



**THERMAL
SYSTEMS**

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Laird Thermal Systems Launches Alternative Refrigerant-Based Cooling Systems Initiative

New advances in alternative refrigerant solutions to be presented at 2022 SEMI-THERM symposium...

March 9, 2022 – Laird Thermal Systems has launched an initiative to introduce the use of alternative refrigerants in refrigeration-based cooling systems to address global warming and changes in regulatory requirements in the cooling industry. Many years ago, the industry

moved away from using flammable, environmentally friendly refrigerants such as R-290 propane in favor of higher performing but ozone depleting chlorofluorocarbon-based refrigerants. This new development initiative will focus on maximizing operational performance, cooling capacity and the safe use of alternative refrigerants to significantly reduce the Global Warming Potential (GWP) associated with these systems.



Alternative
Refrigerant
Initiative 

Alternative refrigerants have received significant consideration for use as future alternatives due to their performance and environmentally friendly characteristics. These characteristics include zero Ozone Depleting Potential (ODP) and near zero GWP. However, these benefits come at the cost of some of these refrigerants being classified as flammable. Due to increasing concerns of global warming and the corresponding increase in regulatory requirement changes, demands for understanding and developing eco-friendly and safe systems using flammable refrigerants continue to rise.

Most refrigerants used today have an ODP of 0 and a GWP ranging from ~500 to ~4000. As a result, the scientists at Laird Thermal Systems undertook an initiative to develop a new approach to using R-290 refrigerant, which has an ODP of 0 and GWP of 3.

“It is believed that mass production and global use of high GWP synthetic refrigerants during several decades have had significant effects on global warming, which is why we are moving towards using environmentally friendly refrigerants that still safely deliver the desired cooling performance,” says Dr. Sang Muk Kwark, Staff Scientist at Laird Thermal Systems.

Dr. Kwark will be presenting a paper at the 38th Annual SEMI-THERM Symposium on Wednesday, March 23 entitled *Evaluation of Cooling Capacity of Refrigeration System with Limited Charge of R-290*. Access information at www.lairdthermal.com on alternative refrigerant cooling systems at SEMI-THERM.

“The greatest impact to the cooling capacity in alternative-based cooling systems is the limited amount of flammable refrigerant that is allowed to be shipped within a single system,” says Greg Ducharme, Liquid Cooling Systems Product Director at Laird Thermal Systems. “Through design optimization, the amount of R-290 contained in these systems is small enough to meet international air shipment regulations and still provide the cooling capacity of a system with six times the refrigerant charge.”

The company plans to introduce the alternative-refrigerant technology in future platform products.

About Laird Thermal Systems

Laird Thermal Systems designs, develops and manufactures thermal management solutions for demanding applications across medical, industrial and telecommunications markets. We manufacture one of the most diverse product portfolios in the industry, ranging from active thermoelectric coolers and assemblies to temperature controllers and liquid cooling systems. With unmatched thermal management expertise, our engineers use advanced thermal modeling and management techniques to solve complex heat and temperature control problems. By offering a broad range of design, prototyping and in-house testing capabilities, we partner closely with our customers across the entire product development lifecycle to reduce risk and accelerate time-to-market. Our global design, manufacturing and support resources help customers shorten their product design cycle, maximize productivity, uptime, performance and product quality. Laird Thermal Systems is the optimum choice for standard or custom thermal solutions.

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