**The International Copper Association Moves to Broaden Applications for MicroGroove Technology at the China Refrigeration Expo in Shanghai**

*Large Commercial and Industrial Heat Exchangers, Refrigeration Systems in the Cold Chain, Heat Pumps and Natural Refrigerants Benefit from Smaller Diameter Copper Tubes*

**Shanghai, China (8 April 2013)** — The International Copper Association is exhibiting MicroGroove Technology at the China Refrigeration Expo at the Shanghai New International Exposition Center, April 8-10 at the MicroGroove Booth, **W3D55**.

MicroGroove technology uses smaller diameter, inner-grooved copper tubes to increase the heat transfer coefficient of tubes in coils commonly used in refrigeration and air conditioning applications. This year marks the third consecutive year of exhibiting MicroGroove at the “CR-Expo,” or officially the International Exhibition for Refrigeration, Air-conditioning, Heating and Ventilation, Frozen Food Processing, Packaging and Storage.

“Copper tubing is essential to the efficient function of refrigeration systems and air conditioners,” says Nigel Cotton, MicroGroove Team Leader for the International Copper Association. “Smaller-diameter copper tubes are being adopted in a broad range of applications; consequently consumer products and commercial equipment will be more efficient and ecofriendly than ever.” The use of smaller diameter tubes reduces refrigerant volume and requires less material for the same amount of heat transfer capacity.

**Beyond Residential**

Initially, MicroGroove was developed for residential air-conditioners and successfully adopted by Haier, Gree, Midea, HiSense, Kelon, Chigo and other major air-conditioner OEMs. Smaller-diameter tubes now are commonly seen in the condenser and evaporator coils of new room air conditioners, including window units and split systems.

Recognizing this success, the technology is now being chosen for commercial and industrial applications, including both refrigeration systems and air conditioning equipment. According to Cotton, although first developed in China for residential products, “MicroGroove is now being used worldwide in commercial-sized condensers and evaporators. When smaller diameter copper tubes are used in the construction of large-area heat exchanger coils, major advantages are realized in terms of energy savings, materials savings, reduced refrigerant charge and smaller footprints.”

Furthermore the technology is well suited for a broad array of products in the cold chain, including large condensing units as well as distributed evaporators in coolers and freezers. Refrigerated transport is another application that could benefit because MicroGroove allows for compact coils. In other words, the same cooling capacity fits in a smaller space.

**A Natural Choice**

Smaller-diameter copper-tubes offer an effective way to reduce refrigerant charge, which is especially important in cases where flammability is a concern. The International Copper Association has already designed and built air conditioners that use propane as a refrigerant. The coil design was optimized using simulation-based design method and a knowledge-based evolution method.

“Research on coils using MicroGroove tubes with propane as a refrigerant is timely, considering that the US Environmental Protection Agency’s Significant New Alternatives Policy program has authorized R290 as one of the available hydrocarbon refrigerants in household and small commercial refrigerators and freezers,” says Cotton. “Smaller diameter copper tubes are a good match for natural refrigerants because the smaller tubes can support higher pressures and they require less refrigerant charge.”

Visit www.microgroove.net for information and join our discussion on LinkedIn: [www.linkedin.com/groups/Microgroove-4498690](http://www.linkedin.com/groups/Microgroove-4498690).

**About ICA**

The International Copper Association, Ltd. (ICA) is the leading organization for promoting the use of copper worldwide. ICA’s mission is to promote the use of copper by communicating the unique attributes that make this sustainable element an essential contributor to the formation of life, to advances in science and technology, and to a higher standard of living worldwide. Visit [www.microgroove.net](http://www.microgroove.net) for more information about ICA.

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