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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. 3.4 DATE June 17, 2021

TC/TG/MTG/TRG TITLE Lubrication

DATE OF MEETING June 16, 2021 LOCATION Virtual

| MEMBERS PRESENT | YEAR APPTD ENDS | MEMBERS ABSENT | YEAR APPTD ENDS | EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE |
|-----------------|-----------------------|-------------------|-----------------------|--|
| Greg Smith | 2022 | Danny Halel | 2021 | Scott Wujek – Research Subc |
| Joe Karnaz | 2024 | Ivan Rydkin | 2022 | Chris Campo – Programs Subc |
| Rosine Rohatgi | 2021 | Ed Hessel | 2023 | Casey Scruggs – Handbook Subc |
| Sarah Kim | 2021 | | | Sheli Porter – Standards Subc |
| Steve Kujak | 2022 | | | Stuart Dols – Section Head |
| Rob Yost | 2023 | | | |
| Julie Majurin | 2023 | | | |
| Raymond Drost | 2024 | | | |
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DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:

| | |
|---|---|
| TAC Section Head: William Dols | SH3@ashrae.net |
| All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.) | Chee Sheng Ow – Research Theresa Weston – Standards Frederick Betz – Handbook |
| Mike Vaughn, Manager of Research & Technical Services | MORTS@ashrae.net |

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

Minutes – TC 3.4 Lubrication

Call to Order – Greg Smith

Greg Smith called TC 3.4 meeting to order at 1 pm EST on June 16, 2021 via Virtual Zoom Conference Call. Participates were asked to sign in with name, affiliation and email address using the Zoom Chat function.

Voting members introduced themselves. A quorum was established with 8 of 11 members present.

The Chair reviewed the ASHRAE Ethics Statement.

A quick review of the agenda was made.

Approval of 2021 Annual Virtual Meeting Agenda and 2021 Winter Virtual Meeting Minutes

A motion was made by Joe Karnaz to approve the Annual Virtual Meeting agenda as written, the motion was seconded by Rosine Rohatgi, the motion carried 7-0-0(CNV).

A motion was made by Steve Kujak to approve the 2021 Winter Virtual Meeting minutes as written, the motion was seconded by Ray Drost, the motion carried 7-0-0(CNV).

A review of the roster was made, (year voting term ends).

| Current Voting | Current Management Team |
|-----------------------|----------------------------|
| Raymond Drost (2024) | Greg Smith – Chair |
| Joe Karnaz (2024) | Casey Scruggs – Vice Chair |
| Ed Hessell (2023) | Joe Karnaz - Secretary |
| Julie Majurin (2023) | Scott Wujek – Research |
| Rob Yost (2023) | Chris Campo – Programs |
| Steve Kujak (2022) | Casey Scruggs – Handbook |
| Ivan Rydkin (2022) | Sheli Porter – Standards |
| Greg Smith (2022) | Dave Vincent – Webmaster |
| Rosine Rohatgi (2021) | Joe Karnaz – Low GWP MTG |
| Sarah Kim (2021) | Danny Halel – Low GWP MTG |
| Danny Halel (2021) | Scott Wujek - ALI |

New voting members that will roll on July 1st are Casey Scruggs; Dave Vincent; Sheli Porter. Voting members rolling off are Rosine Rohatgi, Sarah Kim and Danny Halel.

The Chair mentioned an issue when he tried to add Steve Baker as voting member; Since Steve is still interested in becoming a voting member Greg will look into ways to add.

TC Chair Breakfast – Greg Smith

- TC Reaffirmation will once again be necessary – will be on agenda for Winter 2022 meeting
 - Also necessary for TG, TRG, MTG
- TAC (Technical Activities Committee) has a new “Open Mike” Policy to allow membership to have a voice – TAC meets the Saturday before the conference and Wednesday after the conference – if you would like time to speak, email ASKTAC@ASHRAE.net for a 3-minute slot – can also be used for any TAC questions/comments
- There were 6 nominations for the Hightower Award this year – nominations for next year are due September 1st. The award recognizes outstanding technical leadership and contributions on a TC/TG/TRG during the past four years, excluding research and standards activities.
- 2021-2022 Roster Rollover – updated rosters are late from ASHRAE HQ, so what you see online is likely not up-to-date – once the roster is received from ASHRAE, TC 3.4 Leadership will make any necessary changes
- TC re-org update – so far 5 TC mergers have been approved (including 3.2 & 3.3) and more are in the works
- TC Program Subcommittee Chair Training is available tomorrow, Thursday June 17, 2021 at 12:00pm-1:00pm EDT – see program for access
- TC Research Subcommittee Chair Training will be scheduled for later in summer or fall 2021
- TC Handbook Subcommittee Chair Training took place Friday June 4, 2021
- This Conference, which was meant to be in Phoenix, is virtual – Programs are June 26 – June 30, 2021. For more information, go to <https://www.ashrae.org/phoenix>
- ASHRAE is planning for face-to-face meeting in Las Vegas, NV, January 29 – February 2, 2022. Seminar and Forum proposals are due by Monday, July 12, 2021. Please visit the following site to submit your proposal: For more information, go to: www.ashrae.org/lasvegas.

Here's the deadlines:

Monday, April 12, 2021: Conference Paper Abstracts, Technical Papers Due
Friday, April 30, 2021: Conference Paper Abstract Accept/Reject Notifications
Friday, June 18, 2021: Website Opens for Program Proposals
Monday, July 12, 2021: Conference Papers Due
Friday, August 6, 2021: Revised Conference Papers/Final Technical Papers Due
Monday, August 23, 2021: Conference Paper Accept/Revise/Reject Notifications_

Liaisons

Stuart Dols (TAC Section Head) – Stuart commented on the chairs breakfast and deadline for submitted documents; please let Stuart know if anyone has any issues or questions and he thanked the committee for the good work we do.

Chee Sheng Ow (Research) – Chee had nothing new to add to our discussion beyond what was discussed at our Section 3 meeting that he attended.

Subcommittee Reports

Research – Scott Wujek

The combined Section 3 research subcommittee meeting took place on June 9th via a Zoom conference call. Ideas generated at that meeting will be discussed in the individual TC meetings.

- Status of current projects were discussed at the Section 3 meeting
- No new research ideas were generated at the meeting

Projects –

RP 1879 “Foaming Properties of Low GWP Refrigerant and Oil Mixtures” – Ivan Rydkin Chair; Since this project hit at the wrong time of Covid and reduction of research spending dollars it is in a holding pattern. A contractor was chosen but has not been awarded to move forward. Scott Wujek suggested that he and Chee Sheng Ow have a meeting with Mike Vaughn to discuss the next steps. Ivan could also be involved in these discussions.

RP 1721 “Oil Return and Retention in Unitary Split Gas Lines with HFC and HFO Refrigerants”. This is sponsored by TC 8.11 Unitary and Room Air Conditioners and Heat Pumps; TC 3.4 is a co-sponsor with Chris Seeton as our representative. Purdue University is the PI. The work is on-going but behind schedule. The graduate student working on this project is set to graduate and is trying to complete as much work before leaving. The project will be transferred to another person to finish up. Timetable for completion has not been established.

RTAR 1891 “Tribological Interaction Data with Lubricants and Refrigerants”. Elyse Sorenson is the chair. The group will get together to try and complete the needed documents by the deadline which is December 15th, 2021.

Other research ideas previously discussed remaining in the minutes:

- Preferential solubility of high glide refrigerant blends and lubricants – system effect of fractionation. No volunteers have stepped forward to write the RTAR.
- Investigate Alternatives for R-12 in Standard 86. This is still under consideration; Chris Campo has done some investigation, will continue evaluation and report at next meeting to see the need to keep this as a project.
- Electrical Properties of Lubricant-Refrigerant mixtures, extension of TC 3.1 refrigerant electrical property work. We will wait to see how TC 3.1 moves on this project before we decided if follow-up work with lubricants is needed.
- Identify gaps for research work which may be needed around lubricants and retrofit scenarios with low GWP refrigerants. Julie Majurin volunteered to investigate. It was brought up that TC 3.2 is working on RTAR 1897 that has some similarities. TC 3.4 has already voted to co-sponsor so will see if this covers the needs of what was being proposed for TC 3.4 research.

Program – Chris Campo

Section 3 Programs Subcommittee meeting took place on June 9th via a Zoom virtual meeting. Ideas generated at that meeting will be discussed in individual TC meetings.

TC 3.4 is sponsoring a program at this Annual Virtual Conference; Seminar 79: Working Fluid and Application Considerations for Low Temperature Refrigeration, chaired by Chris Campo; Speakers are Chris Seeton from Shrieve and Wayne Zhang from Thermo Fisher. This is an on demand session that can be viewed at anytime.

Section 3 groups are planning on having a program for the 2022 Winter Meeting in Las Vegas under the Refrigerants and Refrigeration Track which is being coordinated by Brad Boggess. Discussion at the TC 3.4 winter meeting came up with the topic of lubricants for new Low GWP refrigerants for these combined Section 3 sessions and the title “Lubricants for New Low GWP Candidates with Emphasis on Natural Refrigerants” was suggested. To date only one speaker has stepped forward. Greg Smith said he would chair this session and help Chris Campo on getting additional speakers. Anyone interested should contact Greg or Chris.

A motion was made by Joe Karnaz to have a seminar for Las Vegas titled “Lubricants for New Low GWP Candidates with Emphasis on Natural Refrigerants” chaired by Greg Smith, the motion was second by Julie Majurin; the motion carried 7-0-0(CNV)

A list of future ideas generated from previous discussions will remain on the list.

- Estimating Accelerated Chemical Stability Using Equipment Operation
- Thermal, Chemical and Materials Compatibility of Refrigerants and Lubricants Through the Years
- A future program around Lubricants for Natural Refrigerants was suggested.
- Current State of Lubricant and Refrigerant Properties

Handbook – Casey Scruggs

The handbook committee consisting of Casey Scruggs, Brad Boggess, Elyse Sorenson, Chris Seeton and Amber Saylor finished their review of Chapter 12. They are recommending that no changes be made to this cycle but to start working on a lead-in to introducing HFO based data into the chapter by starting with the addition to the electronic version by the end of the year. Additional volunteers were asked for this task and Rashid Zakeri, Chris Campo, Mandi Lippard and Shelby Kent volunteered. With extra help there is possibility that some of this work can be done for submission before the July deadline for the current chapter cycle.

Standards – Sheli Porter

Standard 86 “Methods of Testing the Floc Points of Refrigeration Grade Oils” – This standard is being revised by the committee being chaired by Brad Boggess. No new updates were given at this meeting.

GPC 40 “Refrigeration Oil Description” – Scott Wujek is the chair and the committee had their first meeting on June 8th with good committee attendance. Members read through the standard, made comments, and created action items. The tentative plan is to meet a few more times and have the standard revision completed by the end of the year.

Standard 172 “Method of Test for Insoluble Materials in Synthetic Lubricants and HFC Refrigerant Systems”. A committee has been established with balance; Ed Hessel (Chair), Joe Karnaz, Brad Boggess, Elyse Sorenson, Rosing Rohatgi and Scott Wujek. Ed Hessel was not at this meeting but provided an update to the Chair; the TPS is approved and working on changing the section on adding refrigerant to the glass tube and then sending updates to the committee for comments to continue moving forward.

SPC 218 “Method of Test for Lubricant and Refrigerant Miscibility Determination”– No action is needed at this time.

There was some discussion on TC 3.4 role in Guideline 6 revision when it comes up. TC 3.1 is working on this and Lauren Huffman is leading. Lauren has started the committee and looking at work to be done. Other volunteers were encouraged to contact Lauren if they are interested in being a part of this group.

MTG Update –Low GWP Lower Alternative Refrigerants – TC 3.4 Represented by Joe Karnaz and Danny Halel

MTG Low GWP met on April 1st, 2021. Discussions related to Section 3 activity included:

RP-1774 White paper on Odorants in Flammable Refrigerants is completed with report. RP-1884 is an extension of RP-1774 listing odorant candidates to be tested. Contractor selected and Phase 1 was to begin April 2021 and anticipated to take 90 days.

RP-1855 Determination of the Impact of Combustion By-Products on the Safe Use of Flammable Fluorinated Refrigerants is in progress and anticipated to be completed in first half of 2021.

TRP-1879 the TC 3.4 project on Foamability Properties of LGWP Refrigerant and Oil Mixture was discussed.

Programs based on a list of recent research projects and standards work was discussed for the program in Las Vegas.

Webmaster – Dave Vincent

The website is up to date. Joe Karnaz mentioned in his investigation of looking at other TC websites that TC 3.4 and TC 3.2, both of which have Dave as the webmaster, are towards the top in keeping the website up to date. This shows the commitment of our committees and people.

Old Business – Greg Smith

No old business.

New business – Greg Smith

No new business.

Next meeting

2022 ASHRAE Winter Meeting in Las Vegas

Adjourn – Greg Smith

The chair closed the meeting at 1:50pm through a motion by Joe Karnaz to adjourn.