

State Board of Refrigeration Examiners

Refrigeration Up-Date

Refrigeration Up-Date 2016

Special points of interest:

- Exhibits
- New Technology
- Trade Exclusive
- Latest Products
- Network
- Learn and Share with Professionals

"The best thing for being sad," replied Merlin, beginning to puff and blow, 'Is to learn something. That's the only thing that never fails. You may grow old and trembling in your anatomies, you may lie awake at night listening to the disorder of your veins, you may miss your only love, you may see the world about you devastated by evil lunatics, or know your honour trampled in the sewers of baser minds. There is only one thing for it then — to learn. Learn why the world wags and what wags it. That is the only thing which the mind can never exhaust, never alienate, never be tortured by, never fear or distrust, and never dream of regretting. Learning is the only thing for you. Look what a lot of things there are to learn."

— T.H. White, *The Once and Future King*

Again in 2016, the Board is offering its licensees and others in related trades the opportunity to explore a wide variety of products and services. **Mark your calendars now and plan to attend Refrigeration Up-Date 2016 scheduled for Wednesday, February 17, 2016 in the Grand Ballroom of the Em-**

bassy Suites, 460 N Cherry St., Winston-Salem, NC.

The HVAC/R industry is changing fast. With the growing demand for energy efficiency, the pace in which new products and technologies are developing is accelerating. We are very excited about this year's Up-Date. Much thought has been put into bringing you a program that will help you stay up-to-date on the latest products and technologies for the HVAC/R contractor.



This meeting is your one top resource to being more profitable and successful in

your business. In just one day you will have the opportunity to see, touch and compare



many of the new products and technologies on the market today. You will explore new business ideas and networking opportunities.

Registration is \$25 and includes lunch, breaks and entrance to the exhibit area. We expect a large number of participants for this event and would appreciate you pre-registering.

A list of exhibits as of Jan 13th may be found on Page 3. A registration form is on Page

4. Register Now.

**STATE BOARD OF
REFRIGERATION**

EXAMINERS

889 US 70 Highway West
Garner, NC 27529

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Published as a service to refrigeration contractor licensees and others in the refrigeration industry.

Suggestions for articles of interest for publication in this newsletter are welcome.

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Energy Seminar Follow-up

AT the recent Energy Seminars held across the State, several questions were asked that needed research for the answers. Below are the questions and answers. Our thanks to Mark Kramer, The Chemours Co., - Fluoro Chemicals for providing these answers.

1. If a refrigeration system has capillary tubes instead of TXVs, will XP40 work? Is it different for R-404A vs R-22 systems (i.e. Will our answer be any different for 22 system conversions vs. 404A)?

For an existing R-22 system with a capillary tube, the mass flow rate and operating pressures of Opteon™ XP40 (R-449A) are a close match, and will likely perform adequately, however for optimal results it is recommended to replace the cap tube with a TXV when possible.

R-404A has somewhat different properties than XP40. Therefore, it is recommended for optimal results to replace the capillary tubes with TXVs.

2. 134a tends to "gunk up" capillary tubes, do we know if XP10 will be less likely to do this?

In the early days of HFC/POE use, there were issues with plugging in some capillary tubes. The 134a/POE tended to gunk up capillary tubes because the drawing lubricants used in making the capillary tubes had compatibility issues with POE. In recent years manufacturers have resolved most of these issues and cap tube plugging issues with HFCs and HFC-containing blends including XP10 are expected to be extremely rare.

3. Can I change a 22 chiller with flooded evaporator over to operate on XP40?

Zeotropic refrigerant blends, including XP40, R407C, etc., are not recommended for use in chillers with flooded evaporators, as they do not perform well.

4. What compressor manufacturers approve XP40?

XP40 (R-449A) is approved/listed for a growing number of OEMs in the commercial refrigeration market, including industry leaders Bitzer and Emerson (Copeland). Please visit our website for the most recent information on OEM approvals.

5. Is demand cooling/liquid injection required on a system that is operating on XP40?

XP40 has a lower discharge temperature than R-22 and higher discharge temperature than R-404A. It is always recommended to always consult with the compressor manufacturer for specific guidance on demand cooling. For retrofit of R-22 systems, it is recommended to leave demand cooling in place, although it will likely run less often. As a general rule of thumb, XP40 is expected to behave similar to R-407A with respect to the need for demand cooling/liquid injection.

6. On the CA Supermarket retrofit, the suction temperatures and pressure look very different than the data while operating on 404a (prior to retrofit). How can you say that there are no operational issues or that the case temps did not change when this data looks so different?

The suction pressure set points for XP40 are ~ 5 psi different from R-404A based on the respective PT charts for the two refrigerants. The suction temperature data reported is from actual measurements on one specific system, and was influenced by a number of unique factors, including post-retrofit proper adjustment of evaporator superheats, correcting improperly installed TXV sensing bulb, among others which may cause the system suction temperature after the conversion to be different than prior.

7. Can you reclaim XP40?

Yes, as long as it has not been mixed with any other refrigerants .

8. Is the PT chart available?

Yes, it can be found at the link below and it is also included in each retrofit guide.

https://www.chemours.com/Refrigerants/en_US/products/Opteon/Stationary_Refrigeration/assets/downloads/Opteon-XP40-pressure-temperature-data.pdf

9. What are the toxic by-products if an HFO burns? Any health concerns?

HFOs are similar to HFCs, in that if they are exposed to an open flame from halide detection or brazing, hydrogen fluoride, a hazardous acidic compound, can be generated. The probability of generating hydrogen fluoride, and the recommended safe work practices to prevent this scenario, are the same whether using an HFO or HFC. Like HFCs, HFOs are safe to use when handled properly.

10. If you top off the XP40/XP10 multiple times, will this impact its A1 non-flammable rating?

No. As part of the ASHRAE Standard 34 listing process for a A1 rating, the refrigerant blend undergoes rigorous fractionation testing, including multiple leak recharge scenarios in order to assure even the worst case scenario remains non-flammable.

2016 Exhibitors as of
1/13/16

ACR Supply
 Arocaire
 Air Oasis
 Baker Distributing
 Bally
 Bosch Water Source Heat
 Pump
 Cooper-Atkins
 Daikin
 Direct Refrigeration Sales
 DuPont
 Engineering Equipment
 Sales
 E. V. Dunbar
 Hudson Technologies
 Inficon
 IRP, NRP and PSG
 Manitowoc
 Mueller
 NC DOL OSH Division
 Rectorseal Corp
 RefPlus
 Spectronics
 Sporlan Valve, Division of
 Parker
 Testo
 Thermal Zone
 Trenton
 True Food Service
 Equipment
 United Components
 United Refrigeration

Disciplinary Action

Penalties for violations of the licensing law and Board rules vary depending on the facts and circumstances of each case.

Jimmy Barnes, Seagrove, NC. Allegations of refrigeration contracting without a license. Board approved a Cease and Desist on November 8, 2015 demanding respondent immediately cease and desist from offering or rendering commercial refrigeration contracting without a valid refrigeration contractors' license issued under the provisions of N.C. General Statute §87-57.

Ziad Hilou, Big Z's Inc., Garner, NC. Allegations of refrigeration contracting without a license. Board approved a Cease and Desist on November 8, 2015 demanding respondent immediately cease and desist from offering or rendering commercial refrigeration contracting without a valid refrigeration contractors' license issued under the provisions of N.C. General Statute §87-57.

Jesse M. Patton, Patton Mechanical Service, Halifax, NC. Allegations of refrigeration contracting without a license. Letter of Warning signed July 15, 2015 cautioning respondent against doing refrigeration contracting without a valid refrigeration contractors' license issued under the provision of N.C. General Statute §87-57.

Jimmy Poole, Southern Comfort Service, Inc., Willow Spring, NC. Allegations of refrigeration contracting without a license. Board approved a Cease and Desist on September 15, 2015 demanding respondent immediately cease and desist from offering or rendering commercial refrigeration contracting without a valid refrigeration contractors' license issued under the provisions of N.C. General Statute §87-57.

Stephen W. Thomas #4278, Artic Temp., Greensboro, NC. Allegations of misconduct in the business of refrigeration contracting in that licensee failed to obtain permit and subsequently when permit was pulled, it was not issued in the company name respondent has registered with the Board. This constitutes violations of N.C. General Statute §87-62(a), 87-58(i) and 21 NCAC 60.0311 and 60-0314(b). Consent order was entered by Board on November 8, 2015 reprimanding the licensee and imposing a \$300 fine.

Marvin Spicer, RM Services and Sales, Wilmington, NC. Allegations of refrigeration contracting with out a license. Consent order filled on October 29, 2015 with Wake County Superior Court enjoining respondent from further practice of refrigeration contracting in NC until such time, if ever, he is properly licensed.

Lloyd F. Wright #4205, Rizon Restaurant Services, Stuart, VA. Allegations of misconduct in the business of refrigeration contracting in that licensee failed to register correct company name with the Board. This constitutes violations of N.C. General Statute §87-62(a), 87-58(i) and 21 NCAC 60-0314(b). Consent order was entered by Board on November 8, 2015 reprimanding the licensee and imposing a \$100 fine.





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 Refrigeration Examiners**

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Clip and Mail

REGISTRATION FORM

Please register the following for Refrigeration Up-Date 2016

Name _____ Name _____

Name _____ Name _____

Company Name _____

Address _____ City _____ State ____ Zip _____

Method of Payment: Check Money Order VISA MasterCard (\$25 per person to include entrance to the exhibit area, lunch and breaks)

Card # _____ Exp. Date _____

Return to SBRE, 889 US 70 Hwy W., Garner, NC 27529