

A-GAS[®]

PRODUCT INFORMATION GUIDE



Product Information Summary-Refrigeration



Product Type	ASHRAE Number	Brand Names	ODP	GWP	Molecular Weight kg/mol	Boiling Point @ 1 bar °C	Critical Temperature (°C)	Critical Pressure (bar)	Safety Group Classification*	Compatible Oils /Lubricants**	Retrofit replacement for
CFC Phased out 1999	R11		1	4750	137.4	23.77	197	44.1	A1	MO	
	R12		1	10900	120.9	-29.8	111	41.4	A1	MO, AB	
HCFC phasing down from 2014 - 2040	R22		0.05	1810	86.5	-40.7	96	49.9	A1	MO, AB, POE	R12 / R502
	R123		0.02	77	152.9	27.6	183	36.6	A1	MO, AB	
	R402A		0.019	2788	101.5	-49.2/-47	76	42.2	A1	POE, AB	R12 / R502
	R402B		0.03	2416	94.7	-47.2/-44.9	83	45.2	A1	POE, AB	R12 / R502
	R403B		0.028	4457	92	-43.8/-42.3	88	43.3	A1	POE, AB	R12 / R502
	R406A		0.0562	1943	89.9	-32.7/-23.5	116	48.6	A1	MO, AB	R12 / R502
	R408A		0.235	3152	87	-45.5/-45.0	83	42.9	A1	POE	R12 / R502
	R409A		0.046	1585	97.4	-35.4/-27.5	106	47	A1	AB	R12 / R502
HFC	R134a		0	1430	102	-26	101	41	A1	POE, PAG	R12, R22
	R404A		0	3922	98	-46	72	37	A1	POE	R502, R22
	R407A		0	2107	90	-45	82	45	A1	POE	R22, R404A
	R407C		0	1774	86	-44	86	46	A1	POE	R22
	R407F	Genetron Performax® LT	0	1825	82	-46	83	48	A1	POE	R22, R404A, R407A
	R410A		0	2088	73	-53	73	50	A1	POE	R22, R13B1
	R507		0	3985	99	-47	71	38	A1	POE	R502, R22
	R422D	Isceon MO29	0	2729	110	-43	80	39	A1	MO, POE, AB	R22
	R437A	Isceon MO49+	0	1805	104	-29	96	41	A1	POE	R12
	R417A	Isceon MO59	0	2346	107	-39	87	40	A1	MO, POE, AB	R22
	R422A	Isceon MO79	0	3143	114	-47	72	38	A1	MO, AB, POE	R22, R502
		Isceon MO89	0	3805	114	-55	70	37	A1	MO, AB, POE	R13B1
	R438A	Isceon MO99	0	2252	99	-42	85	43	A1	POE	R22
	R426A	RS-24	0	1508	103	-29	101	41	A1	POE, PAG	R12
	R424A	RS-44	0	2440	108	-39	89	40	A1	POE	R22
	R434A	RS-45	0	3238	105	-45	78	39	A1	POE	R22
	R442A	RS-50	0	1888	82	-47	82	48	A1	POE	R404A, R507A, R22
	R428A	RS-52	0	2999	101	-47	73	38	A1	POE	R22, R502
	R508A		0	13214	100	-88	10	36	A1	POE	R503
	R508B		0	13396	95	-87	11	37	A1	POE	R503

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Low GWP Alternatives HFC/HFO Blends	R448A	Solstice® N40	0	1387	86	-46	84	47	A1	POE	R404A, R22
	R450A	Solstice® N13	0	604	109	-23	104	38	A1	POE	R134a
	R1234ZE	Solstice® ZE	0	6	114	-19	109	36	A1 < A2L	Modified POE	
	R1233ZD(E)		0	4.5	131	19	166	36	A1 < A2L	Modified POE	
	R449A	Opteon® XP40	0	1397	87	-46	82	44	A1	POE	R404A, R507A
	R452A	Opteon® XP44	0	2140	104	-47	75	40	A1	POE	R404A, R507A
	R513A	Opteon® XP10	0	631	108	-29	97	38	A1		R134a
	R32		0	675	52	-52	78	54	A2L	POE	R410A
	HFO1234yf	Soltice® yf	0	4	114	-30	95	34	A1 < A2L	Modified POE	R134a
Natural Refrigerants	R744 (CO ₂)	eCO ₂	0	1	44	-57	31	74	A1	Modified POE	R134a, R404A
	R717 (Ammonia)		0	0	17	-33	132	113	B2L	MO, POA	R22, R134a
Hydrocarbons (Flammable)	R1270 (Propylene)	Care 45	0	2	42	-48	92	46	A3	MO, AB, POE	R22, R134a
	R290 (Propane)	Care 40	0	3	44	-42	97	43	A3	MO, AB, POE	R22, R502
	R600A (Iso-Butane)	Care 10	0	4	58	-12	135	36	A3	MO, AB, POE	R12, R134a
	R170		0	3		-89	32		A4	MO, AB, POE	R23, R508B

* A1: Non-Flammable and Lower Toxicity / A2: Lower Flammability and Lower Toxicity / A3: Higher Flammability and Lower Toxicity / B2L Lower Flammability and Higher Toxicity

** POE=Polyol ester oil, MO=Mineral oil, AB=Alkylbenzene, PAG=Polyalkylene oil

The information contained within this website is for guidance only, for further system specific advice please call A-Gas directly