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NOMENCLATURE

co₂ CO₂ emission coefficient per kilo, kgCO₂.kg-1

CO₂ CO₂ contribution to global warming, kgCO₂

COP coefficient of performance

E percent of energy for recycling, %

GWP global warming potential, kgCO₂.kg-1

LCCP life cycle climate performance, kgCO₂

H annual operating hours, h.yr-1

m mass, kg

N dimensionless total number

p percent annual refrigerant leak rate, %.yr-1

P percent leak rate, %

Q' power, kW

RC refrigerant charge, kgCO₂

REC refrigerant recycling rate, %

T temperature, °C

TEWI total equivalent warming impact, kgCO₂

V plant useful life, yr

Ŵ electricity demand, kW

Greek symbols

α CO₂ emission from power conversion, kgCO₂.kWhyr-1

ε dimensionless performance index

Subscripts

acc accidental

adp atmospheric degradation product of the refrigerant

dir direct

eq equivalent

FREEZ freezer cell

FRIGO cold cell

HFO HFO1234yf

indir indirect

L regular

mat material

prod refrigerant production and transport

R refrigerant recycling

ref refrigerant

serv system servicing

t total