

R22 Replacement Refrigerant Guide

LOW TEMP REFRIGERATION

REFRIGERANT	GWP	COMPOSITION	GLIDE (°C)	COOLING CAPACITY (VS R22)	DISCHARGE TEMPERATURE	COP (EFFICIENCY)	WORKING PRESSURE (VS R-22)
R22	1760	R22 (1000%)	0.0	100%	100%	100%	100%
R407C	1624	R-32 (23%), R-125 (25%), R-134a (52%)	4.2	87%	85%	93%	108%
R407F	1674	R-32 (30%), R-125 (30%), R-134a (40%)	3.9	99%	88%	92%	120%
R427A	1923	R-32 (20%), R-125 (40%), R-134a (40%)	3.7	90%	81%	90%	114%
R427A	2024	R-32 (15%), R-125 (25%), R-134a (60%)	3.8	81%	80%	91%	104%
R438A	2059	R-125 (45%), R-134a (44.2%), R-32 (8.5%), R-600 (3%), R-227ea (0.3%)	3.4	76%	73%	88%	102%
R417A	2127	R-125 (46.6%), R-134a (50%), R-600 (3.4%)	2.3	65%	67%	86%	92%
R422D	2473	R-125 (65.1%), R-134a (31.5%), R-600 (3.4%)	2.2	72%	64%	80%	105%

Data Obtained from Genetron Properties 1.4.2
A basic refrigeration cycle is used in the simulations

Operating parameters:

Evaporating Temp:	-32 °C
Evaporator Super heat	5,6 °C
Suction Line temperature Rise	20 °C
Compressor displacement	0,005 m ³
Compressor isentropic efficiency	0.65
Condensing Temp	50 °C
Condensor Subcool	5 °C

MED TEMP REFRIGERATION

REFRIGERANT	GWP	COMPOSITION	GLIDE (°C)	COOLING CAPACITY (VS R22)	DISCHARGE TEMPERATURE	COP (EFFICIENCY)	WORKING PRESSURE (VS R-22)
R22	1760	R22 (100%)	0.0	100%	100%	100%	100%
R407C	1624	R-32 (23%), R-125 (25%), R-134a (52%)	4.1	94%	88%	94%	109%
R407F	1674	R-32 (30%), R-125 (30%), R-134a (40%)	3.8	104%	91%	93%	120%
R427A	1923	R-32 (20%), R-125 (40%), R-134a (40%)	3.7	96%	85%	91%	115%
R427A	2024	R-32 (15%), R-125 (25%), R-134a (60%)	3.7	88%	84%	93%	105%
R438A	2059	R-125 (45%), R-134a (44.2%), R-32 (8.5%), R-600 (3%), R-227ea (0.3%)	3.3	83%	77%	90%	103%
R417A	2127	R-125 (46.6%), R-134a (50%), R-600 (3.4%)	2.3	73%	72%	89%	93%
R422D	2473	R-125 (65.1%), R-134a (31.5%), R-600 (3.4%)	2.0	79%	70%	84%	105%

Data Obtained from Genetron Properties 1.4.2
A basic refrigeration cycle is used in the simulations

Operating parameters:

Evaporating Temp:	-8 °C
Evaporator Super heat	5,6 °C
Suction Line temperature Rise	10 °C
Compressor displacement	0,005 m ³
Compressor isentropic efficiency	0.65
Condensing Temp	55 °C
Condensor Subcool	5 °C

POE = Polyolester oil

MO = Mineral Oil

AB = Alkylbenzenes



A system containing R22 cannot be topped up with another refrigerant; a full recharge is required

AIR-CONDITIONING

REFRIGERANT	GWP	COMPOSITION	GLIDE (°C)	COOLING CAPACITY (VS R22)	DISCHARGE TEMPERATURE	COP (EFFICIENCY)	WORKING PRESSURE (VS R-22)
R22	1760	R22 (100%)	0.0	100%	100%	100%	100%
R407C	1624	R-32 (23%), R-125 (25%), R-134a (52%)	3.7	95%	91%	93%	110%
R407F	1674	R-32 (30%), R-125 (30%), R-134a (40%)	3.3	104%	94%	91%	121%
R427A	1923	R-32 (20%), R-125 (40%), R-134a (40%)	3.2	97%	89%	90%	116%
R427A	2024	R-32 (15%), R-125 (25%), R-134a (60%)	3.3	90%	88%	92%	106%
R438A	2059	R-125 (45%), R-134a (44.2%), R-32 (8.5%), R-600 (3%), R-227ea (0.3%)	2.9	84%	83%	89%	104%
R417A	2127	R-125 (46.6%), R-134a (50%), R-600 (3.4%)	2.0	74%	78%	88%	93%
R422D	2473	R-125 (65.1%), R-134a (31.5%), R-600 (3.4%)	1.7	78%	77%	82%	106%

Data Obtained from Genetron Properties 1.4.2
A basic refrigeration cycle is used in the simulations

Operating parameters:

Evaporating Temp:	8 °C
Evaporator Super heat	5,6 °C
Suction Line temperature Rise	5 °C
Compressor displacement	0,005 m ³
Compressor isentropic efficiency	0.75
Condensing Temp	65 °C
Condensor Subcool	5 °C

! This guide has been listed by lowest GWP to highest and NOT by performance or preference

! There is no single product that can replace R22 in all applications.

! All information supplied is for guide purposes only

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