan Rajala	Y	Y	Y
Jim Rosenthal	Y	Y	Y
Christine Sun	Y, arrived later	-	Y
Donald Thornburg	Y	Y	Y
Nathan Wittman	Y	Y	Y
Roberta MacGillivray – NAFA alt			

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- 4) Review of this agenda – no objections
- 5) Review of “Draft” January 2021 Minutes – no changes noted. Motion from Gemma to accept, seconded Nathan. Asked for No – 0, abstain CNV Thus **16-0-1-3-20** (Y-N-Abstain-Absent-Total) Zied joined late, decides to abstain due to missing meeting.
  - a) <http://sspc522.ashraepcs.org/> to find minutes, agendas
- 6) Membership – see attachment below. Please remember to turn in applications. We can not add you, keep you when you roll off, or change your status without an application. It’s easy.  
<https://www.ashrae.org/technical-resources/standards-and-guidelines/apply-to-a-project-committee>
- 7) Website – Todd McGrath – is absolutely great and fantastic. Is updated. See minutes and agendas there.
- 8) Liaison Report – Jerry Kettler [gjkettler@air-engineer.com](mailto:gjkettler@air-engineer.com) – not present
- 9) 62.2 Liaison report – Vijay – Nothing to do with filtration happening now. They meet next on the 23<sup>rd</sup> 11 am – 2 pm.
- 10) 62.1 Liaison report – Wane Baker – not much going on with regard to filtration. Working on IAQ procedure and the electronic air cleaning issues. Looking at design contaminants.
- 11) Open Action Items
  - a) Revisions to Normative Appendices: **Vijay, Jon, Mike**
    - i) Mike motions to remove Appendix E, Don seconds
      - (1) Informative appendix, info elsewhere, not needed now, not a PPR issue.
      - (2) Vote passed **16-0-1-3-20** (Y-N-Abstain[CNV]- Absent -Total)
    - ii) Discussions of options
      - (1) WGB to review all of 52.2: **Gemma, Brian, Don, Zied**. After meeting
      - (2) WGA already reviewed – will work with WGB after their review: **Vijay, Mike, Jon**
      - (3) Example report in appendix – **Todd and Jon**
      - (4) Review of entire (**KO to check to see if we can get a bit of delay in next publication date**, Don says we should be able to get up to an extra 5 years) document for consistency and other stuff: consider later Kathleen checked on whether we can delay our publication date. Mark Weber responded “Since 52.2 was last published in 2017 it would likely be republished in 2022 by incorporating the published addenda (on a 5 year cycle). We could publish in the summer but there is no hard schedule. I suggest getting all your changes out for public review soon so they can be in the 2022 edition.” Thus, he would like us to get everything in for the 2022 edition, but there is some wiggle room.
  - b) Youtube videos. 1) Explain MERV table, 2) MERV 17-20 don’t exist **WG: Zied, Marissa**, Zied started working on this, will contact Marissa by September.
    - i) Discussion of basecamp issues for TC2.4 – Matt fixed Zied’s issue. **Gemma will look at it.**

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- c) Aerosol Particle Index (API) WG: Jim, Vijay showed presentation (attached), flat sheet discussion, they want feedback from 52.2 on what we should do. Eventually to go to full filter, but they might want to put flat sheet idea as optional appendix. Bruce says most media folks should have test system that can do this. Might need RTAR/WS/RP. WG: Jim, Vijay, Tim J, Ashish, Christine, Mark Tucker, Jenny, Jon, Russ Baldinger (added after meeting), Mick Flom (added after meeting).
- d) SSPC 170 (related) – Todd MERV 17 issues. Todd followed up. **Will keep working to get this fixed.**

### 12) New Business – 90 min

- a) Definitions – Jeff S – ASHRAE Definitions for filters and filtrations are horrible, missing, wrong. He discussed this with Glossary of Terms committee. They get definitions from standards. 52.2 does not define filter. We need to do something to fix this.
  - i) ASHRAE definitions (<https://xp20.ashrae.org/terminology/>) Filtration: process of passing a liquid through a porous material in such a manner as to remove suspended matter from the liquid. Jeff's proposed changes Filtration: process of passing a fluid through a porous material in such a manner as to remove suspended matter from the fluid. Filter: (1) capacitor and/or inductor placed in a series/parallel combination across a DC line to remove the effects of the AC signal or to decrease the ripple voltage in a DC power supply. (2) device to remove gases from a mixture of gases. (3) device to remove solid material from a fluid. Jeff's proposed changes Filter: (1) capacitor and/or inductor placed in a series/parallel combination across a DC line to remove the effects of the AC signal or to decrease the ripple voltage in a DC power supply. (2) device to remove gases, liquids, or particles from a mixture of gases. (3) device to remove solid material from a liquid.
  - ii) Gemma is member of 1.6 in charge of filter definitions, **she is working on this.**
  - iii) **We should all look at the definitions to be sure they cover our terminology well.**
- b) Bioaerosol Efficiency Testing - Matt M
  - i) Introduced this.
  - ii) Don said we can't do it this way, but Kathleen did ask Mark (can check again)
  - iii) Could this move to a separate method – perhaps best future would be as part of 185.3
  - iv) Motion to send out for public review – Gemma, 2<sup>nd</sup> Zied
    - (1) Discussion – liquid to aerosolize from, is it best? Possibly not but it is consistent with 185.1
    - (2) Vote: passed see table above **16-0-3-1-20** (Y-N-Abstain [CNV, 2 hadn't read the file]-Absent-Total)
- c) Overload Test Revisions – Kathleen – add this to the Gemma/Vijay endeavor
- d) Any other new business – Bruce warns us about international action, we should consider 16890 again. Just a comment
- e) Gemma – thanked me.

### 13) Adjourn 52.2 Main meeting adjourn at 11:28 motion to adjourn Jon, Gemma

### 14) SSPC 52.2 Research – Jon R – 30 min

- a) IPA Vapor changes – impact on different fibers. RTAR **Champion: Chrystal Jolliffe with Phil Winters, Jon Rajala, Marquita Beard, Keith.** RTAR sent to WG shortly before meeting. WG to review, then send to 52.2 for comments. **Then on to 2.4 research.**

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- b) Charge Neutralization – RTAR Champion: **Bruce with Keith, Don, Vijay**. Jon talked to these folks. Vijay recommends dropping this. Bruce said he put the info together. Can drop due to lack of action. Could be revived later.
- c) PMS update on 1784-RP update at 1. Come to meeting. Matt reports we got our extension to March 2022. Need another commercial lab to send in data!!
- d) Any other ideas – none came forward, contact Jon with any ideas you think of.

15) Adjourn Research at 11:45 am

Attendees who signed in:

Andi Seeberger	Jennifer Wong	Michael Corbat
Ashish Gadhav	Jenny Berens	Michael Silva
Aswin Gajjala	Jim Rosenthal	Mick Flom
Brian Krafthefer	Joel Davis	Mike Harriman
Bruce McDonald	John Zhang	Nathan Wittman
Caitlin Naske	Jonathan Rajala	Paolo Tronville
Chris Hsieh	Kathleen Owen, Chair	Rahul Bharadwaj
Christine Sun	Keith Chesson	Ray Rite
Chrystal Jolliffe	Kevin Kwong	Russ Baldinger
Dan Haas	Kyung-Ju Choi	Sanjeev Hingorami
Dan Love	Len Duello	Randy Brannen
Dara Feddersen	Lu Song	Sunyoung Moon
Don Thornburg	Marisa Jimenez de Segovia	Tim Johnson
Donna Kasper	Mark Davidson	Timothy Ahn
Eric Reno	Mark Tucker, Secretary	Todd McGrath
Gemma Kerr	Mark Mino	Tom Justice
Geoff Crosby	Matt Ball	Vijay
Henry Geist	Matt Middlebrooks	Wane Baker
Himanshu Jasuja	Jeff Siegel	Zied Driss

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### Membership Attachment (2 pages)

Full Name	Position	Category	Current		After 7/1/21
			Start Date	End Date	
Kathleen Owen	Ch PCVM	General	07/01/2017	06/30/2021	PSVM
Todd A McGrath	VC PSVM	Man filter	07/01/2017	06/30/2021	Chair PCVM – 6/30/25
Mark A Tucker	Sec PCVM	Man media	07/01/2019	06/30/2023	VC – 6/30/25
Tim Ahn	PCVM	Man filter	07/01/2019	06/30/2023	
Jenny M Berens	PCVM	Man filter	07/01/2019	06/30/2023	Secretary – 6/30/25
Rahul Bharadwaj	PCVM	Man media	10/17/2019	06/30/2021	PCVM – 6/30/25
Randy Brannen	PCVM	Man filter	07/02/2020	06/30/2024	
Michael D Corbat	PCVM	Man filter	07/01/2019	06/30/2023	
Zied Driss	PCVM	Man filter	07/01/2017	06/30/2021	Rolled off
Leonard E Duello	PCVM	User	07/02/2020	06/30/2022	
Michael C Flom	PCVM	Man filter	07/02/2020	06/30/2024	
Mrs Marisa Jimenez-Segovia	PCVM	General	07/01/2018	06/30/2022	
Chrystal Jolliffe	PCVM	Man filter	07/01/2019	06/30/2023	
Carolyn M L Kerr	PCVM	General	07/01/2017	06/30/2021	PSVM – 6/30/25
Kevin Kwong	PCVM	General	07/01/2018	06/30/2022	
Bruce N. McDonald	PCVM	General	07/02/2020	06/30/2024	
Jonathan Rajala	PCVM	Man filter	10/17/2019	06/30/2022	
Jim Rosenthal	PCVM	Man filter	10/17/2019	06/30/2022	
Christine Sun	PCVM	General	07/02/2020	06/30/2024	
Donald D Thornburg	PCVM	Man filter	07/02/2020	06/30/2024	
Nathan Wittman	NAFA PCVM	General	02/06/2020	06/30/2021	NAFA Rep 6/30/23
Roberta MacGillivray	NAFA alt	General	02/06/2020	06/30/2021	

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Full Name	Position	Category	Current		After 7/1/21
			Start Date	End Date	
Wane Baker	PSVM	User	2/1/21	7/1/25	
Oludamilola Adesanya	PSVM	Man filter	2/1/21	7/1/25	
Brandon Boor	PSVM	General	09/07/2018	06/30/2022	
Keith Chesson	PSVM	Man filter	09/07/2018	06/30/2022	
Kyung-Ju Choi	PSVM	Man filter	07/01/2018	06/30/2022	
Randall L Cooper	PSVM	General	07/01/2019	06/30/2023	
Mark Davidson	PSVM	Man filter	07/02/2020	06/30/2024	
Joel Davis	PSVM	Man filter	07/01/2018	06/30/2022	
Sama Fakhimi	PSVM	Man filter	10/17/2019	06/30/2023	
Dara Marina Feddersen	PSVM	Man media	07/01/2019	06/30/2023	PSVM – 6/30/25
Henry T Greist	PSVM	Man filter	09/07/2018	06/30/2022	
Richard L Hall	PSVM	General	02/06/2020	06/30/2024	
Himanshu Jasuja	PSVM	General	02/06/2020	06/30/2024	
Michael D Orcutt	PSVM	Man filter	10/17/2019	06/30/2023	
James S Parris	PSVM	Man filter	07/01/2018	06/30/2022	
Kartik Potukuchi	PSVM	Man media	07/01/2018	06/30/2022	
John Jay Reese	PSVM	General	09/07/2018	06/30/2022	
Raymond W Rite	PSVM	Man filter	07/01/2018	06/30/2022	
Andrew J Untz	PSVM	Man filter	07/02/2020	06/30/2024	
R Vijayakumar	PSVM	General	07/02/2020	06/30/2024	
John Zhiqun Zhang	PSVM	Man filter	07/02/2020	06/30/2024	
Vincent Hwang	PSVM	General	7/1/2021	6/30/25	
Matt Middlebrooks	PSVM	General	7/1/2021	6/30/25	
Joel Swann	PSVM	Man filter	7/1/2021	6/30/25	

# **Aerosol Particle Index for MERV Filters**

**Jim Rosenthal & Vijay**

**52.2 Web Meeting**

**14 June 2021**

# Why API?

**Charged media extensively used in HVAC**

**Charge decays over time**

**Rate of decay differs widely**

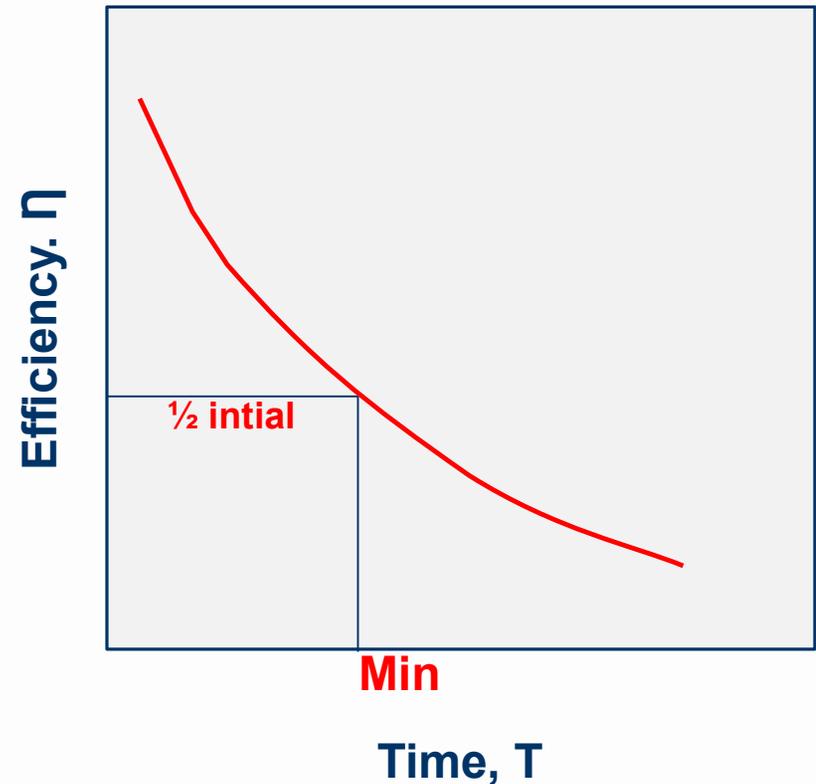
**Slow decay may not be problem in use**

**No standard to show this difference**

**52.2 is perfect vehicle to drive this to  
consumer**

# Suggested test

- Use flat sheet(s)
- Use oil as challenge aerosol
- Measure initial efficiency
- Load media with aerosol
- Measure efficiency every X min for Y mins
- Stop test when efficiency declines to half initial value



# API

**Define API as the time it takes for the efficiency to decay to half original value,**

**$D\eta_{50}$  (Min)**

**Where,**

**D is media designator, say MERV**

**Min is the time for efficiency to decrease to half initial value**

**e.g MERV8  $\eta_{50}$  (32)**

# Commentary

- **Decay method used by NIOSH**
- **Flat sheet test easier to replicate**
- **Restrict test to 0.3  $\mu\text{m}$  particle size since this is the most sensitive size of charge effects.**
- **Oil aerosol of known size easy to generate**
- **API can be a media specification and will be a relative performance indicator**

## **Other items to consider**

- **Decay test duration, suggest six 10 min interval tests until efficiency reaches 50% initial value**
- **Decay aerosol size – suggest 0.3 Median with  $\sigma_g \leq 2.0$  or from Laskin Nozzle**
- **Min replicate samples**
- **If full test results include reporting incremental efficiency, we could extend API to full filters. See RP coming.**