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Commercial refrigeration - An overview of current status

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**Commercial refrigeration - An overview of current status**

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**Abstract**

Commercial Refrigeration comprises food freezing and conservation in retail stores and supermarkets, so, it is one of the most relevant energy consumption sectors, and its relevance is increasing. This paper reviews the most recent developments in commercial refrigeration available in literature and presents a good amount of results provided these systems, covering some advantages and disadvantages in systems and working fluids. Latest researches are focused on energy savings to reduce CO<sub>2</sub> indirect emissions due to the burning of fossil fuels. They are focused on system modifications (as dedicated subcooling or the implementation of ejectors), trigeneration technologies (electrical, heating and cooling demand) and better evaporation conditions control. Motivated by latest GWP regulations that are intended to reduce high GWP HFC emissions; R404A and R507 are going to phase out. Besides hydrocarbons and HFO, CO<sub>2</sub> appears as one of the most promising HFC replacements because its low contribution to global warming and high efficiencies when used in transcritical and low-stage of cascade systems.

**Keywords:** Commercial Refrigeration; Supermarket; Energy Saving; HFC replacement; Control; Review.

**Nomenclature***Abbreviations*

AHRI Air-Conditioning, Heating, and Refrigeration Institute

COP Coefficient of Performance

DX Direct Expansion

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