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Industry visits Australia's first CO₂-only supermarket system

A site visit to the country's first transcritical refrigeration system has put to rest industry scepticism about the efficiency of CO₂ in hot climates. Most significantly, the event revealed a keen interest from leading food retailers to use CO₂ in new installations.

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"It's no exaggeration to describe the Angle Vale transcritical CO₂ system as a revolutionary improvement in supermarket refrigeration in Australia," Brent Hoare from the Natural Refrigerants Transition Board (NRTB) commented after the site visit to Australia's first CO₂-only system. Organized by the NRTB, more than 60 participants from all over Australia gathered on 20 February at the North Adelaide suburb of Angle Vale to take a closer look at the cutting-edge installation and discuss further steps. Close attention was paid to the operation of the system, and to distinguishing design aspects, such as the compact and streamlined characteristics of the plant, small pipework sizes, sophisticated controls and the yet simple design (see photo gallery).

The site visit, organized to prove the viability of CO₂ Technology during worst-case summer conditions, proved a success, as participants could assure themselves of the efficient system operation under Australia's current temperatures of up to 40°C. Transcritical CO₂ systems, already well established in cool climates in Europe, have therefore made a first decisive step towards a wide-spread use in hot climates. After two months operation, modelling of the Angle Vale system's performance indicates that it will use less electricity than conventional R-404 direct expansion systems. However, to demonstrate this data, the NRTB will start data recording soon to report on the performance over the next two years.



CO₂ sparks high interest from retail food industry

Besides proving the technical viability of the system, the most significant aspect was that the NRTB site visit attracted a broad and senior level of industry representatives, as leading retail groups, such as Coles and Woolworths, showed a keen interest in the new technology. Participants largely praised the independent Drakes supermarket for its courage to choose a CO₂-only installation without any back-up system, seeing the installation as a major step towards a transformation of the refrigeration industry. Many were convinced that once cost issues have been addressed, local supplier networks installed, and the predicted efficiency has been proven there would be no looking back. The NRTB estimates that in one year's time the case for transcritical CO₂ systems will become much more compelling for the industry to replace old systems with the easy-to-install CO₂ systems.

Leading retail groups, including Australia's largest food retailer Woolworths, had already announced to use CO₂ cascade systems in new "green" supermarkets. (see attached article).

Australia moves towards sustainable refrigeration

At present, Australia's government is thinking about how to incorporate refrigerants in the country's Emission Trading Scheme currently under development. If emission permits are required to import hydrofluorocarbons (HFCs), this would raise the costs of conventional systems, favouring the use of CO₂.

In addition, policy makers have proposed an Eco-Labeling scheme for all large installations to make greenhouse gas emissions from commercial refrigeration equipment more visible. R744.com will report

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about this issue soon. Please check regularly for updates.

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