

**Carbon Dioxide as refrigerant in a distribution centre**

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**ABSTRACT:**

HFCs have failed to replace R22 and R502 in industrial cold store systems, but for some end-users ammonia is not acceptable in direct systems. Carbon dioxide was selected as the preferred refrigerant for a distribution centre built in Scotland in 2003 for the UK supermarket chain, ASDA. Previous ASDA facilities had used glycol as the heat transfer fluid for the chill chambers in the distribution centre, with a direct ammonia system serving the cold store. It was felt that significant advantages in the cost of construction could be gained by using a carbon dioxide / ammonia cascade system instead, and that there would also be benefits in the operating cost of the site. This paper describes the system design and compares ammonia content and system efficiency of the new site with existing facilities in ASDA's distribution network.