

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

1791 Tullie Circle, NE, Atlanta, GA 30329  
404-636-8400

**TC/TG/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/TRG No. 3.2

Date: Jan 28<sup>th</sup>. 2003

TC/TG/TRG TITLE: Refrigerant System Chemistry

DATE OF MEETING: - January 28, 2003

LOCATION: - Chicago, IL.

Voting Members Present		Voting Members Absent	
David J. Vincent Chair Alice Riemer International Member Horst Thamm International Member Robert Doerr Handbook Chair Danny Halel Secretary Robert Yost Research Chair Alan Cohen Cary Haramoto Joe Karnaz Michael Glenn Lacey Glen L. Steinkoenig Sonny Sundaresan David Wilson  Corresponding members present Ken Lilje                      Lois Lin James Bouril                 Jay Field Yanwei Chen                 Frank Nagy		Warren Clough Vice Chair DietrichHuttenlocher Standards Chair James Bouril  Corresponding members absent Karim Amrane                      Eldon Ward Finn Broesby-Olsen                 Motoshi Sunami Charlie Butler                         Tom Watson Joel Kerstein                             Ray Thomas Gary Dudley                             Barry Millward Clint Finstad                             Tony Min Andrew Gbur                             Fred Polley Bob Vincent Shelvin Rosen William Walter Wayne Sumi	
Ex-Officio Members and Additional Attendance			
Scott Gustafson	Rob Yost	John Danaher	Tom Dekleva
Jim Cancila	Sunil Nanjondurame	Chris Costello	Rosine Rohatgi

**DISTRIBUTION:**

All members of the TC/TG/TRG

TAC Chairman: William Murphy

TAC Section Head: Daniel Int-Hout

LIAISONS:

Program: John Bisset

Journal:

Standards: Arthur D. Hallstrom

Special Publication: Marilyn Listvan

RAC Research Liason: Richard Cawley

Education: Alexander J. Boome

TEGA LIASONS: Marvin Ginsburg [01]

Jon C.Larry

ASHRAE STAFF LIAISONS:

Research: Michael Vaughn

Handbook:

Handbook:

Standards: Claire Ramspeck

Technical Services: Michael Vaughn

Additional Distribution:

## ASHRAE TC/TG/TRG ACTIVITIES SHEET

TC/TG/TRG No. 3.2

Date: April 10<sup>th</sup>. 2002.

TC/TG/TRG TITLE: Refrigerant System Chemistry

CHAIR: David J. Vincent

VICE CHAIR:

SECRETARY: Danny Halel

## TC/TG/TRG MEETING SCHEDULE

Location Past 12 months	Date	Location planned: next 12 months	Date
Cincinnati	06/01	Chicago	01/03
Atlantic City	01/02	Kansas City	06/03
Honolulu	06/02	Anaheim	01/04

## TC/TG/TRG SUBCOMMITTEES

Function	Chair
Program	Ken Lilje
Handbook	Robert Doerr
Standards	Robert Yost
Research	Glenn Steinkoenig
Membership	David J. Vincent

## RESEARCH PROJECTS CURRENT

Project Title	Contractor	Monitoring Comm. Chair	Report
1158-TRP "Effects of System Materials towards the Breakdown of POE Lubricants and HFC Refrigerants".	Spauschus Associates		

## LONG RANGE RESEARCH PLAN

Rank / Title	W/S Written	Approved	To R&T
1211-TRP "Mechanism for Reaction between Polyolester Lubricant and Ferrous Metals".		10/00	

## HANDBOOK RESPONSIBILITIES

Year & Volume	Chapter & Title	Handbook Subcomm. Liaison
2006 Refrigeration	5: Refrigerant System Chemistry	Bob Doerr

## STANDARDS ACTIVITIES: List and Describe Subjects

SPC 141P: MOT/Fluorocarbon Refrigerant for Contaminants

Standard 97: Sealed Glass Tube Stability Test

SPC 175P: New Standard to be developed for Pressure Metal Vessels

## TECHNICAL PAPERS from Sponsored Research: Title, when presented

6/99 Equilibrium Water Capacity of Desiccants in Mixtures of HFC Refrigerants and Appropriate Lubricants (RP-867)

6/99 Study of the Fractionation of Refrigerant Blends in Contact with Lubricants and Measurement of the Solubility, Density and Viscosity. (RP-867)

TC/TG/TRG Sponsored Symposia: Title, when presented

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6/00 Refrigerants System Chemistry Update

6/99 Flammability Test Methods (With TC 3.1)

1/98 New Learning in System Chemistry for New Refrigerants and Lubricants (with TC 3.3 and 3.4)

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TC/TG/TRG Sponsored Seminars: Title, when presented

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1/02 Lubricants for Alternative Refrigerants (with TC 3.4 & TC 8.1).

1/01 Contaminants Control – Back to Basic (with TC 3.3)

1/01 System Issues Update (with TC 3.3)

2/00 System Issues Update

6/99 Lubricants for HFC/HCFC Blends

6/98 Materials Compatibility (with TC 3.3 and TC 3.4)

1/98 Contemporary Issues in Alternative Refrigerants (with TC 3.3 and TC 3.4)

1/97 Acceptability of Alternative Refrigerants and Lubricants (with TC 3.3 and 3.4)

1/97 Performance Issues of Alternative Refrigerants & Lubricants: Elastohydrodynamic Lubrication & Desiccants (with TC 3.3 and 3.4)

1/97 Non POE Lubricants for HFC Systems (with TC 3.3 and 3.4)

6/97 Compatibility Issues (With TC 3.3)

2/96 Alternative Refrigerants - Performance Issues (with TC 3.3 and 3.4)

2/96 Materials Compatibility with Refrigerants and Lubricants (with TC 3.3 and 3.4)

2/96 Practical Considerations in Use of Refrigerant Mixtures (with TC 3.1)

6/96 Experiences in Retrofits with Esters (with TC 3.3 and 3.4)

6/96 System Chemistry of Refrigeration Lubricants (with TC 3.3 and 3.4)

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TC/TG/TRG Sponsored Forums: Title, when presented

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1/02 System cleanup issues (with TC 3.3).

6/00 Research Needs For Refrigerants, Lubricants and Secondary.

6/99 Changes Needed to Refrigeration Handbook Chapter 5

1/98 Filter Drier Issues with POE's (with TC 3.3)

6/95 Experiences with Esters in Retrofit and Service

6/95 What Clean-up Procedures are Required after Server System Failure?

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JOURNAL PUBLICATIONS: Title, when published

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Respectfully Submitted  
Danny Hale  
ASHRAE TC3.2 Secretary

## **Minutes – TC 3.2 Refrigerant System Chemistry**

David Vincent, Chairman, called the meeting to order at 2:15 p.m. on Monday January 27, 2003. The meeting was held in the Adams Room of the Chicago Palmer House Hotel located in Chicago, IL. After the introduction of members and guests, a quorum was confirmed with 13 members present and 3 absent.

A motion was then made and seconded to approve the minutes as written from the Summer ASHRAE meeting held in Honolulu, HI.

Motion passed 12-0-0 (Chairman not voting).

The agenda for the present meeting was approved with no changes.

### **Report on TC 3.0 Chair Breakfast Meeting and ASHRAE Liaisons Present**

- ? The APC is encouraging all TC's to place sponsored seminar presentations on the TC website.
- ? A web page has been prepared by ASHRAE TC's for use.
- ? ASHRAE Manuscript Central is now online. This allows authors to submit their papers online and allow Symposia Chairs to conduct their reviews online.
- ? ASHRAE continues to look for reviewers of technical papers. If you wish to participate please contact ASHRAE staff.
- ? The official handbooks are now the CD-edition and not the books.

### **Sub-Committee Reports**

#### **Program – Ken Lilje**

Chicago winter 2003 – No programs planned.

Kansas City Summer 2003 – No programs planned.

Anaheim Winter 2004 – Symposia "System Chemistry and Contaminants Research". Chair - Danny Halel

Ken Lilje offered to chair a seminar for Anaheim

A motion was made by Danny Halel and 2<sup>nd</sup> by Cary Haramoto to sponsor a Seminar in Anaheim titled "Issues for Alternative Refrigerant Systems" Chair - Ken Lilje.

Motion passed 12 – 0 – 0 CNV

A motion was made by Sonny Sundaresan and 2<sup>nd</sup> by Bob Doerr to sponsor a Seminar in Anaheim titled "System Chemistry, Safety, Contaminants, and Handling Issues when Utilizing CO<sup>2</sup> as a Refrigerant".

#### **Handbook - Bob Doerr**

Chapter is complete and submitted. A new Handbook committee will be formed to work on the next version.

#### **Standards - Huttenlocher**

Dietrich Huttenlocher was not in attendance. Rob Yost gave the following report.

Standard SPC141P

*"Method of Testing Fluorocarbon Refrigerants for Contaminants"*.

Sonny Sundaresan, Rob Yost and Danny Halel are going to work with ASHRAE staff to complete the staging of the document.

Standard SPC175P

*"Metal Pressure Vessel Method to Test Materials Used with Refrigerant Systems"*.

The SPC is working on the draft Joe Karnaz, Glen Steinkoenig, Mike Lacey, Alan Cohen, and Rosine Rohatgi are the suggested committee members.

Standard 97 Floc Point ???? Call Field for copy of changes

RAC reviewed the submitted standard and sent back suggested changes. Changes were editorial in nature. The

A motion was made by Danny Halel and 2<sup>nd</sup> by Joe Karnaz to change the document to accept the changes as suggested by RAC.

Motion Passed 12 – 0 - 0 CNV

### **Research – Rob Yost**

*1158 TRP - Effects of System Materials towards the Breakdown of POE Lubricants and HFC Refrigerants*

Rosine Rohatgi: Suggested changes have been made and the author is considering making appropriate changes.

*1211 TRP - Mechanism for the Reactions between Polyolester Lubricants and Ferrous Metals.*

Bob Kauffman: The project was started in September 2001.

Part I – Literature search is complete and has been compiled

Part II – Thermal tests have been conducted under various conditions to understand ester/metal reactions and kinetics. Side reactions and metal accelerated hydrolysis complicate ester/metal reactions.

Part III – Run a 2<sup>nd</sup> set of tests optimising conditions to isolate and determine reaction mechanisms and products.

*1249 WS – Determine the Mechanism for Copper Plating and Methods for its Elimination from HVAC Systems"*.

The work statement was returned by ASHRAE. The comments and changes needed look manageable. The work statement will be rewritten prior to the deadline date.

*RTAR – Identify Safe Methods for Testing System Components and Materials with Non-halogenated Refrigerants*

RTAR was approved by ASHRAE in 2001. There is a need for volunteers to write the work statement, they will be sought for a meeting in Kansas City.

### **Membership – Dave Vincent**

The roster for voting and corresponding members was read for the upcoming year. Anyone interested in becoming a corresponding member contact Dave Vincent.

Joe Karnaz was appointed the new Vice Chairman to replace Warren Clough.

### **Website – Dave Vincent**

Written permission from the presenters must be received by the Webmaster and the TC must vote to approve the presentation to put onto the website. See David Vincent for submittals..

### **Old Business – Ken Lilje**

No old business was discussed.

### **New Business – Ken Lilje.**

A Motion was made by Glen Steinkoenig and 2<sup>nd</sup> by Robert Yost to have the chairman write a letter to ASHRAE Program Committee asking to make all Forums available for attendance by the open public.

12/0/0 CNV

David Vincent will write the letter and present to ASHRAE.

Adjournment

A motion was made and seconded to adjourn the meeting.

Motion Passed 12 – 0 – 0

The meeting was adjourned at 3:55 pm.

Respectfully submitted

Danny Halel

ASHRAE TC 3.2 Secretary