



21CR Project 611-20080

## **Critical Literature Review on Lubricant Influence in Refrigerant Heat Transfer and Pressure Drop**

Updated 22 January 2004

### **Objective:**

- 1) Obtain a state-of-the-art summary on the influence various refrigerant/lubricant mixtures have on heat transfer and pressure drop.
- 2) Provide recommendations on design equations for engineers.

### **Information/items will result from this project:**

- 1) A comprehensive literature search on the heat transfer and pressure drop of refrigerant/oil mixtures.
- 2) A critical review based on scientific and engineering opinion of the methodologies and results/conclusions in the cited studies identified in the literature search.
- 3) Recommended correlations that can be used by design engineers.
- 4) Identification of critical lubricant parameters/properties and their influence on two-phase heat transfer.
- 5) Identification of existing gaps in the literature along with the suggested direction and methodology for future studies.

### **How are the results likely to be applied:**

The results will be applied by heat exchanger and system design engineers. They will apply the results to design more efficient system.

### **Research Subcontractor:**

Purdue University (Principal Investigator: Eckhard Groll, Ph.D.).

### **Status:**

This project was concluded in the first quarter of 2004 and a final report approved for release. The final report is available free for downloading from the ARTI website.

**Responsible 21CR Subcommittee:** HVAC&R Energy Efficiency