



ASHRAE TC 3.1—Refrigerants and Secondary Coolants
American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
 Toronto, Ontario, CA & Virtual
 Hilton, Varley (C)
 2:30 – 4:30 p.m. EDT

| Name | Affiliation |
|---------------------------------------|-------------|
| Voting Members | |
| Dennis Dawe (2025) | CBRE |
| Lydia Dobler (2024) | Calumet |
| Josh Hughes (2025) | Chemours |
| Sarah Kim (2025) | Koura |
| Valerie Lisi – Research SC (2024) | Carrier |
| Julie Majurin – Chair (2023) | AHRI |
| Mark McLinden (2025) | NIST |
| Alice Riemer (non-quorum) (2023) | Danfoss |
| Rosine Rohatgi (2025) | Spauschus |
| Casey Scruggs – Standards SC (2024) | Metalloid |
| Marc Scancarello (2024) | Emerson |
| Steve Kujak – Webmaster (2022) | Trane |
| Samuel Yana Motta – Vice Chair (2025) | ORNL |
| Non-Voting Members | |
| Michael Petersen – Handbook SC | Trane |
| Chris Seeton – Programs SC | Koura |

Liaisons & Other:

William Dols - Section 3 Head
 CheeSheng Ow - RAC Liaison
 Michael Vaughn - ASHRAE Staff Liaison
 Eric Granzow - Handbook Liaison
 Theresa Weston - Standards Liaison

Virtual Meetings and Conference Log-in Information:

TC 3.1 Meeting – June 27th, 2022, 2:30 – 4:30 p.m. EDT Hilton, Varley (C)

Access Info:

Link for Attendees:

<https://ashrae.webex.com/ashrae/j.php?MTID=m6e597e18d66252e2192d479121eb00aa>

Join by phone 18662994153 United States of America Toll Free +14702385742 US Toll Access code:
 2346 704 4776

The schedule of all virtual meetings, technical program and registration can be found at

<https://www.ashrae.org/conferences/2022-annual-conference-toronto>

AGENDA

ASHRAE TC 3.1—Refrigerants and Secondary Coolants

TC 3.1 is concerned with all properties and functions of refrigerants and secondary coolants, including commercial and experimental materials.

If you would like to become a member of TC 3.1:

- Go to <http://tc0301.ashraetcs.org/>
- Click on 'Membership', then 'Join TC 3.1'. Follow the prompts and you will be added as a Provisional member.
- Provisional membership lasts for 2 years. To move from Provisional member status, please contact the TC chair prior to the Winter meeting, and she or he can move you to Corresponding member status.

1. CALL TO ORDER

- Introduction of members and guests
- Quorum determination – 13 voting members

2. ASHRAE CODE OF ETHICS

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 interest.

- <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>

3. ASHRAE COMMITMENT TO CARE

The health and safety of all ASHRAE conference attendees is a top priority. Out of respect for our fellow attendees, we commit to wear masks indoors, monitor our health, seek medical attention if symptoms develop and adhere to all [ASHRAE Commitment to Care](#) protocols. We are committed to the well-being of one another.

4. AGENDA REVIEW

5. MINUTES OF THE LAST MEETING (January 2022 Hybrid – Las Vegas)

6. ROSTER REVIEW AND ANNOUNCEMENTS

- Introduction of new members
- Changes

7. TC CHAIR'S MEETING REPORT

9. LIAISON COMMENTS (schedule may be adjusted)

10. SUBCOMMITTEE REPORTS

10.1 HANDBOOK (Michael Petersen)

Fundamentals Handbook – next update is for the 2025 publication.

- [Chapter 29 \(Refrigerants\)](#) – [Michael Petersen](#) (lead) with Ankit Sethi, Monika McNeil, and Harrison Skye as team members.
- [Chapter 30 \(Thermophysical Properties of Refrigerants\)](#) – [Mark McLinden](#) (lead) with Clair Skae supporting.

- Chapter 31 (Physical Properties of Secondary Coolants) – Keegan Yaroch (lead) with Mary Koban and Henna Tangri supporting.

10.2 PROGRAMS (Chris Seeton)

Programs at this meeting

- Monday, June 27, 2022, 8:00 – 9:30 a.m. EDT – Conference Paper Session 8: Refrigerants and HX Research
Sheraton Centre Toronto, Osgoode (LC)

Previous Program ideas

- New Low GWP Refrigerant Candidates to Meet Upcoming Regulation Timelines
- Hot Topics for Secondary Coolants (Brines)
- Emerging Low GWP Refrigerant Innovations and Technologies

New Program ideas

- Feedback from TC 3 Combined Programs Virtual Meeting on 6/21/2022
- New Program ideas from the TC

10.3 RESEARCH (Valerie Lisi)

- Research Subcommittee Chair's Meeting Report
- Current/Ongoing Research Activities

| Number | Title | Contributors | Status/Action |
|---------|---|---|--|
| 1791-WS | Humidity Effects on Burning Velocity | Julie Majurin, Mary Koban, David Grundy | <i>Need feedback on whether or not this is still needed/of value</i> |
| 1797-WS | Assessment of the A/B Toxicity Classification Used in Standard 34 | Gary Jepson | <i>In the queue for bid</i> |
| 1851-WS | Electrical Properties of New Refrigerants | Ivan Rydkin, Josh Hughes | <i>Needs a TC vote at this meeting</i> |
| ? | Incorporation of Odorants in Refrigerants to Improve Leak Detection – Phase 2 | Marc Scancarello | <i>A new proposal has been drafted</i> |
| RTAR? | Re-evaluate Calibration of 200L to 12L Flammability Limits for Borderline Cases | Greg Linteris, Ivan Rydkin, Ryan Hulse, Julie Majurin | <i>Needs a TC vote at this meeting</i> |
| RTAR? | Hot Surface Ignition Temperature | Mary Koban, Bob Low | <i>Needs a TC vote at this meeting</i> |
| Paper | Quenching Distance Research Paper (Translation from Japanese) | Kenji Takizawa | <i>Paper has been posted to Basecamp</i> |
| Paper | Constant Volume vs Constant Pressure Research Paper (Translation from Japanese) | Kenji Takizawa | <i>Paper has been posted to Basecamp</i> |

- New Research ideas
 - There will possibly be a need for follow-up research after the report for Research Project 1855 is issued; it is expected that 4 or 5 different recommendations will be made for additional work; the TC recommendation at the last meeting was to wait for publication of the report and then to discuss further.
 - Feedback from TC 3 Combined Research Virtual Meeting on 6/21/2022

- ASHRAE research to supplement above research from Kenji for applicability to std. development or electrical codes
- Investigating the WCFF methodology in Standard 34 and relevance to actual applications
- New Research ideas from the TC

10.4 STANDARDS (Casey Scruggs)

- ANSI/ASHRAE Standard 34 (Designation & Safety Classification of Refrigerants) – Steve Kujak/Sarah Kim
- ASHRAE Guideline 6 (Refrigerant Information Recommended for Product Development and Standards) – Lauren Huffman (Chris Seeton, Casey Scruggs, Steve Kujak, Rosine Rohatgi, Dennis Dawe, Sheli Porter)
- ASHRAE Guideline 39 (Method of Test for Measuring Fractionated Compositions of Refrigerant Blends) – Ankit Sethi (Josh Hughes, Rosine Rohatgi, Julie Majurin, Sarah Kim, Dennis Dawe)
- New Standard ideas from the TC
 - It was suggested at the last meeting to consider a method of test for flammability that would be separate from ASHRAE 34. This could include testing for the LFL as well as burning velocity. It was noted that ISO has a group that was tasked with developing burning velocity test methods, but limited progress has been made. A new chair is needed for that ISO group; Bob Low was recommended as a possible replacement.

11. WEBSITE (Steve Kujak)

- <https://tc0301.ashraetcs.org>

12. OLD BUSINESS

- Basecamp – TC 3.1 site has been set up
<https://3.basecamp.com/3106353/projects/10584516>

13. NEW BUSINESS

14. NEXT MEETING

- Atlanta, Georgia – February 6, 2023

15. ADJOURNMENT