

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

**1791 Tullie Circle, N.E./Atlanta, GA 30329
404-636-8400**

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 January 27, 2015

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

DATE OF MEETING January 27, 2015 LOCATION Chicago, IL

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Joe Karnaz	2014	Yunho Hwang	2012	Attendance List Attached
Chris Seeton	2014	Sonny Sundaresan	2014	
Rob Yost	2014			
Ed Hessel	2011			
Julie Majurin	2014			
Knut Petry	2013			
Dave Vincent	2014			
Bret Van Horn	2012			
Marc Scancarello	2013			
Chris Reeves	2013			
Scott Wujek	2013			

DISTRIBUTION

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

TAC Section Head:	<u>Jay Kohler</u>
TAC Chair: TAC Vice-Chair:	<u>Adam Wood</u>
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	Mark Spatz – RAC Prof Roberto Aguilo – Handbook Malcolm Knight – Standards Francis Mills – Special Pubs Tony Giometti – Program Stephen Piccolo – CTTC
Manager Of Research & Technical Services	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 January 27th 2015 at the Palmer House Hotel Adams Room in Chicago, IL. Members and guests introduced themselves. Guests were welcomed and invited to participate. A sign-up sheet circulated. The Chair reviewed the ASHRAE Ethics Statement for all in attendance.

Confirmation of Quorum – Joe Karnaz

Joe Karnaz confirmed that with ten of thirteen voting members present, the quorum was established.

Liaisons – Jay Kohler Attended

Jay Kohler - Section 3 Section Head – Jay introduced himself to TC 3.4 as the new section head and let people know he was here to help as needed. Discussion followed on the issues Section 3 has been having getting seminars on the program and ideas were shared on how this might be improved.

Approval of 2014 Winter Meeting Minutes in NYC – Joe Karnaz

A motion was made by Rob Yost to approve the Chicago agenda, the motioned was seconded by Bret Van Horn, and the motion carried 9-0-0 (Chair not-voting).

A motion was made by Scott Wujek to approve the Seattle minutes, the motioned was seconded by Marc Scancarello, and the motion carried 9-0-0 (Chair not-voting).

TC Chair Breakfast – Joe Karnaz

Highlights:

- Jay Kohler is the new Section 3 Chair.
- Programs for Atlanta are due February 9th, 2015.
- Due to our recent issues with getting programs approved it was recommended that the Section. 3 groups suggest particular tracks to CEC for St Louis.
- AdHoc committee between TAC and CEC has been formed to address particular issues.
- CEC Chicago Statistics 56 Conference Papers; 64 Seminars; 8 Workshops; 5 Forums; 44 Tech Papers: Conference and Tech Papers had highest percentage of acceptance.
- Website Update – The TC can make suggestion for other information to post to the website.
- Employment Discipline should be updated on your Bio.
- Upcoming Specialty Conferences particular to Section 3 committees.
 - ICR 2015 Yokohama Japan
- Scott Gustafson was awarded the 2013-2014 Technical Committee Award

Subcommittee Reports

Program – Ed Hessel

No seminars were approved for Chicago. Future plans are to co-sponsor seminars with TC 3.2, 3.3 & 3.4 having a better chance to get approval as a group submission. The initial target is a seminar for Orlando titled “Synthetic Lubricants: Making the Commercialization of Low GWP Refrigerants a Reality” to be included in the “Cutting Edge Technology” Track which is focused on net zero buildings and increasing efficiency.

- Target Speakers include:
 - System Builder (importance of the lubricant in the systems).
 - Compressor Builder (challenges of lubricating with the new refrigerants)
 - Refrigerant Supplier (challenges of optimizing refrigerant performance in the presence of a lubricant)

The strategy is to submit for Orlando by August 10th. Contingency 1: If not accepted for Orlando, than the goal is a conference paper. Contingency 2: Do an open seminar in Orlando during TC (3.3-3.4 on Tuesday) if rejected (ensure that we get proper exposure in the technical program) Contingency 3: Aggressively lobby the CEC for a separate track for St. Louis and resubmit the seminar. Since this seminar is not until Orlando the TC will bring up the vote to co-sponsor at the Atlanta meeting.

A second strategy was discussed. The volunteers for seminar would concurrently write a single or collective Conference or Technical paper. Conference paper had a 100% acceptance rate in Chicago and the technical papers 50%. The work timeline is moved up but the idea is if we submit on the deadline we will know if the paper idea was accepted prior to the summer ASHRAE meeting in Atlanta. Ed volunteered to help paper writers. Abstracts would be needed by March 23rd, accept / reject April 6th, final paper due July 6th. Ed will be in contact with the volunteers. If upon receipt of these notes a TC 3.4 participating member would like to join the volunteer list please contact Ed ASAP.

TC 3.1 would like to cosponsor a conference paper for Orlando titled “Low GWP Lubricant Fundamentals”. Potential participants are CPI, Arkema and Emerson. Ed Hessel will chair the session.

A motion was made by Brett Van Horn to co-sponsor a conference paper in Orlando with TC 3.1, the motioned was seconded by Rob Yost , and the motion carried 9-0-0 (Chair not-voting).

Handbook - Julie Majurin

The next section revision is scheduled for 2017. The handbook team includes: Scott Wujek, Joe Karnaz and Chris Reeves. The plan moving forward is for the team to begin meeting and collect data in areas currently considered slightly deficient such as HFO, HC and CO₂ refrigerants and associated lubricants. The team will also look into the possibility of a digital edition and a solver for the data tables where you could type in a temperature and pressure and get a viscosity.

TC 3.4 participants are encouraged to send Julie data on HFO, HC and CO₂ refrigerants/lubricants and other new information to be considered for inclusion in the next chapter update to be published in 2018.

Standards – Rob Yost

Standard 99 “Refrigeration Oil Description” – chaired by Chris Seeton. During the Chicago meeting a balance committee was formed. The decision was made to change this standard request into a guideline which was met with positive feedback from the standards committee.

Standard 172P “Method of Test for Insoluble Materials in Synthetic Lubricants and HFC Refrigerant Systems” chaired by Ed Hessel. A draft of the standard is expected to be on display for public review by June 2015.

SPC 218 “Method of Test for Lubricant and Refrigerant Miscibility Determination” – chaired by Brad Boggess. The work group includes: Rosine Rohatgi, Knut Petry, Chris Seeton, John Senediak, Joe Karnaz and Roberto Urrego. The first team meeting took place in Chicago and a title, purpose and scope were discussed. The team plans on a conference call prior to the Atlanta summer meeting.

A proposed standard to better understand the accuracy and variation of PVT data was discussed again. Julie Majurin will chair this group and with help from Chris Seeton a title, purpose and scope will be established.

Research – Chris Seeton

RTAR 1628 “Physical Property Measurements of HFO/Lubricant Mixtures” has been cancelled.

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

A draft RTAR has been finalized similar to RTAR 1628 by Joe Karnaz, Chris Seeton and Scott Wujek; entitled “Physical Property Measurements of HFC/HFO Lubricant Mixtures”. The team is preparing a work statement for submission. The draft was modified to include other HFC/HFO refrigerant blends.

New Research Ideas in need of RTAR authors:

1. Deleted and sent to TC 3.8 - 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 CO₂ lubricants under refrigerant pressure. Brad Boggess and Alice Reimer will discuss drafting an RTAR.
3. Jacobs Limits and Oil Return – work with TC 10.10 – Scott Wujek has written and submitted and RTAR for review.
4. Rob Yost and Chris Seeton have drafted an RTAR described below. Consideration will be given to blend these ideas into existing RTAR 1728.

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.

Webmaster – Dave Vincent

The website is up to date. The website will include: notes from the TC Chair meeting, research notes and an updated membership section. In addition, the web page will be used to post FAQ's or FAQ's related to the 2014 version of the handbook.

MTG – Lower GWP Refrigerants – Joe Karnaz

Joe Karnaz represents TC 3.4 at the Lower GWP Refrigerants multi-disciplinary task group which will meet at 10am on 1/28. Joe will ask the MTG to cosponsor a 3.4 seminar or conference paper.

Membership – Joe Karnaz

People wishing to join TC 3.4 as corresponding members were requested to drop off their ASHRAE information for the new roster.

Old Business – Joe Karnaz

None

New business – Joe Karnaz

FAQ assigned to TC 3.4 was reviewed – changes needed are to move reference of Handbook from 2010 to 2014.

Jay Field was recognized by TC 3.4 for his contributions over the years in anticipation of his retirement this March. We wish Jay and his family the best this new adventure begins.

TC 3.4 was awarded the Section 3 Outstanding TC Award for 2014. This is a new award which highlights Society Excellence. Let's work toward a REPEAT in 2015!

Adjourn – Joe Karnaz

With no further business before the committee, Rob Yost moved to adjourn. Brett Van Horn seconded and the motion passed. Chair Joe Karnaz adjourned the meeting.