

Draft Minutes
TC 2.3 - Gaseous Contaminants/Removal Equipment
Research Subcommittee Meeting
Virtual, Wednesday June 15th 2:00PM-4:00PM EST

Attendees

Tony	Abate	Kevin	Kwong
Victoria	Binz	Paula	Levasseur
Michael	Corbat	Marilyn	Listvan
Gabrielle	Davis	Matt	Middlebrooks
Michelle	Erickson	Chris	Muller
Larry	Fletcher	Caitlin	Naske
Mick	Flom	Kathleen	Owen
Paul	Glowacki	John	Randtke
Henry	Greist	Jeffrey	Roseberry
Sanjeev	Hingorani	Gregg	Sanko
Chrystal	Jolliffe	Dave	Schaaf
Gemma	Kerr	Mengjia	Tang
Brian	Krafthefer	Christopher	Vizcaino
Mengjia	Tang	Jensen	Zhang

1 Meeting call to order:

2:06 PM, [Tori will take minutes](#)

2 Introductions and Recording Attendees 5 Min
Enter Name, affiliation, and email in Chat

3 Review of Minutes from Winter Virtual Meeting: 5 min
a. [No comments, questions, or changes to Las Vegas DRAFT meeting minutes; minutes finalized](#)

4 Chair comments: 5 min
a. [No comments from the Chair at this time; chair's breakfast will be in person in Toronto, any updates to follow](#)
b. [Chair's breakfast- 8 research projects put out for bid last spring and another 8 tentatively going out for bid soon. Web based system to submit RTARs and WSs is in development.](#)

5 RAC report (Liaison TC2.3- Bill Hutzell) 5-10 min
a. [Bill was not present at the meeting; Chair will reach out for any updates and provide feedback to the group at the TC 2.3 main meeting in Toronto. No Report until after the Research breakfast.](#)

6 Active Projects:

- a. **1720-RP Validation of gas-phase air-cleaner performance test method (Standard 145.2) by laboratory testing of commercially available filtration devices** – PMS: Gemma Kerr, Paula Levasseur, Chris Muller, Nick Agopian, Marilyn Listvan. PI: Kathleen Owen. A no cost extension until October 28th, 2022, was requested but ASHRAE has not yet responded.
PMS meeting June 22nd at 3:00-4:00 EST

- i. Project was granted an extension until October 1st, 2022
 1. Another extension will not be requested at this time
- ii. Ozone data is complete, waiting on labs to send outstanding toluene data; Kathleen has begun work on data analysis
- iii. PMS update meeting will be held next week on Wednesday June 22, new data will be presented.

- b. **1838-RP Inclusion of Electronic Air Cleaners** – PMS: Kevin Kwong, Jeff Roseberry, Tony Abate, Nick Agopian, Ashish Mathur, Paula Levasseur. PI: Dean Tompkins; co-PI Kathleen Owen (1 hour) Final publication is under review – completion expected by July 31st.

PMS meeting June 15th at 1:00-2:00 EST

- i. Main project deliverable is to complete updates to 145.2, at this time most of the work has been completed and are waiting on the complete draft final report.
 1. Need 3-4 weeks to review the report prior to the deadline
- ii. Dean was not present to give update at the PMS meeting, Chair will reach out and update members with Dean's response

- c. **1579-RP Testing and Evaluation of Ozone Filters for Improving IAQ**— PMS: Sanjeev Hingorani, Kevin Kwong, Matt Middlebrooks, Nick Agopian, Thad Ptak, Hoy Banohan (EHC). PI - Atila Novoselac; Jeff Siegel, Consultant. 5 Minutes

I reached out to Atila but have not received an answer as to the status of the final report.

- i. Report is completed, has been submitted, and the final report has been accepted. Confirmation was made that the project has been published by ASHRAE. Final report and project are complete.

- d. **1780-RP, Test Method to Evaluate Cross-contamination of Gaseous Contaminant within Total Energy Recovery Devices**; Responsible Committee: TC 9.10 (Laboratory Systems); Co-Sponsors: TC 2.3. Nick Agopian on PMS. Awarded to University of Saskatchewan. 10 minutes
Nick on PMS- it was awarded, moving slowly, asked for an extension

- i. Nick was not present during the meeting; will reach out and provide update based on Nick's response. PMS is pleased with progress.

7 Work statements and RTARs – Updates 30 minutes

- a. **1867-RTAR: Development and validation of a model for assessing the corrosion risk of Datacom equipment under different pollution and thermal environmental conditions.** TC 9.9
Waiting for update from Chris Muller

- i. No activity from TC 9.9, still talking with members with one of the universities and government in Singapore
- ii. No work statement has been put together at this time
- iii. A presentation is planned during the TC 9.9 meeting on Sunday June 26, the presentation will be made available
 1. ACTION ITEM: Tori will post presentation, when available on TC 2.3 basecamp. Members will review and decide if a full work statement should be written.

- b. **1869-WS: Evaluation of Indoor Air Contaminants with respect to Development of a Revised Indoor Air Quality Procedure (IAQP) Design Compound and Design Target Lists for Standard 62.1.**

Champion: Gemma Kerr. WG: James Dennison, Dean Tompkins, Marwa Zaatari, Hoy Bohanon, Wayne Thomann.

Gemma Kerr to update status of resubmission after RAC conditionally approved with comments.

- i. Work statement not an RTAR
 - ii. The work statement was submitted, and comments were received; provisionally accepted
 - iii. Made the May 15th deadline and waiting to hear if it will need another review.
- c. **1846-RTAR:** Real Time Small sensors: Brian K., Fuoad Parvin, Thad Ptak, Jeff Roseberry, Sanjeev H., Jensen Zhang, Jordan Clark. Brian K to update:
- i. Not much progress has been made
 1. A new champion for the project may be needed
 - ii. *ACTION ITEM: Review TC 2.4's report on sensors*
 - iii. Subcommittee agrees that this is an RTAR that should be pursued
 1. Brian will set up a Zoom call at the beginning of October; members interested Tony Abate, Sanjeev, Christopher Vizcaino
- d. **1858-RTAR:** sVOCs including how SVOC emissions change with temperature - Sanjeev*, Jianshun Zhang, Kevin Kwong, Ying Xu, Brent Stephens, Chang-Seo Lee, and Jim Rosenthal. Need status – last correspondence I have seen on this is from 2021.
- i. Work statement was re-written; comments came back and need to be resolved
 - ii. Sanjeev to try to complete and submit before Atlanta meeting
 1. Gabrielle Davis volunteered to help
- e. **1895-WS** Effect of particles on loading on gas filters, with possible interest in looking at other combinations of technologies in the same air cleaner (Matt, Brian, Paula, VJ). TC 2.4 and GPC 35 co-sponsored. Brian K drafted a letter to RAC in Feb 2022 – was it ever submitted?
- i. Work Statement
 - ii. TC 2.3 vote already happened, waiting on TC 2.4 vote and TP 35
 - iii. Letter to RAC was submitted
- f. **1928-RTAR-** Combination duct and chamber test. Matt, Gemma, Kathleen, Cheng-Seo, and Joe Pessa. Ali Bahol and Chrystal Jolliffe have recently offered to help. This is sponsored by 2.9, with 2.4 and 2.3 co-sponsors and has been submitted to RAC and is on the agenda for the next RAC meeting. Negative comments from 2.9 were addresses and this was recirculated for a new vote in April. Need current status:
- i. Work statement with 2.9 was accepted with comments and more co-sponsors (EHC) were added
 - ii. Submitted to RAC and will likely be reviewed in Toronto
 - iii. Chrystal will be lead moving forward
- g. **1935-RTAR** Effects of increased use of surface disinfectants and hand sanitizers on indoor air quality. Chang Seo, Kathleen, Jensen, Marilyn, Paula Submitted RTAR, it was received on August 17th. Need status from Chang-Seo it appears work statement and RAC comments are not yet completed for submission.
- i. RTAR submitted and conditionally approved with comments; comments have not yet been addressed.
 - ii. Work statement has not been worked on and needs to be written
 - iii. *ACTION ITEM: Paula will contact Chang-Seo for an update*

- a. The Effects of Filtration and Air Cleaning on Health & Safety. Caitlin Naske Champion. Nick Agopian, Lexuan Zhong, Kathleen, Sanjeev, Paula. Finalizing RTAR- will submit shortly
 - i. This was finished and sent for a vote in TC 2.3
 - ii. *ACTION ITEM: Contact research subcommittee chairs in EHC, 62.1, and 62.2 to ask for co-sponsorship.*
 - iii. Submitted for August deadline

- b. Acceptable VOC types and concentrations for inclusion in multi contaminant test gases - **ON HOLD** Ashish to champion, Kathleen, Gemma, and Paula, Chang Seo.
 - i. Main deliverable: investigate different combinations of gases and see which are appropriate to test together
 1. Mixtures are representative of real world application
 - ii. Originally was intended to help IAQP
 - iii. Chris Muller has offered to send applicable research for the subcommittee to review
 - iv. Other committee support will be needed; 62.2 and 145.2

- c. Venting for 3D Printers: needs champion (Paula, Gemma, Marwa, Dan, Joel Foster (2.9), Wayne Tomann (EHC), Marilyn, Matthew Stiegel, and Courtney Stanion with Brent talking to 2.4). **ON HOLD** pending finding proper lead TC, Not under the scope of 2.3.
 - i. No further work has been done, on hold
 - ii. Needs a different TC to get involved/drive the efforts
 1. Dan Mason interested in helping
 2. Determine if other committees are taking on 3D printing topics, talk to Brent in TC 2.4 and Bob Burkhead in TC 5.4

- d. RTAR on 62.2 unvented combustion devices (Nick brought up). They are writing RTAR on this for huge project (millions). We need to be in it. Needs a chemist.
 Nick- No progress, nothing to report
 - i. Nick is not on the call; contact for updates

- e. Gases to dimers, where is the dividing line between particles and gases, nucleation. And how to remove them? Brian's idea, Gemma, Chang-Seo, Marilyn, Dean, (Marilyn)
 Brian had started, hasn't had the bandwidth, still needs to be done- would be a literature study to start, eventually would be a research study
 Brian- have a midterm meeting
 - i. No further work has been done
 - ii. Put on hold; pending program interest potentially could be a seminar

- f. Brian- off gassing of particulates in filters, Brian had done a lit search long ago with only a few, may be newer studies/ research. Chang Seo- has a paper of SVOCs generated- will send to Brian, could include VOC and SVOC
 - i. Brian received the paper but has not reviewed it yet.
 - ii. Caitlin, Paula, and Kathleen volunteer to help
 - iii. Set up a Zoom meeting in 3 months to discuss next steps

- g. Potential ideas may come out 1579-RP – I corresponded with UT they are interested but have yet to put anything together.
 - i. Mengjia reported out
 1. One idea, study the lifetime of ozone removal devices in buildings. Very complex and have not found a good angle on how to approach it at this time
 - a. Humidity is not very significant, but flow rate is
 - b. Particle and gas loading on the devices

- ii. Could potentially be 2 RTAR
- iii. Matt Middlebrooks is willing to help with the VOC and particle loaded concept
- h. Cleaning secondary products from the air- John Randtke, Marwa can help
 - i. RTAR on the impact of age of electronic air cleaning devices, looking at ozone and potentially harmful contaminants as equipment ages
 - 1. Investigate how performance degrades over time, how long are they effective, ozone generation with age
 - 2. Intends to coordinate with manufactures who have equipment installed pre-pandemic, and during the pandemic
 - 3. Laboratory test, equipment will be taken out of the field and taken back to a lab to test
 - ii. Volunteers interested in helping: Jianshun, Brian K, Marilyn, and Jeff Roseberry
- i. New Ideas

9 Adjourn

Meeting Adjourned 3:41 PM