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Theoretical Performance Evaluation of Sustainable Refrigerants in Marine Engineering Practice

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Abstract: *Refrigeration is, and has been an essential component of marine engineering practice for the past several decades, however, with increasing worldwide awareness of the detrimental effects refrigerants can have on the environment, this "niche" area of the marine engineering profession has undergone major regulatory changes. This article lists the regulatory changes with their enforcement and phase-out date for the most commonly used marine refrigerants, proposes suitable environmentally acceptable alternatives detailing their performance evaluation, and describes the most common problems encountered during the conversion process for existing marine HVAC and provision refrigeration installations both in the off-shore sector and on ocean-going vessels based on statistical data and practical real-world examples witnessed by me in my professional practice.*

Keywords: refrigerants, sustainable, marine engineering practice, vessels, decarbonization, ozone depletion, environmental

REFERENCES

[1] Data, MSC Ship Management
[2] International Maritime Organizationhttps://www.imo.org/
[3] International Convention for the Safety of Life at Sea (SO LAS)
[4] International Convention for the Prevention of Pollution from ships (MARPOL)
[5] United States, Environmental Protection Agency (EPA)https://www.epa.gov/
[6] Emerson Climate Technologies (n.d), Copeland Refrigeration Manual
[7] Nordic Council of Ministers (2019), Refrigeration units in marine vessels
[8] Danfoss Engineering (2022), Refrigerant options now and in the future