

**Minutes**  
**TC 2.3 - Gaseous Contaminants/Removal Equipment**  
**Research Subcommittee Meeting**  
**Virtual, Tuesday June 8<sup>th</sup> 2:00-4:00pm EST**

**Attendees:**

Paula Levasseur	Sanjeev Hingorani
Caitlin Naske	Marilyn Listvan
Gemma Kerr	Victoria Binz
Kathleen Owen	Scott Parris
Paolo Tronville	Marwa Zaatari
Kyung Ju Choi (K-J)	Sina Yousefi
Chang-Seo Lee	Bill Hutzel
Len Duello	Mick Flom
Matt Middlebrooks	Fuoad Parvin
Gregg Sanko	Gabrielle Davis
Mengjia Tang	Chris Muller
Brian Krafthefer	Patrick Coughlan-Chemours
Kevin Kwong	Peter McKinney
Dan Haas	Daniel Love
Henry Geist	Chrystal Jolliffe

- 1 Meeting call to order 2:02 EST
- 2 Introductions and Recording Attendees  
Enter Name, affiliation and email in Chat
- 3 Review of Minutes from Winter Virtual Meeting
  - a. Comment – draft minutes on web still titled as Agenda
- 4 Chair comments
  - a. RTAR review and submittal process- RTARs are being submitted under TC 2.3 by people who we don't know and had no vote from committee. The correct process: RTAR has to go to Bill first, Research chair is copied on everything, then it can go for committee vote to sponsor/ co-sponsor
  - b. Chair breakfast TBD, Sanjeev- end of summer but has not been scheduled yet
- 5 RAC report (Liason TC2.3- Bill Hutzel)- the reason the RTAR/ work statements go to him prior to RAC- he has insight into how competitive, if he can increase the chances that work can get funded. Co-sponsorship greatly increases the chances. Normally would have had a RAC meeting by now, but the meeting isn't until June 21<sup>st</sup>. 1869 is on the agenda. 1928 from 2.9, 2.3 cosponsor is also on the agenda.
- 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.  
Summary from meeting 6/8/21- inter and intra comparison of 145.2 testing- two contaminants (Ozone and toluene) assigned for a specific filter type. Ozone tests are close to completion, should be done fairly soon. The Toluene testing is a bit more complicated, only one lab that has completed all three tests, hoping for 4-5 labs. The project is due in August, will be requesting a no cost 6 month extension in hopes to complete the data sets.
- b. **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.  
Summary from meeting 6/8/21- Final report out from group- looking at different carbon media and UV-PCO for ozone removal. Have provided a report, PMS will get feedback to them in 2 weeks. A seminar is scheduled during the ASHRAE conference.
- c. **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.  
Work has begun with interesting results – Nick is waiting confirmation to see if he can share some of the results with the committee.
- d. **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. Start Date: Nov 2019.  
Summary from meeting 6/8/21- Dean gave an update on the report in meeting, it was a review of air cleaning technologies, oxidation chemistry for more common compounds you may find, closing in on the final report, several draft sections will be sent to the PMS for review. The final draft will be sent to PMS at the end of July and PI is targeting a Sept completion of the final report.

## 7 Work statements and RTARs – Updates

- 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  
Chris Muller- finished the previous RTAR and lead to possible environment conditions. Are working with a group in Singapore. They are looking at sea salt aerosol and operation of data centers. Conference call in a few weeks to get an update and see if they will need funding.
- 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- has been around for a bit, a lot of people have contributed, It has been submitted to RAC as a work statement and is on the agenda for this meeting.
- c. **1846-RTAR:** Real Time Small sensors: Brian K., Fuoad Parvin, Thad Ptak, Jeff Roseberry, Sanjeev H., Jensen Zhang, Jordan Clark. No Update – ~~waiting on the 2.4 sensor study~~  
Brian- The 2.4 study is complete, but nothing has been done on the RTAR
- d. **1858-WS:** sVOCs including how SVOC emissions change with temperature - Sanjeev\*, Jianshun Zhang, Kevin Kwong, Ying Xu, Brent Stephens, ~~Brandon Boor~~, Chang-Seo Lee and

Jim Rosenthal.

Met a few times, came back with some comments but there hasn't been any work done on it.

The plan would be to get it submitted by August- looking for others that are interested, can Email Sanjeev. Sanjeev will send updated list of people

- e. **1895-RTAR** 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. Paula has not worked on it, they have not put together a document that addresses all of the RAC questions- just need to address them, has not been sent to Bill yet. Plan to submit by August deadline.
- f. **1928-RTAR**- Combination duct and chamber test. Jeff Siegal suggested. Matt, Gemma, Christine and Kathleen, Sanjeev, Atila N, Peter McKinney, KJ, Kevin, Tony, Cheng-Seo, Gemma, Sanjeev 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

## 8 Proposed RTARS and other work:

- a. The effects of filtration on health. Caitlin Naske Champion. Dean Tompkins, Nick Agopian, Lexuan Zhong, with EHC interest. Kathleen and Sanjeev- volunteered to help with forms, Mariyln -help with brainstorming. Caitlin- nothing has been done but will Email the group next week
- b. 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. Still in the works
- c. 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  
Discussion on if the topic is for a research project vs a program item/ workshop. Decided to start as a literature review- help from Marilyn and Gemma, targeting August 15 RTAR deadline
- d. Effects of increased use of surface disinfectants and hand sanitizers on indoor air quality. Chang Seo, Kathleen, Jensen, Marilyn, Paula Chang Seo has already written, sent to Bill and got his comments. It has been sent to 2.9 and 2.4 and maybe 62.2 and EHS/ EHC? TRG4 Waiting on 2.3 and co-sponsor votes, will be submitted for August deadline

## New Ideas:

Kathleen- TC 2.1 going for co-sponsorship determining of CO<sub>2</sub> and aerosol generation and metabolic rate of occupants for selected indoor activity.(sent out to voting members for co-sponsorship)- on the agenda for voting

Follow up work from 1579-RP -filter to particles and multiple pollutants and ozone- what will happen

-investigate the impact of flow on the performance of the filter

-investigate the thickness of the filter (2" and 4" deep pleats not media depth) and how it impacts performances- could be some fluid dynamics phenomenon

-In carbon filters- efficiencies rebounded when the ozone challenge was stopped and then restarted

-Generation of CO or CO<sub>2</sub> from activated carbon when exposed to ozone, with large flow rate it

would be difficult to measure low concentrations of CO or CO<sub>2</sub> generated

-What is generated/ potential by-products when carbon is exposed to ozone

2 new proposed RTARS

- 1) Ozone removal efficiency and generation of byproducts from reactions on VOC loaded gas phase filters
- 2) Field capacity tests for ozone removal devices: Development of guidelines for replacement of ozone removal devices when considering ASHRAE Standard 62.1

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

9 Adjourn at 2:55 EST