

Opportunities for Heat Pump Drying in Industrial Processes

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Heat pump dehumidifier technology offers particular benefits to drying high-quality, temperature-sensitive products and products requiring a non-vented closed drying environment. Yet the technology remains a niche player in the drying industry and compared with conventional dryers, there is a widely held perception that dehumidifier technology is fragile, slow and has a high capital cost on a per unit capacity basis.

This paper analyses the traditional uses of dehumidifier technology and illustrates the potential for utilising heat pumps for adding product value through improving product quality, providing new products and reducing energy costs and associated environmental impacts. A case study is given of timber drying in New Zealand, illustrating demonstrated and potential improvements in product quality that are driving market growth in a highly competitive industry.

In order to realise the potential of heat pump dehumidification technology, the supply industry needs to take a more integrated approach that takes into account the potential of unique drying environments for new products and added value, high system efficiency and reliability, low environmental impact, and ease of use. To secure these benefits for their users, the dehumidifier industry, supported by the professional institutions, should promote best practices in dehumidifier applications, such as rating capacity and efficiency standards, recognised performance benchmarks, and recommended drying schedules.