

# DEL MONTE

Field notes for refrigerant conversion from R-22 to RS-44b completed at Del Monte produce in Galveston, Texas



## THE CONVERSION AND RECOMMISSIONING

In the year prior to conversion considerable work had been performed at the facility. The goal was to reduce load through proper balancing of the system and to locate and repair leaks some of which were sizeable in nature causing operational issues. Because this work was performed and trending of system is available through the facilities control system, a true base line of

performance had been documented. We have seen no operational degradation with the replacement refrigerant and can say it may be more efficient than the previously installed R-22.

The following are field notes on adjustments made during startup and the following few weeks to tune the plant to the conversion refrigerant RS-44B.

## *Adjustments, Calibrations, Observations*

Compressors:

- Compressors had to have the V.I. calibration shortened in span to keep compressors from hunting ,this is due to the fact the compressors use a algorithm that uses R-22 pressures and temperatures, the calculation then is converted to the most efficient discharge volume, limiting the Vi should have no adverse effects.
- Compressors with liquid injection required considerable time to line out. it was eventually found that the compressor separator temperature should be ran approximately 20 to 30 degrees above oil entering temperatures, allowing what oil is entrained in the refrigerant to drop out.
- All compressors now run with the oil return from dry deck opened up to half or better, an increase from just slightly opened. We are counting on the coalescent filters to remove a good portion of the oil previously separated in the separators.
- All oil filters have or will be changed there was a marked increase in debris, refrigerant appears to have a cleaning effect.

Condensers:

- Condensers had to have their control set point lowered by 15 psig to accommodate for the lower condensing temperature's and pressure until this was done we were unable to build liquid in the dual High Pressure Receivers .In fact the system appeared to be undercharged until the control point was adjusted.

Evaporators:

- Facility utilizes 60 evaporators at various temperatures. Each evaporator has or will need to have its txv set to accommodate the new refrigerant, this may not be needed elsewhere however due to the desired setpoints, and required lack of any dead band these were. We will continue to monitor coils performance.
- We have found during low load conditions RS-op44B has a tendency to stack in evaporators and exchangers. This is likely a symptom of plant design and it has worsened due to the glide associated with the conversion refrigerant.

Valves:

- We have seen a number of valves which were already wire drawn to become worse, some will have to be replaced, this is due to the cleaning effects of the new refrigerant, but worth mentioning. When charging an older system additional valves should be installed inline in case an entry valve fails to seat.

We will continue to monitor the system and make changes as needed, overall I believe I would say the retrofit was a success and all vested partners are satisfied with the performance of the system.

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