

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS,
INC.**

**1791 Tullie Circle, N.E./Atlanta, GA 30329
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TC/TG/TRG MINUTES COVER SHEET

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

TC/TG/TRG NO 3.4 DATE September 1, 2014

TC/TG/TRG TITLE Lubrication <http://tc34.ashraetcs.org/>

DATE OF MEETING July 1, 2014 LOCATION Seattle, WA

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Scott Gustafson	2012	Yunho Hwang	2012	
Joe Karnaz	2012	Bret Van Horn	2012	
Ed Hessel	2011			
Julie Majurin				
Marc Scancarello	2013			
Scott Wujek	2013			
Knut Petry	2013			
Chris Reeves	2013			

DISTRIBUTION

All Members of TC/TG/TRG plus the following:

TAC Section Head:	<u>Jay Kohler</u>
TAC Chair: TAC Vice-Chair:	<u>Eric Adams</u>
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	Mark Spatz – RAC Roberto Aguilo – Handbook Malcolm Knight – Standards Francis Mills – Special Pubs Tony Giometti – Program Stephen Piccolo – CTTC
Manager Of Standards Manager Of Research & Technical Services	Stephanie Reiniche Mike Vaughn

Note: "These draft minutes have not been approved and are not the official, approved record until approved by this committee."

Call to Order – Joe Karnaz

Joe Karnaz called TC 3.4 meeting to order at 1:30 pm on July 1, 2014 at the Washington State Convention Center Room 608 in Seattle, WA. Members and guests introduced themselves. Guests were welcomed and invited to participate. Joe Karnaz filled in as chair for Scott Gustafson due to scheduling conflicts. A request was made for people willing to review technical papers and a sign-up sheet circulated. The Chair reviewed the ASHRAE Ethics Statement for all in attendance.

Confirmation of Quorum – Joe Karnaz

Joe Karnaz, Ed Hessel, Knut Petry, Julie Majurin, Chris Reeves, Marc Scancarello and Scott Wujek were present. Voting members Yunho Hwang, Bret Van Horn and Scott Gustafson were not present. With seven of ten voting members present, the quorum was established.

Liaisons - Bill Murphy/Mark Spatz Attended

Bill Murphy – TAC Section 3 Head - Bill announced that his term at TAC was coming to an end and that he would be replaced by Jay Kohler. Bill thanked everyone in section 3 for their support and efforts during his term. Bill was given an enthusiastic round of applause. Thanks for your service to ASHRAE!

Bill thanked Scott Gustafson (who is rolling off as 3.4 Chair and being replaced by Joe Karnaz) for his term as 3.4 Chair and gave him a certificate of achievement.

ASHRAE will present an outstanding TC award. The award is based on a point system explained on the ASHRAE website.

September 1st is the deadline for Hightower award nominees. The Hightower award is for ASHRAE participants that are judged by their peers as consistently going above and beyond in their service to ASHRAE. Details are on the website.

TAC has been discussing the topic of TC participants that work on the TC's and don't register for the conference. This topic has been raised by TC 3.4 in the past in response to ASHRAE inquires about lower registration numbers.

RAC Update (Mark Spatz) RAC feels there is a good balance between work statements and funds at this time. New work statements are being encouraged. Mark highlighted the simplified RTAR process as a step forward. The forms are easier to fill out for submission and the accept or reject portion from RAC response is more timely. Section 3 had two RTARS submitted at the last RAC session and both were approved.

Approval of 2014 Winter Meeting Minutes in NYC – Joe Karnaz

A motion was made by Scott Wujek to approve the NYC minutes, the motioned was seconded by Julie Majurin, and the motion carried 7-0-0 (Chair voting).

TC Chair Breakfast – Joe Karnaz

- Reminder to reference ASHRAE Code of Ethics prior to meeting.
<https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>
- CEC has requested reviewers for technical and conference papers. A sign-up sheet will be passed around during the meeting.
 - Chicago programs due August 11th.
 - Atlanta annual meeting will have a refrigeration track.
 - Was mentioned that a well-defined abstract could be key to acceptance.
- Considering going to an on-line roster procedure.

- Previously ASHRAE was trying to obtain “Employment Discipline” on the member bio. No one was sure why they wanted this so it is being eliminated.
- ASHRAE has options for conducting subcommittee meetings via conference calls and web meetings. Mike Vaughn, Manager of Research and Technical Services is the contact person for this request. Availability is limited.
- Upcoming workshops and conferences endorsed by ASHRAE
 - Purdue Conference July 2014
 - AHR Expo-Mexico September 2014
 - ICR2015 (24th IIR International Congress of Refrigeration) August 2015
 - CLIMA 2016 May 2016

Subcommittee Reports

Program – Ed Hessel

TC 3.4’s open session presentations were discussed in the context of do we want to do this again in order to get program items on the agenda?

On the PRO side, the NYC session had a good number of outside attenders and since it was held during a TC session no registration badges were needed.

On the CON side, the event was listed in the program but it was difficult to find unless you were looking for it in the TC section, the presentations were not recorded and in general it was difficult to get the word out on the talks to the larger Expo contractor crowd who we would like to have attended.

No consensus was reached regarding should we try this again. The TC discussed our continuing inability to get papers and seminars on the ASHRAE agenda. The topic will come up again.

Would ASHRAE look more favorably on seminars and papers sponsored by multiple Section 3 TC’s? It was agreed that the Program Chairs for the Section 3 TC’s should meet before Chicago to discuss this topic and see if common interest exists.

The following new paper ideas were discussed for Chicago or Atlanta:

Reprise past talks on issues concerning HC’s, CO₂, and new refrigerants. Let’s target a seminar for Atlanta and if it doesn’t work we can consider another open presentation during the TC.

Paper on Lubricity – how to assure adequate lubricant delivery to bearings? Could we get some tie in with the compressor TC such as TC 8.1?

The TC 3.4 Program List is seen below. The deadline for seminar submission in Seattle is Aug 11th.

Item	Date Inception	Title	Lead	Potential Speakers	Meeting	Status/Action Items	Comments
1	2/1/2011	New and Improved Lubricants to Accommodate Low GWP Refrigerants	Ed Hessell and Scott Gustafson	Chris Seeton, Ted Li, Joe Karnaz, Ed Hessell	Montreal	Seminar 51, Wed. 6/29. 8-9:30am, Westmount	Complete
2	6/26/2010	Managing Oil Circulation in Refrigeration and Air-Conditioning Systems for Comfortable Daily Lives	Ed Hessell	Danny Hake (Hussman) Scott Wujek (Creative Thermal Solutions) Yunho Hwang (U. of Maryland)	San Antonio	Completed online submission by Feb. 13, 2012 Rejection Notice on March 16, 2012.	No further actions at this time. Move on to item 3.
3	2/1/2011	Lubricants Optimized for use with Low Global Warming Refrigerants	Ed Hessell	Potential list of speakers includes: Ken Lije (CPI)(confirmed) Ed Hessell (Chemtura) (confirmed) Eric Schweim (Idemitsu)(confirmed)	Dallas	Completed online submission on July 29, 2012. Seminar Rejected.	Resubmit. MTG to be a cosponsor. Back up plan to schedule as an OPEN SESSION seminar from 1:00-2:30pm prior to TC 3.4 meeting. Can always drop if seminar is accepted.
4	6/26/2012	Lubricants and lubrication challenges for hydrocarbon based refrigeration applications	Ed Hessell	None at this time	TBD	Identify at least 2 speakers. Get final title. Propose at next meeting	Ed to look for 2 or more speakers before New York meeting.
5	2/1/2011	Equipment Improvement in Terms of Energy Efficiency: contribution of the lubricant	Joe Karnaz	To be determined	Dallas	On hold until there is more definition on which refrigerants will be advanced.	
6	2/1/2011	Lubricants with CO2	Sonny Sundareson	To be determined	?	On hold until Sonny can identify some OEM speakers	
7	2/1/2011	Effects of Refrigerant Lubricant Solubility on Microchannel Heat Exchangers	Cosponsor with 8.4	8.4 to provide 2 speakers, 3.4 must provide 1.	?	Need to identify lead and one speaker. Ed to meet with TC 8.4 Program Chair to discuss options and timing.	Ed to meet with TC 8.4 Program Chair to discuss options.
8	2/1/2011	Lubrication Aspects of LGWP applications	Sonny Sundareson	To be determined	?	Dropped	

Handbook - Julie Majurin

The handbook updates have been processed – Julie thanked Scott Wujek and Brad Boggess for their help. The next revision is scheduled for 2017. This means a new handbook committee needs to be formed. Scott Wujek, Ed Hessell, Joe Karnaz and Chris Reeves tentatively volunteered to participate. Meeting will start up in 2015. Julie is requesting 3.4 participants to send in data on HFO refrigerants as a start to the new chapter which will be issued in 2018.

Standards – Rob Yost

Standard 86 “Methods of Testing the Floc Points of Refrigeration Grade Oils” – chaired by Warren Clough. Submitted and published. The standard was defined to use R-12. The next revision needs to add mandatory language and is not due for another five years.

Standard 99 “Refrigeration Oil Description” – chaired by Chris Seeton. The title, purpose and scope are under revision. A follow up meeting is scheduled.

Standard 172P “Method of Test for Insoluble Materials in Synthetic Lubricants and HFC Refrigerant Systems” chaired by Ed Hessell. This method has been on the books for a long time. Ed has established a path forward starting with creating mandatory language. A final product is 1-2 years out.

A new standard was approved – “Method of Test for Lubricant and Refrigerant Miscibility Determination” – chair to be Brad Boggess. The purpose and scope need to be revised and a balanced committee proposed. Updates are to follow.

Sunny Sundareson proposed a new standard to better understand the accuracy and variation of PVT data. In order to pursue this request a title purpose and scope needs to be sent to Rob Yost prior to a TC vote.

Research – Chris Seeton

RTAR 1628 “Physical Property Measurements of HFO/Lubricant Mixtures” will be moved from an RTAR to a work statement submittal, in addition HFO 1234ze(E) will be added to the refrigerant matrix. The work statement is being finalized. Chris will work with Scott Wujek to make this update by the October deadline.

RTAR 1728 was submitted and approved “Development of a Model for the Prediction of oil/refrigerant mixture Properties of Low GWP Refrigerants and Synthetic Oils”. Julie Majurin will lead this effort with support from Joe Karnaz, Scott Wujek, Chris Seeton and Ed Hessell. The focus will be on viscosity.

A draft RTAR has been finalized similar to RTAR 1628 by Joe Karnaz, Brett Van Horn and Steve Kujak entitled “Physical Property Measurements of HFC/HFO Lubricant Mixtures”. The draft was modified to include other HFC/HFO refrigerant blends. The RTAR needs to be formatted in the new RTAR format before the Mid-August deadline.

New Research Ideas in need of RTAR authors:

1. Leak Detection of Flammable Refrigerants – Effect of Oil Leak rates of flammable refrigerants.
2. Julie Majurin / Warren Clough / Chris Seeton – Discussed the need for research on foaming of lubricants under refrigerant pressure.
3. Jacobs Limits and Oil Return – work with TC 10.10 – write RTAR and seek a co-sponsor. Chris Seeton will give existing data to Scott Wujek.
4. Preferential solubility of High Glide Blends in lubricating oils. Safety and Performance.
 - Effect of lube from a leak of Flammable Refrigerants.
 - Fractionation of flammable fuel.
 - The affect lube has on a refrigerant leak.
 - Effect of lube in combination with a Refrigerant Leak.(Rob Yost and Chris Seeton will attempt to draft an RTAR by Mid-August)

Webmaster – Joe Karnaz

Joe Karnaz filled in for Dave Vincent who was not able to attend the meeting. The website is up to date. The website will include: notes from the committee meeting, research notes and an updates to the membership.

Membership – Joe Karnaz

The Rollover Roster for new society year:

TC 3.4 Officers and Voting Members (V designates voting status)

Chair	Joe Karnaz (V)
Vice Chair	Chris Seeton (V)
Secretary	Joe Nigro
Research	Chris Seeton
Standards	Rob Yost (V)
Program	Ed Hessell (V)
Handbook	Julie Majurin (V)
Member Non-Quorum	Knut Petry (V)
ASHRAE Learning Institute	Scott Gustafson
Webmaster	Dave Vincent (V)
Member	Yunho Hwang (V)
Member	Marc Scancarello (V)
Member	Chris Reeves (V)
Member	Scott Wujek (V)
Member	Sonny Sundaresan (V)
Member	Brett Van Horn (V)

Roster changes take effect after this meeting.

Old Business – Joe Karnaz

No old business.

New business – Joe Karnaz

Sonny Sundaresan shared the passing of Shel Rosen and Rich Cavestri and asked that they be recognized for their contributions to TC 3.4 and ASHRAE. They will both be missed by ASHRAE and their families.

Scott Gustafson was recognized for his tenure as TC 3.4 Chair and his overall contributions to ASHRAE. Thanks for your time and we look forward to your continuing participation in and contribution too TC 3.4.

Adjourn – Joe Karnaz

With no further business before the committee, Marc Scancarello moved to adjourn. Chris Reeves seconded and the motion passed. Chair Joe Karnaz adjourned the meeting.