

ASHRAE MEETING MINUTES

Chicago, IL

TRG4.IAQP

Indoor Air Quality Procedure Development

Sunday, January 21, 2018 10:30 - 12:00

Meeting Location - See Graphic Below

Palmer Hilton Hotel
7th Floor Room: LaSalle 5

1. **Call to Order.** Introduction of guests and members at 10:30.
2. **Attendance:**
 - (voting) Members (13) - Dean Tompkins, Marwa Zaatari, Charlene Bayer, Robert Burkhead, Jim Dennison, Elliot Horner, Chang-Seo Lee, Gemma Kerr, Chris Muller, Jeff Roseberry, Charlie Seyffer, Scott Sherwood, Scott Williams
 - Corresponding Members (2) - Henry Greist, Brian Hafendorfer
 - Guests (8) – Trent Thiel, Brandon Svitak, Aaron Engle, Stuart Engle, Derrick Sears, Karin Spalink, Tom Ben-David, Artem Zhukov
3. **Membership** - Voting Members Present (Quorum Established?)
 - (voting) Members (16) - Dean Tompkins, Marwa Zaatari, Nick Agopian, Charlene Bayer, Robert Burkhead, Barney Burroughs, Jim Dennison, Elliot Horner, Gemma Kerr, Chang-Seo Lee, Chris Muller, Jeff Roseberry, Charlie Seyffer, Scott Sherwood, Erica Stewart, Scott Williams
 - (voting) Members Absent (3) - Nick Agopian, Barney Burroughs, Erica Stewart
 - Total (voting) Members Present in Meeting: 13 (of 16)

Quorum Established?: **Yes**
4. **Ethics Statement** (and silence cell phones)
 - The Chair presents the Ethics Statement:
 “Commitment to the ASHRAE Code of Ethics – In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interests. (See full Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>.)”

5. Approval of Meeting Minutes from Winter Meeting (Long Beach, CA)

Long Beach Meeting Highlight: The TRG4.IAQP added compound(s) to the “List” to now including “4 Compounds”: **toluene, formaldehyde, ozone, PM2.5**

- Formal Vote:

Topic/Title/Motion: **Approval of Long Beach Meeting Minutes**

Motion made by: **Marwa Zaatari**

2nd: **Scott Williams**

Discussion: **The Meeting Minutes as taken by the Secretary are a list of what people said in the Meeting. Review the minutes and ensure that all four compounds are listed; update the Minutes to reflect this matter.**

Vote:

For: **9** ; Against: **0** ; Abstain: **1** ; Absent: **2** ; Total: **12**

Motion: **Approved** provided that the Minutes are amended is mentioned in the Discussion

6. Identification & Reporting from ASHRAE liaisons

- Dennis Wessel, Section Head for Section 4:
 - ASHRAE now has an on-line Roster update capability
 - Send out Meeting Minutes within a 2 weeks not more than 60 days after Meeting
- No other Liaison presentations were made

7. Main Business: Presentation & Discussion

BaseCamp: Basecamp is an online means of communicating with other Members in an ASHRAE Technical Committee to share documents. All (voting) Members, less Jim Dennison, were familiar and/or have had the opportunity to use Basecamp. Basecamp is considered as a supplement to GoToMeeting means of communicating.

Title of/for Compound List:

- ~~Contaminants of Concern (CoC)~~

Rationale for elimination:

- “Concern” of/for what?
- CoC can be believed to be too health based
- The phrase CoC is too ambiguous

- ~~Indicator Compounds (ICs)~~

Rationale for elimination:

- “Indicator” of/for what?
- ICs is too ambiguous

- **Design Compounds (DCs)**

Rationale for Acceptance:

- “Design” DCs (**DCs_design**) are compounds for use in applying the IAQP of Standard 62.1, specifically the mass balance equations
- “Test” DCs (**DCs_test**) are compounds for use in Standard 145.2 testing; **DCs_test** is a subset of **DCs_design**.
- Use of DCs is not ambiguous
- Charlene mentioned that members are cautioned and strongly advised not to use negative words (contaminants, pollutants, among others) in the title and naming of the “List”. The phrase “Design Compounds” is not negative.
- No meeting attendee voiced any negative or cautionary commentary relevant to the use of the phrase “Design Compounds (DCs)”.

- **10 :45-11 :55**

Design Compound (DCs): Current List & Methodology

Current List (as of January 21, 2018) of **DCs** (**DCs_test**; **DCs_design**) includes:

- (1) **toluene**,
- (2) **acetaldehyde**,
- (3) **ozone**, and
- (4) **PM 2.5**.

This list of 3 chemical molecules (**toluene**, **acetaldehyde**, and **ozone**) and a particle (**PM 2.5**) constitutes a total of 4 **DCs**. [Note: This list of 4 **DCs** reflects a formal vote, at this Meeting as described below, wherein acetaldehyde has replaced formaldehyde as a test compound (**DC_test**) compound, due to experiences of subject matter experts (present in the Meeting) that indicate that acetaldehyde is easier to test with than formaldehyde.] Formaldehyde will retain its designation as a Design Compound (**DC_design**).

Figure 1 is a representation of the TRG4’s efforts to develop two lists of **DCs**. The two lists are necessary to distinguish between the utility or application of the compounds in each list. The two lists are designated as:

- (1) Design Compounds (**DCs_design**) which are compounds (and exposure limits) utilized in the mass balance equations of Standard 62.1, and
- (2) Test Compounds” (**DCs_test**), which is a subset of the **DCs_design** compound list, and is a list of compounds that are studied in accordance with Standard 145.2 testing methods in order to experimentally (challenge-gas testing) obtain measured values of E_f .

The content in Figure 1 is an illustration or representation of the purpose/scope of the TRG4. The **DCs_design** compounds can be considered as a down-selection process a representation of the TRG4’s efforts to develop two lists of **DCs**.

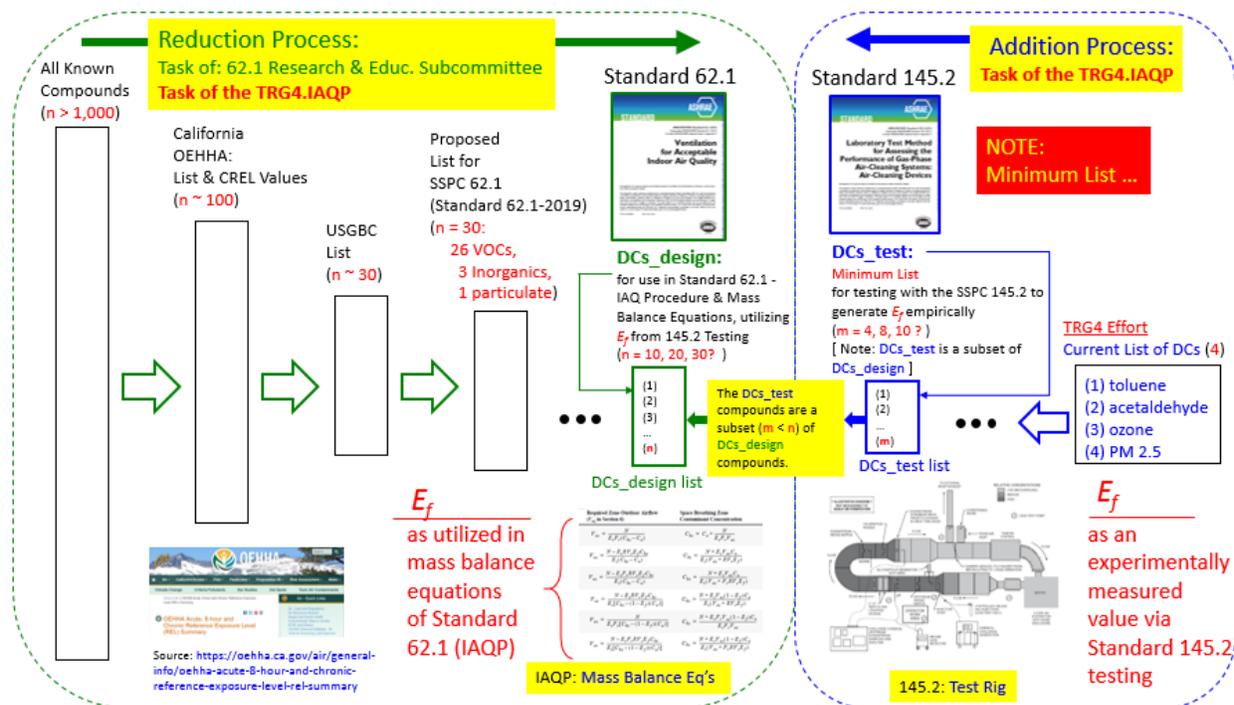


Figure 1. Representation of the initiatives of the TRG4 consisting of a down-selection effort (left-hand-side to middle in the figure) to identify Design Compounds (DCs_{design}) for application in the mass balance equations of the IAQ Procedure of Standard 62.1 and the creation (right-hand-side to middle) of Test Compounds (DCs_{test}) for application in testing in accordance with methods of test described in Standard 145.2.

[Note: This figure is subject to modification and editing, as TRG4 Members can/may edit it for accuracy and appropriateness.]

10:45 - 11:30: Meeting attendees divided into two groups and worked independently for 45 minutes. One group initiated the development of a current list of Design Compounds and the second group derived a current list of Test Compounds.

11:30 - 11:55: The two groups reassembled for the remaining 30 minutes of the Meeting. The Test Compound group identified 14 compounds (plus PM 2.5, for a total of 15) in a current list. The Test Compound list includes:

Single specie test compounds (14):

- (#1-10) acetone, ammonia, carbon monoxide, formaldehyde, hydrogen sulfide, methyl alcohol, nitrogen dioxide, ozone, phenol, sulfur dioxide (Source: Standard 62.1-2016 User's Guide, pg. 132),
- (#11) toluene (representative aromatic),
- (#12) tetrachloroethylene (representative chlorinated compound),
- (#13) limonene (representative cleaning agent), and

(#14) 1,3-butadiene (representative alkene).

The Rationale for this current list of DC_test is that it represents bioeffluents (ammonia, acetone, hydrogen sulfide), an alcohol (methanol), an aromatic (toluene).

- **Formal vote**

Topic/Title/Motion: **Vote formaldehyde off the DC_test list and replace it with acetaldehyde**

Motion made by: **Elliott Horner**

2nd: **Gemma Kerr**

Discussion:

- (1) Acetaldehyde is considerably easier to test with in the laboratory than formaldehyde.
- (2) Disseminate documentation that acetaldehyde is a good surrogate for the other aldehydes.

Vote:

For: **13** ; Against: **0** ; Abstain: **0** ; Absent: **0** ; Total: **13**

Motion: **Approved**, provided that there is shown evidence that acetaldehyde is an acceptable surrogate for the other aldehydes.

8. New Business

- Dean presented Figure 2. Figure 2 is one form of representing indoor air concentration data as a function of occupant types that are identified in Standard 62.1. Data in this form provide indoor air concentration (for formaldehyde) independent of ventilation rate, the presence/absence of gas filtration, among other independent variables, with redline values super-imposed. The data presented are an illustration only. There was insufficient time to discuss the merits of the content in the figure or any subset of the data as presented.

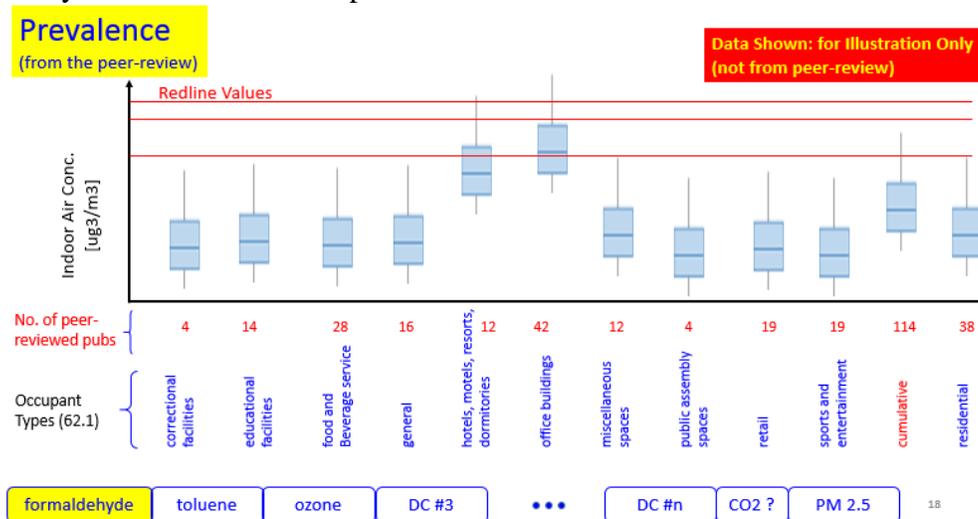


Figure 2. Representation of the indoor air concentration (of formaldehyde) as a function of occupant type (in Standard 62.1), with super-imposed red-line values. Data are shown are an illustration only. Data is a form of meta-analyses.

9. 11:57 – Meeting Adjournment

- Formal vote

Topic/Title/Motion: Vote to adjourn the Meeting.

Motion made by: Dean Tompkins

2nd: Marwa Zaatari

Discussion: None

Vote:

For: 13 ; Against: 0 ; Abstain: 0 ; Absent: 0 ; Total: 13

Motion: Approved. Meeting adjourned.
