



1791 Tullie Circle, N.E./Atlanta, GA 30329

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**DRAFT**

**TC/TG/MTG/TRG MINUTES COVER SHEET**

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG No. 3.2 DATE February 1, 2021

TC/TG/MTG/TRG TITLE Refrigerant System Chemistry and Contaminant Control

DATE OF MEETING January 26, 2021 – 3:30 to 6:00pm (EST) LOCATION Virtual Meeting

Name	Affiliation	Participation
<b>Voting Members</b>		
Joe Karnaz - <b>Chair</b>	Shrieve	Present
Elyse Sorenson – <b>Vice Chair</b>	Trane	Present
Steve Baker - <b>Secretary</b>	Emerson	Present
Rob Yost - <b>Standards</b>	National Refrigerants	Present
Greg Smith - <b>Handbook</b>	Honeywell	Present
Ivan Rydkin - <b>Handbook</b>	Daikin	Present
Dave Vincent - <b>Webmaster</b>	BVA	Present
Casey Scruggs - <b>Research</b>	Metalloid	Present
Julie Majurin	AHRI	Present
Roberto Urrego	Lanxess	Present
Rosine Rohatgi	Spauschus	Present
Jian Sun-Blanks	Chemours	Present
Sarah Kim	Arkema	Present
John Senediak	Intertek	Present
Valerie Lisi	Carrier	Present
Danny Halel	NTHALP Engineering	Absent
Justin Allemann	Parker Hannifin	Absent
<b>Non-Voting Members</b>		
Brad Boggess - <b>Programs</b>	Emerson	Present
Tony Barthel - <b>Research</b>	CPI	Present
Marc Scancarello – <b>MTG Low GWP</b>	Emerson	Present
Chris Campo - <b>ALI</b>	Shrieve	Present
<b>DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:</b>		
TAC Section Head: Stuart Dols	SH3@ashrae.net	
All Committee Liaisons As Shown on the TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	Steve Kujak – Research Don Fenton – Standards	
Mike Vaughn, Manager of Research & Technical Services	MORTS@ashrae.net	

**Note: These draft minutes have not been approved and not the official, approved record until approved by the TC.**

### Minutes – TC 3.2 Refrigerant System Chemistry and Contaminant Control

#### 1) Call to Order – Joe Karnaz

Chair Joe Karnaz called the meeting to order at 3:30 pm on Tuesday, January 26, 2021. In response to COVID 19 pandemic, ASHRAE exercised abundant caution and replaced “in-person meetings” with virtual meetings conducted online using the Zoom web application. Guests were recognized and welcomed. All meeting participants were invited to sign in using the Chat function to provide their name and email address.

2) **ASHRAE Code of Ethics** – Chair Joe Karnaz shared with all members and guests the Code and that it is to be adhered to whenever at an ASHRAE meeting.

3) **Confirmation of Quorum** - In lieu of self- introductions, a roll call of the voting members was taken and a quorum was confirmed with 15 of 17 voting members present.

Originally, 18 voting members were on the roster. Knut Petry was the Non-Quorum member and due to the merger of TC3.2 and TC3.3, he and Valerie Lisi also of Carrier were voting members of the newly merged TC3.2 Knut Petry agreed to roll off, making Valerie Lisi the voting member from Carrier.

#### 4) Approval of Agenda

**MOTION #1:** to approve the 2021 Winter meeting agenda was made by Roberto Urrego and seconded by Greg Smith. Motion passed 14-0-0 CNV.

#### 5) Approval of 2020 Annual Virtual Meeting Minutes

**MOTION #2:** to approve the 2020 Summer Austin virtual minutes for TC3.2 and TC3.3 with the recommended change to the title of RP1855 as Determination of the Impact of Combustion Byproducts Hydrogen Fluoride (HF) and Carbonyl Fluoride (COF2) on the Safe Use of Flammable Fluorinated Refrigerants was made by Julie Majurin and seconded by Roberto Urrego. Motion passed 14-0-0 CNV.

#### 6) Report on TC 3.0 Chair Breakfast Meeting – Joe Karnaz

- Stuarts Dols is the new Section 3 Head and was welcomed to the team.
- ASHRAE continues to emphasize the need for TC rationalization, TC merger discussions continue, each TC is asked to review and confirm their continuation each society year.
- Rollover rosters for the 21-22 society year are due January 26.
- ASHRAE is encouraging TCs to have interim meetings throughout the year and TAC will maintain a listing of these meetings on the webpage, [www.ashrae.org/technical-resources/technical-committees](http://www.ashrae.org/technical-resources/technical-committees)
- CEC is always looking for TC support in identifying people for potential Technical Session Chairs and reviewers of Technical Sessions. If interested, please contact your TC Chair.
- ASHRAE is still planning face-to-face meeting in Phoenix, June 26-30, 2021. Seminar and forum proposals were due Monday, February 8, 2021. Information for the Annual Meeting in Phoenix is as follows
  - **PHOENIX Annual Conference – June 26-30, 2021**
  - Conference Website: <https://www.ashrae.org/phoenix>
  - Conference Program Chair: Christine Reinders

- Program Focus
  - Track 1: Fundamentals and Applications – Sonya Poucy
  - Track 2: HVAC&R Systems and Equipment – Rupesh Iyengar
  - Track 3: Research Summit – Kristin Cetin
  - Track 4: Professional Development – Marites Calad
  - Track 5: Design, Control, and Operation of Critical Environments – Raul Simonetti
  - Track 6: HVAC&R for Indoor Plants and Animals – Ryan MacGillivray
  - Track 7: Future Proofing – Renewable, Regenerative, and Resilient – Andy Cochrane
  - Track 8: Hot, Hot, Hot – Nohad Boudani
  - Track 9: (mini-track) to be announced – TBD

## 7) Liaison Comments:

- Stuart Dols introduced himself as the new Section 3 Head. Presented and reviewed the TC Evaluation Process and Form. Primary focus of the evaluation is to assess the effectiveness of TCs and for consideration as part of the current reorganization process. This form is to be completed during the main Winter TC meeting. Encouraged those meeting attendees who may not be that familiar and those interested to visit ASHRAE’s website for information on Technical Committees.
- Chee Sheng Ow, RAC, introduced himself and updated the meeting participants.
- Matt Archey, CTT RVC, Region III, introduced himself and shared ASHRAE’s Scopes of ASHRAE via a link in the meeting’s chat area.

## 8) Sub-Committee Reports

### Programs – Brad Boggess

- Introduced following seminars scheduled for ASHRAE Winter 2021 meeting and encouraged meeting participants to attend/playback (prerecorded sessions)
  - Seminar 43: Current Understanding and Gaps of Stability and Compatibility of Low GWP Refrigerants (PRE-RECORDED)
  - Seminar 8: Lubricant Properties and Their Lubrication in Compressor with Low GWP Refrigerants (LIVE session)
  - Seminar 57: Hot Topics for Secondary Coolants (Brines) (PRE-RECORDED)
- Reviewed Combined TC3 Program meeting held Monday, January 25, 2021
  - No new ideas.
  - Discussed with TC3 chairs planning a mini-track for Winter 2022 meeting in Las Vegas, Brad to coordinate with TC3 chairs.
  - At TC3.4-Lubricants mtg on 1/26, idea for a seminar for ASHRAE Summer 2021 meeting in Phoenix was proposed regarding low temperature COVID19 storage conditions to be led by Chris Campo/Chris Seeton. Abstracts due 2/15/2021. Working title is “Working Fluids and Application Considerations for Low Temperature Refrigeration” with topic ideas such as Contaminants, Conditions at low temperature – flocculation concerns, ice buildup, resilience of o-ring seals.

**MOTION #3:** TC3.2 to co-sponsor with TC3.4 a seminar for summer ASHRAE Phoenix meeting titled “Working Fluids and Applications Considerations for Low Temperature Refrigeration”. Motion made by Julie Majurin and seconded by Rosine Rohatgi. Motion passed 14-0-0 CNV.

## Handbook – Greg Smith, Ivan Rydkin

- Greg Smith reported chapter 6 has been reviewed and suggested edits are underway. Plan to submit for a vote at the ASHRAE Summer Phoenix meeting. Greg agreed to stay as Handbook Chair to see this update completed.
- Ivan Rydkin reported chapter 7 review is complete. Update and edits were minor; red-line version sent to Joe Karnaz. Ivan proposed removal of R11 and R12 data from print version (data would remain available in online version); Rob Yost recommended R11 and R12 data remain in print version for another update cycle as there remains a fair amount of field activity with R11 and R12 (retrofits). Decided to leave R11 and R12 data in chapter 7 for another cycle.

## Standards - Rob Yost

- GPC 38 – Metal Pressure Vessel Method to Test Materials Used with Refrigeration Systems
  - 5 year review cycle due in 2021. References out of date, Rob recommended to reaffirm standard with outdated references.  
**MOTION #4:** Reaffirm GPC 38 as is. Motion made by Julie Majurin and seconded by Roberto Urrego. Motion passed 14-0-0 CNV.
- SPC 97 – Sealed Glass Tube Method to Test for Chemical Stability of Materials for Use Within Refrigerant Systems
  - Chris Seeton – Chair reported final edits are being made.
- SPC 35 – Method of Testing Desiccants for Refrigerant Drying
  - New project, Amber Saylor is the chair. No update.
- SPC 63.2 – Method of Testing Liquid Line Filter Drier Filtration Capacity
  - No action required.
- SPC 78 – Method of Testing Flow Capacity of Suction Line Filters and Filter Driers
  - No action required.
- SPC 219 – Method of Testing Acid Filters
  - John Senediak reported final draft is scheduled for review on Monday, February 1, 2021.

## Research – Casey Scruggs, Tony Barthel

### Tony Barthel

- **RTAR 1856** – “Determine the Effect and Allowable Limits of Moisture and Contaminants in CO<sub>2</sub> Systems” Ivan Rydkin reported Work Statement is needed and is due August 2021. Due to limited funding, this project may be paused.
- **WS 1790** – “Distribution of Water between Vapor and Liquid Phases of Low GWP Refrigerants” RAC conditionally approved last October with request for clarification. Project also on hold pending funding.

### Casey Scruggs

- **RTAR 1886** – “Kinetic and Mechanistic Studies of the Breakdown of HFO Refrigerants” Elyse Sorenson reported the Work Statement is complete.
- **RTAR 1897** – “HFO Refrigerant Compatibility with AGED Lubricants and Contaminants” Joe Karnaz reported the Work Statement is being edited to address received comments.

Research Chair meeting has not taken place yet. Minutes of meeting will be forwarded when available.  
New Ideas:           None.

**Webmaster – Dave Vincent**

- TC3.3 minutes posted.
- Chair Joe Karnaz requested TC3.3 minutes from the last 5 years be posted in TC3.2 Elyse Sorenson will forward the TC3.2 minutes for Dave to post on the website.

**9) MTG Lower GWP Refrigerants - Marc Scancarello**

- Last MTG meeting was November 5, 2020.
- Research
  - RP1884 - *Incorporation of Odorants in Flammable Refrigerants*. Work statement approved. Project is on hold; however, meeting next week to select contractor to conduct ASHRAE97 testing.
  - RP1806 - *Flammable Refrigerants Post Ignition Simulation and Risk Assessment*. Pilot study is underway.
  - RP1855 - *Determination of the Impact of Combustion Byproducts Hydrogen Fluoride (HF) and Carbonyl Fluoride (COF<sub>2</sub>) on the Safe Use of Flammable Fluorinated Refrigerants*. Final report submitted to PMS for review.
- Standards
  - UL60335-2-40 – Update released January 2022.
  - UL60335-2-89 – Update expected 3<sup>rd</sup> quarter of 2021.
  - ASHRAE 15, 15.2 harmonization with UL 60335-2-89 delayed until 2024.
- Chris Seeton reported in the current COVID19 Relief OmniBus bill, plans and guidelines for converting and adopting low GPW refrigerants, schedules, and state adoption are part of the bill.

### 10) Membership – Joe Karnaz

- TC3.2 roster updates due February 8<sup>th</sup> to ASHRAE.
- Current roster has 17 voting members

<b>Name</b>	<b>Term</b>
Joe Karnaz - <b>Chair</b>	2023
Elyse Sorenson – <b>Vice Chair</b>	2022
Steve Baker - <b>Secretary</b>	2021
Rob Yost - <b>Standards</b>	2021
Greg Smith - <b>Handbook</b>	2024
Ivan Rydkin - <b>Handbook</b>	2024
Dave Vincent - <b>Webmaster</b>	2021
Casey Scruggs - <b>Research</b>	2023
Julie Majurin	2023
Roberto Urrego	2021
Rosine Rohatgi	2022
Jian Sun-Blanks	2022
Sarah Kim	2021
John Senediak	2022
Valerie Lisi	2022
Danny Halel	2021
Justin Allemann	2024

- The new TC is at the maximum number of voting members of 18.
- For 2021, 6 voting members will roll off. All 6 will probably not be replaced to help with achieving a quorum.
- (2) TC3.2 members have requested to roll on as voting members and will be added.

### 11) Old Business – Joe Karnaz

- Revisited the topic of having vice-chairs for each of the sub-committees. ASHRAE doesn't formally allow but TC3.2 could adopt the use of vice-chairs on an informal basis. Advantages of having vice-chairs for sub-committees are
  - Provide mentorship/training for new members interested in TC leadership by experienced subcommittee chairs
  - Serve as a backup in the event the chair is unavailable
  - Vice chair would roll on as the chair after a period time, i.e. 2 years, and new vice chair would be named. Eliminates the "forever" chair practice that is prevalent.
- Sub-committee chairs going forward in combined TC3.2 are
  - Programs – Brad Boggess
  - Research – Casey Scruggs
  - Standards – Rob Yost (one more cycle!)
  - Handbook – Ivan Rydkin.
  - **Shelby Kent volunteered to be Vice-Chair where needed(Thank you!)**
- New MTG titled, RAC Plant Assessments, revisited. This MTG will coordinate and oversee the creation of an ASHRAE/UNEP Guide for Refrigeration and Air-Conditioning (RAC) Plant Assessments.
  - This MTG requested representation from TC3.2 again – previous TC3.2 representative is no longer active in this TC.

- Feedback of how TC3.2 can contribute was requested of this MT with minimal response received.
- Ed Hessel shared the MTG's scope and impact on TC/TG/TRGs from MTG Proposal dated April 10, 2019.
- Rashid Zakeri, Circle Presco, volunteered to be the TC3.2 representative to this MTG. Thank you!

**12) New Business – Joe Karnaz**

No new business was brought before the committee.

**13) Adjournment – Joe Karnaz**

The meeting was adjourned at 5:15pm through a motion by Dave Vincent.

Respectfully submitted,

Steven Baker – Secretary