



**REFRIGERANTS
WITH
THE FUTURE
IN MIND**

Honeywell

HONEYWELL REFRIGERANTS APPLICATION GUIDE

COMMERCIAL REFRIGERATION

ASHRAE #	GWP ¹	Trade Name	Replaces	Blend Composition / ASHRAE Classification ²	Typical Lubricant ³	Comments
	AR5		ASHRAE #			
R-1234yf	1	Solstice yf	R-134a	HFO (single component fluid) ASHRAE A2L	Alkylbenzene, Synthetic (POE, PAG)	Ultra-low GWP and higher capacity solution for vending machines, plug in cabinets, and water chillers. New equipment only
R-1234ze	1	Solstice ze	R-134a	HFO (single component fluid) ASHRAE A2L	Alkylbenzene, Synthetic (POE, PVE, PAG)	Ultra-low GWP and high efficiency solution for vending machines, plug in cabinets, low side of cascade systems and water chillers. New equipment only
R-455A	146	Solstice L40X	R-404A R-507	R-32/R-1234yf/CO ₂ ASHRAE A2L	Synthetic (POE)	Low GWP blend for low, medium, and high temperature systems, low side of cascade systems. Excellent option for self-contained units. Close performance match to R-404A. New equipment only
R-450A	547	Solstice N13	R-134a R-401A R-401B R-409A	R-134a/R-1234ze ASHRAE A1	Synthetic (POE)	GWP is 58% lower than R-134a >90% capacity with similar efficiency (101-103% vs R-134a). New equipment and retrofits
R-513A	573	Solstice 513A	R-134a	HFO R-1234yf/ R-134a	Synthetic (POE)	Close performance match to R-134a for retrofit and new systems
R-515B	299	Solstice N15	R-134a	R-1234ze/R-227ea	Synthetic (POE)	Reduced GWP replacement for 134a in new systems, low side of cascade systems. GWP 77% lower than R134a.
R-448A	1273	Solstice® N40	R-404A R-402A R-408A R-22 R-507 R-502	R-32/R-125/ R-134a/R-1234ze/R- 1234yf ASHRAE A1	Synthetic (POE)	Global warming potential (GWP) is 68% lower than R-404A. 5% - 16% lower energy consumption vs R-404A. Best capacity and efficiency alternative to R-22 and R-404A. New equipment and retrofits.
R-134a	1300	Genetron® 134a	R-12	R-134a ASHRAE A1	Synthetic (POE, PVE)	Similar energy efficiency and good capacity match compared to R-12. Performs well in small hermetic systems
R-407F	1674	Genetron Performax® LT	R-22 R-404A R-402A R-408A R-507	R-32/R-125/ R-134a ASHRAE A1	Synthetic (POE, PVE)	Good capacity match to R-22. Lower discharge temperature vs R-22. Cost-effective alternative New equipment and retrofits.
R-452A	1945	Solstice 452A	R-404A R-507	R-1234yf/ R-32/R-125 ASHRAE A1	Synthetic (POE)	Low and medium temperature alternative for R-404A. Discharge temperature similar to R-404A. Transport, condensing units, self-contained units. New equipment and retrofits.
Service Gas Refrigerants						
R-404A	3943	Genetron 404A		R-125/R-143a/ R-134a ASHRAE A1	Synthetic (POE, PVE)	R-404A and R-507 are HFC blends with high GWP. These refrigerants are subject to future regulations on usage. Honeywell recommends utilizing HFO blends such as Solstice N40 for new equipment and as a replacement for R-404A and R-507 in existing equipment
R-507	3985	Genetron AZ-50®		R-125/R-143a ASHRAE A1	Synthetic (POE, PVE)	
R-22	1760			R-22 ASHRAE A1	Mineral oil	No new R-22 refrigerant can be manufactured or imported into the U.S. or Canada. Any servicing must use stockpiled or reclaimed material.

COMMERCIAL AIR CONDITIONING / CHILLERS

ASHRAE#	GWP ¹	Trade Name	Replaces	Blend Composition / ASHRAE Classification ²	Typical Lubricant ³	Comments
	AR5		ASHRAE #			
R-1234ze	1	Solstice ze	R-134a	HFO (Single component fluid) ASHRAE A2L	Alkylbenzene Synthetic (POE, PVE, PAG)	Ultra-low GWP solution, best performance match to R-134a. New equipment (chillers, small systems)
R-1233zd	1	Solstice zd	R-123	HFO (Single component fluid) ASHRAE A1	Alkylbenzene Mineral oil Synthetic (POE, PVE)	Ultra-low GWP solution for low pressure chillers. New equipment only Organic Rankine Cycle
R-450A	547	Solstice N13	R-134a, R-409A, R-401A, R-401B	R-134a/R-1234ze ASHRAE A1	Synthetic (POE)	GWP is 58% lower than R-134a >90% capacity with similar efficiency (101-103% vs R-134a). New equipment and retrofits
R-513A	573	Solstice 513A	R-134a	HFO R-1234yf/ R-134a	Synthetic (POE)	Close performance match to R-134a for retrofit and new systems
R-515B	299	Solstice N15	R-134a / R-124	R-1234ze/R-227ea	Synthetic (POE)	For use in chillers and for cooling systems for high ambient conditions. GWP 77% lower than R134a. 23% capacity gain over R-124 and similar efficiency in high ambient applications.
R-466A	733	Solstice N41	R-410A	R-32 / R-125 / R-1311 ASHRAE A1 (preliminary)	Synthetic (POE)	Nonflammable GWP is 60% lower than R-410A New Equipment Only
R-245fa	858	Genetron 245fa	R-11 R-123	HFC (Single component fluid) ASHRAE B1	Synthetic (POE, PVE)	Equipment redesign, Organic Rankine Cycle heat transfer fluid. New equipment only
R-134a	1300	Genetron 134a	R-12 R-500	HFC (Single component fluid) ASHRAE A1	Synthetic (POE, PVE)	Similar energy efficiency and good capacity match to R-12. New equipment and retrofits
R-407C	1624	Genetron 407C	R-22 R-500	R-32/R-125/R-134a ASHRAE A1	Synthetic (POE)	Best retrofit alternative to R-22. Close performance match with slightly higher operating pressures. New equipment and retrofits
R-410A	1923	Genetron AZ-20®	R-22	R-32/R-125 ASHRAE A1	Synthetic (POE)	High pressure, high efficiency New equipment only
Service gas						
R-123	79	Genetron 123	R-11 (HCFC)	HFC (Single component fluid) ASHRAE B1	Alkylbenzene Mineral oil Synthetic (POE, PVE)	Phased out 2020



RESIDENTIAL/LIGHT COMMERCIAL AIR CONDITIONING/HEAT PUMP

ASHRAE #	GWP ¹	Trade Name	Replaces	Blend Composition / ASHRAE Classification ²	Typical Lubricant ³	Comments
	AR5		ASHRAE #			
R-466A	733	Solstice N41	R-410A	R-32 / R-125 / R-1311 ASHRAE A1 (preliminary)	Synthetic (POE)	Nonflammable. GWP is 60% lower than R-410A. New Equipment Only
R-134a	1300	Genetron 134a	R-12	HFC (Single component fluid)	Synthetic (POE)	Similar energy efficiency and good capacity match compared to R-12 New equipment and retrofits
			R-500	ASHRAE A1	Alkylbenzene	
R-407C	1624	Genetron 407C	R-22	R-32/R-125/R-134a	Synthetic (POE)	Best retrofit alternative to R-22. Close performance match with slightly higher operating pressures New equipment and retrofits
			R-500	ASHRAE A1		
R-410A	1923	Genetron AZ-20	R-22	R-32/R-125 ASHRAE A1	Synthetic (POE)	High pressure, high efficiency New equipment only
R-422D	2477	Genetron 422D	R-22	R-125/R-134a/R-600a ASHRAE A1	Mineral Oil Synthetic (POE)	Use of synthetic (POE) will enhance oil return, if required. Retrofits.

MOBILE AIR CONDITIONING / AUTOMOTIVE

ASHRAE #	GWP ¹	Trade Name	Replaces	Blend Composition/ ASHRAE Classification ²	Typical Lubricant ³	Comments
	AR5		ASHRAE #			
R-1234yf	1	Solstice yf	R-134a	HFO (Single component fluid) ASHRAE A2L	Synthetic (POE, PAG)	Ultra-low GWP solution New equipment only (small systems)
R-134a	1300	Genetron 134a	R-12	HFC (Single component fluid) ASHRAE A1	Synthetic (POE, PVE)	Similar energy efficiency and good capacity match to R-12

¹Listing of GWP Values as per Report IPCC WG1 AR5 (100-yr time horizon)

(a) CFC=Chlorofluorocarbon; HCFC=Hydrochlorofluorocarbon; HFC=Hydrofluorocarbon; H=Hydrocarbon; FC=Fluorocarbon; HFO = Hydrofluoro-olefin

²**ASHRAE Classification Guide:**

ASHRAE A1: Nonflammable, low toxicity

ASHRAE A2L: Mildly flammable, low toxicity

ASHRAE B1: low flammability, higher toxicity

³Check with the compressor manufacturer for their recommended lubricant

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