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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 August 13, 2018

TC/TG/MTG/TRG TITLE Lubrication

DATE OF MEETING June 26, 2018 LOCATION Houston, TX

MEMBERS PRESENT	YEAR APPTD ENDS	MEMBERS ABSENT	YEAR APPTD ENDS	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Chris Seeton	2018	Steve Spletzer	2020	
Roberto Urrego	2019	Danny Halel	2021	
Dave Vincent	2018	Sarah Kim	2021	
Rob Yost	2018	John Senediak	2020	
Julie Majurin	2018			
Sonny Sundaresan	2018			
Rosine Rohatgi	2021			
Greg Smith	2020			

**DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:**

TAC Section Head: Jay Kohler	SH3@ashrae.net
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	Steve Kujak – Research Niels Bidstrup - 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 3.4 Lubrication

**Call to Order – Chris Seeton**

Chris Seeton called TC 3.4 meeting to order at 1:30 pm on June 26, 2018 in Houston at the Hilton Americas Grand K 4<sup>th</sup> Floor. Members and guests introduced themselves. Guests were welcomed and invited to participate. A sign-up sheet was circulated. The Chair reviewed the ASHRAE Ethics Statement.

A quorum was established with 8 of 12 members present.

A quick review of the agenda was made.

**Approval of 2018 Summer Meeting Agenda and 2018 Chicago Meeting Minutes**

*A motion was made by Julie Majurin to approve the agenda for today's meeting in Houston, the motioned was seconded by Dave Vincent, the motion carried 7-0-0-5(CNV).*

*A motion was made by Rob Yost to approve the Chicago minutes as written, the motioned was seconded by Rosine Rohatgi, the motion carried 7-0-0-5(CNV).*

A review of the roster was made.

New management team effective July 1, 2018.

Scott Wujek – Chair  
Greg Smith – Vice Chair  
Joe Karnaz – Secretary  
Greg Smith – Research  
Joe Nigro – Program  
Casey Scruggs - Handbook  
Sheli Porter – Standards  
Dave Vincent – Webmaster  
Joe Karnaz – Low GWP TC Liaison

Voting Members:

Scott Wujek	Rosine Rohatgi
Greg Smith	Ivan Rydkin
Joe Nigro	John Sendiak
Danny Halel	Steve Spletzer
Sarah Kim	Roberto Urrego
Steve Kujak	

**TC Chair Breakfast – Chris Seeton**

- Nomination for the next High Tower Award is being taken and is due September 1<sup>st</sup>.
- Comments were made about improper use of the ASHRAE letterhead.
- There will be some changes to how the minutes are distributed.
- Program Sub-Committee Chair training is available.

- Deadline for Atlanta programs is August 3<sup>rd</sup>.
- The Atlanta conference will have a Refrigeration Track.

### **Liaisons**

Jay Kohler – TAC Section 3 Head – Jay discussed how the Section Head is here to assist the TC and thanked the TC for their work. Jay will be rolling off as Section 3 Head and the committee thanked Jay for his commitment and efforts advancing section 3. Craig Messmer will be the incoming Section 3 Head.

Chris Seeton will be rolling off as Chair of TC 3.4 and Jay presented Chris with his Chair Certificate and joined the rest of the TC in a round of applause.

Steve Kujak – RAC Liaison – Steve commented on the number of projects approved at the RAC meetings. Some changes will be made to the RTAR submission to include a plain word abstract section, the new form will be available shortly. Comment was also made on utilizing the ASHRAE Basecamp Site for collaboration.

### **Subcommittee Reports**

#### **Research – Greg Smith**

RTAR 1728 “Development of a Model for the Prediction of Oil/Refrigerant Mixture Properties of Low GWP Refrigerants and Synthetic Oils”. Steve Kujak and Ken Schultz will rework this RTAR and let the sunset date of July 1<sup>st</sup> for original submitting date pass then will send in.

“Physical Property Measurements of HFO/Lubricant Mixtures” based on an old RTAR submission. Discussion regarding this RTAR – a number of years have passed since this was brought up and there is potential data in the industry that might be donated for this work, so it was decided to drop this idea.

Work Statement 1721 – Oil Return and Retention in Unitary Split Systems Gas Lines with HFC and HFO refrigerants. TC 3.4 is a cosponsor of this work and is sponsored by TC 8.11. The principal investigator is Purdue University and delay is still expected to 2020 for results. They are trying to get some systems up and running and have been provided lubricants of different viscosity grades for the work.

A RTAR has been proposed named “Foaming Properties of Low GWP Refrigerant and Oil Mixtures”. Minor edits were requested by RAC including addition of Go/No Go gates and better definition. The content of the RTAR did not change and a request was made for the TC to vote on the updated version.

*A motion was made by Greg Smith to approve the updated version of the RTAR, the motioned was seconded by Rob Yost, the motion carried 7-0-0-5(CNV).*

RP1774 “Effects of System Chemicals Towards the Breakdown of Lubricants and Lower GWP Refrigerants” is cosponsored by TC 3.4. This work has been finalized.

Effect of Lubricant and Refrigerant Mixtures on Microchannel Heat Exchanger Performance is a co-sponsor research project. Scott Wujek gave an update and said this is now designated as 1785 RP. The principle investigator is Oklahoma State University. They are in the process of setting up the lab and calibrating and still target Summer of 2019 as a completion date.

Previous Research Ideas:

1. Preferential Solubility –

A proposed title is: “Preferential Solubility of High Glide Blends in Lubricating Oils and System Effect on Fractionation”. RTAR still being developed.

New Proposed Research Ideas generated from combined Section 3 meeting:

- Tribological interaction data with lubricants and refrigerants – maybe start off as a white paper and then proceed to lab testing and how this information translates to applications. Elyse Sorenson volunteered to write an RTAR assisted by Scott Wujek, Greg Smith and Brad Boggess. The committee supported this idea.
- Understanding the influence of refrigerant and lubricant chemistry on pressure-viscosity coefficients. Some ideas for chemistry candidates was discussed and this idea was tabled for Atlanta meeting.
- Retrofit considerations when changing refrigerants was tabled for discussion in Atlanta.

### **Program – Ed Hessell**

Ed summarized the combined Section 3 Program meeting and the ideas and direction developed from that meeting.

*A motion was made by Roberto Urrego to cosponsor a TC 3.2 Seminar titled “Chemistry of New and Retrofit Systems with Low GWP Refrigerants”, the motioned was seconded by Dave Vincent, the motion carried 7-0-0-5(CNV).*

An idea was proposed titled “Low GWP Refrigerants and Lubricants: What you need to know” this would be a seminar for Atlanta. There was no immediate support in the meeting. Joe Nigro and Ed Hessell volunteered to see if they can find interested presenters for Atlanta or table for future meetings.

The group discussed whether for the 125-year ASHRAE anniversary if TC 3.4 wanted to submit a paper on lubricants. There were some comments that lubricants may be covered in the TC 3.2 paper that is being written for this event. If anyone has interest in presenting on lubricants, please contact the TC 3.4 program chair.

### **Handbook - Julie Majurin**

All the needed comments from Handbook were addressed and updated. Julie thanked the committee for their efforts and handed handbook off to Casey Scruggs. The committee thanked Julie for her work.

### **Standards – Rob Yost**

Standard 86 “Methods of Testing the Floc Points of Refrigeration Grade Oils” – reauthorized in St. Louis, no action required until 2020.

GPC 40 “Refrigeration Oil Description” – chaired by Chris Seeton. This has been published and is now on its maintenance cycle (there was some question if this is still 5 years or maybe now 10 years because a guideline).

Standard 172 “Method of Test for Insoluble Materials in Synthetic Lubricants and HFC Refrigerant Systems”. Still looking at how to address a correction needed to the standard. The options appear to be 1) reform the committee or 2) an addendum option. Ed Hessel is in discussion with Standards to see best way to proceed. If need be Ed will organize a meeting with the committee to discuss and update.

SPC 218 “Method of Test for Lubricant and Refrigerant Miscibility Determination” – chaired by Brad Boggess. The draft was completed and recommended by the committee at their Monday meeting to move to publication/public review stage but the committee was short two members, so a letter ballot vote will be done for approval.

- **New Ideas**

There was some discussion in other TC’s such as TC 3.1 and TC 3.2 if there is need to revise Guideline 6 when it is up for its 5-year cycle to include other information. It was decided by the committee to continue this discussion at future meetings.

### **Webmaster – Dave Vincent**

The website is current, and the Houston meeting minutes will be posted when received. There was some discussion if the chair breakfast minutes can also be posted to the website.

**MTG Update –Low GWP Lower Alternative Refrigerants – TC 3.4 Represented by Joe Karnaz**

This committee meets on Sunday evening (Part A) and reconvenes Wednesday morning (Part B) to cover the activities. In addition, subcommittee groups for research, codes and standards along with programs have separate meetings.

- RP1806 was the focus at the meeting on Sunday. The initial phase of the project is complete, and the second phase is underway. The title of this RP is “Flammable Refrigerants Post-Ignition Simulation and Risk Assessment”.

**Old Business – Chris Seeton**

No old business.

**New business – Chris Seeton**

No new business.

**Next meeting**

2019 ASHRAE Winter Meeting Atlanta, GA January 12–16, 2019.  
TC 3.4 will meet Tuesday, January 15<sup>th</sup>.

**Adjourn – Chris Seeton**

*The chair closed the meeting at 3:00 pm through a motion by Julie Majurin.*