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AerisGuard Efficiency and Energy Trial Results

In February 2007 Aeris Technologies announced that it had entered into a contract with Food Science Australia (FSA), a joint venture between CSIRO and the Victorian Government, to examine the efficiency and energy saving benefits of the Company's unique AerisGuard™ Cool Room Performance Solutions.

The results of these first stage trials highlight the true potential value of the AerisGuard technology. The results were even more pleasing given the trials were performed in "real-life" commercially operated cool rooms which presented a number of challenges to the FSA team to correct results for the significant number of external factors affecting the measurements¹.

The key outcomes of the trials were:

- 1. The AerisGuard technology would provide a potential reduction of about 74,500 tonnes of CO₂ greenhouse gases per year throughout Australia, based on the increase in cooling capacity and its impact on coefficient of performance (see point 5 below).**^{2,3}
- 2. The AerisGuard technology would provide a reduction in a cool room's operating temperature.** In the systems tested, this reduction was 0.4°C. The impact on operating temperatures is expected to be greater in cold stores less

¹ As is the case with all "real-life" tests, the variability of individual site recordings due to localised conditions, daily operational influences and differing refrigeration systems mean individual site results are subject to variations amongst these results. Further research will be required to provide better benchmarking predictability

² Based on commercial and industrial cold store installations in Australia with energy saving potential and based upon an 8% increase in cooling capacity and 70% utilization per year

³ Emission reductions will require the refrigeration system to translate an increased COP to reduced energy consumption. The reductions are therefore 'potential' as not all refrigeration systems can currently achieve this translation.

well maintained than those tested. Temperature is critical in food storage, where even half a degree variation in storage temperature can have a dramatic effect on the shelf life and spoilage rates of food stuffs. For example, the optimal storage temperature for strawberries is +0°C⁴. In a cold store operating anywhere above this optimum temperature, a 0.4°C improvement after the Aeris treatment can extend the shelf-life of the strawberries by several valuable hours.

3. **The AerisGuard technology would provide a reduction in temperature variability within the cool room by up to 1°C.** Temperature variability is a measure of the ability of the refrigeration system to keep an even temperature throughout the room and prevent any “hot-spots”, which can have a dramatic and detrimental impact on shelf-life and spoilage rates.
4. **The AerisGuard technology would provide an increase in the evaporator⁵ cooling capacity.** In the plants tested, the increase in the evaporator’s cooling capacity ranged from 8% to 39%. Improved cooling capacity translates into better temperature control in cold stores.
5. **The AerisGuard technology would provide an improvement in the ratio of ‘cold’ created to the energy input at the compressor.** Higher ratios, also known as “coefficient of performance” (COP) or “energy efficiency ratios” (EER), translate into better utilisation of the money spend in energy. The COP improvements in the plants tested ranged from 15% to 28%.

Understandably, whilst energy savings are of great interest to the operators of cool rooms they are generally significantly more concerned in ensuring that their facility is working efficiently to optimise the storage environmental conditions for their valuable food stuff and consequently to maximise shelf life and minimise spoilage. And in this respect the results of these trials demonstrate the great value of the AerisGuard Cool Room Performance Solutions.

Importantly the FSA results have also identified a number of specific areas for future testing related to efficiency and energy savings in the cold storage environment.

4 USDA, 2004. The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks Agriculture Handbook Number 66

5 “Evaporator” refers to the refrigeration box located inside the cool room (encompassing the evaporator heat exchange coil and fan).

Huw Jones, CEO of Aeris Technologies, comments *“I have been on site with the Aeris Hygiene Services teams when they are remediating and protecting cold storage refrigeration systems and our customers are constantly amazed (and often shocked) by the gross contamination that we remove from their commercial refrigeration systems. The customer is then even more amazed at the noticeable improvement in air-flow and drop in temperature in the cool room. The Food Science Australia study now provides strong independent evidence on what our customers are already experiencing. The study will certainly assist Aeris Hygiene Services in discussions with all customers but particularly those with a global presence who by necessity have a high focus on food storage and hygiene standards and on reducing their corporation’s impact on the environment.”*

Aeris Hygiene Services continues to provide its growing number of customers a complete cold storage performance solution resulting in both significant improvements in efficiency and superior levels of hygiene.

Huw Jones
Chief Executive Officer

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About Aeris Technologies

Aeris Technologies Ltd is an integrated environmental technology company focusing on the international environmental service market. The Company has three core technologies centered on multi-enzyme biofilm removal solutions, residual anti-microbial coatings and corrosion protection coatings. Aeris has developed products for application in the air-conditioning and cold storage service and manufacturing industries together with the large water treatment market.

The Company has a number of distribution partnerships around the world including 3M in Japan and Trane in Indochina and a direct service subsidiary in Australia, Aeris Hygiene Services, focused on the cold storage environment.

Aeris Hygiene Services Pty Ltd is a wholly owned subsidiary of Aeris Technologies Ltd and launched in July 2006 to promote and physically apply the AerisGuard suite of products in the cold storage environment in Australia.