

**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 21, 2014

TC/TG/TRG TITLE Lubrication

DATE OF MEETING January 21, 2014 LOCATION New York City, NY

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

**DISTRIBUTION**

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

TAC Section Head:	<u>William Murphy</u>
TAC Chair: TAC Vice-Chair:	<u>William McQuade</u>
All Committee Liaisons As Shown On TC/TG/TRG Rosters:	Mark Spatz – RAC Ramon Ponce – Handbook Rick Larson – Standards Francis Mills – Special Pubs Tony Giometti – Program Mark Tome – 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 – Scott Gustafson

Scott Gustafson called TC 3.4 meeting to order at 1:34 pm on January 21, 2014 at the New York Hilton, Petit Trianon, Level 3, New York City, NY. Members and guests introduced themselves. Guests were welcomed and invited to participate. TC 3.4 had three new guests. The chair mentioned that the TC would be presenting a **FREE** seminar within the TC meeting time frame beginning at 2 PM. The Chair read the ASHRAE Ethics Statement for all in attendance.

## Confirmation of quorum - Scott Gustafson

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

## Liaisons - Bill Murphy Attended

Bill Murphy – TAC Section 3 Head - opened by thanking TC 3.4 for its participation in ASHRAE and the significant work underway. He reminded everyone that “the TC’s are the brains of ASHRAE!”

## Approval of 2013 Summer Meeting Minutes in Denver - Scott Gustafson

A motion was made by Joe Karnaz to approve the Denver minutes, the motioned was seconded by Marc Scancarello, and the motion carried 7-0-0 (Chair not-voting).

## TC Chair Breakfast – Scott Gustafson

Notes from the Chairs Breakfast will be posted on the TC 3.4 Website.

## Subcommittee Reports

### **Program – Ed Hessel**

By a 100% ballot vote agreed to have seminar within the TC in NYC. Three presentations were made to 44-50 people in attendance 16 of which came expressly for the presentations.

- **Help, I Need a Lubricant For My Lower GWP Refrigerant**  
Joseph A. Karnaz, Member, CPI Engineering/Lubrizol, Midland, MI
- **Polyol Ester Lubricants Designed For Use With R-32 and Related Low GWP Refrigerant Blends**  
Edward Hessel, Ph.D., Member, Chemtura Corporation, Middlebury, CT
- **Properties of the New PVE Lubricant For Air Conditioning System**  
**Idemitsu Lubricants**  
Tomoya Matsumoto, Idemitsu Kosan, Japan

Thanks very much too all the presenters and attendees.

TC 3.4 needs to consider what it could submit for Seattle.

The TC 3.4 Program List is seen below. Item #4 and #5 were discussed as potential seminar topics for Seattle. The deadline for seminar submission in Seattle is **Feb 15<sup>th</sup>**.

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 Hessel and Scott Gustafson	Chris Seeton, Ted Li, Joe Karnaz, Ed Hessel	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 Hessel	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 Hessel	Potential list of speakers includes: Ken Lije (CPI)(confirmed) Ed Hessel (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 Hessel	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**

Julie thanked the handbook committee for their efforts to complete the work on Chapter 12. The next revision is scheduled for 2017 (four years out). The next step for the committee is a Gallery Proof.

## **Standards – Rob Yost**

Standard 86 “Methods of Testing the Floc Points of Refrigeration Grade Oils” – chaired by Warren Clough. The standard was released in April. Nothing to report.

Standard 99 “Refrigeration Oil Description” – chaired by Chris Seeton. The title, purpose and scope were rejected and need to be re-submitted. Karl Fischer needs to be added as an available test as well as other minor changes to the TPS.

Standard 172P “Method of Test for Insoluble Materials in Synthetic Lubricants and HFC Refrigerant Systems” chaired by John Senediak. The round robin was started among three different labs. Results are beginning to come back. Further study is needed before a report can be issued.

A New standard MOT has been prepared – “Method of Test for Lubricant and Refrigerant Miscibility Determination” – chair to be Brad Boggess. The 3.4 Chair will circulate the proposal for a letter ballot.

## **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 to work with Scott Wujek to make this update.

A new RTAR was placed on the webpage written by Julie Majurin on the prediction of viscosity titled “Development of a Model for the Prediction of oil/refrigerant mixture Properties of Low GWP Refrigerants and Synthetic Oils. A motion was made by Jay Field to approve this RTAR. Brett Van Horn seconded the motion. The motion was approved 6-0-0 (with the Chair not voting)

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 will be sent to Chris for approval and will go to TC 3.4 for a letter ballot.

A new RTAR idea was discussed related to foaming with next generation refrigerants. Julie Majurin volunteered to work on a draft. Discussion to continue in Seattle.

New Research Ideas in need of RTAR authors:

1. Leak Detection of Flammable Refrigerants.
2. 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. At the speakers discretion the presentations for today will be posted on the website.

### **Membership – Scott Gustafson**

Joe Karnaz has agreed to run the Seattle meeting in place of Scott who cannot attend due to scheduling issues.

Rollover rosters will be submitted after the meeting that will go into effect after the summer meeting in Seattle.

### **Old Business – Scott Gustafson**

Joe Karnaz reports from the MTG meeting than an Alternative Low GWP Refrigerants umbrella for all TC's and SPC's is considering sponsoring a Low GWP Refrigerants Mini-Conference. Chances are this will be pushed to Chicago. The concept is to have 4-5 programs and may be a mechanism to get TC 3.4 program ideas on the docket. More information will follow.

### **New business – Scott Gustafson**

The new ASHRAE phone app was discussed. TC 3.4 is concerned that the app only works for registered ASHRAE attendees because a number of our active TC members do not typically register for the ASHRAE conference. Scott will provide feedback to ASHRAE.

### **Adjourn – Scott Gustafson**

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