Borea
SUSTAINABLE REFRIGERANTS

Borea GR-22 (R-481A)

DIRECT REPLACEMENT FOR R-22

R-481A is an HFC (Hydrofluorocarbon) refrigerant gas, a direct alternative to R-22 and its subsequent replacements, with no impact on the ozone layer due to its zero ozone depletion potential. It is easy to use since it can be directly replaced in R-22 equipment while maintaining similar performance and consumption. With a GWP lower than 1400, it is the refrigerant with the lowest GWP on the market for this application.

TRADE NAME

GR-22

ASHRAE NAME:

R-481A (Borea GR-22)

TECHNICAL SPECIFICATIONS:

0	1399	A1	Mineral, Alkylbenzene and POE
ODP	GWP	Safety classification	Compatible lubricants

Temperature range: High, medium and low, down to -30ºC.

Replacement:
R-22

Type of replacement:
Drop-in (direct replacement)

APPLICATIONS

- Air Conditioning
- Commercial Refrigeration
- Industrial Refrigeration
- Refrigerated Transport

Borea
SUSTAINABLE REFRIGERANTS

Borea GR-22 (R-481A)

AHRI REGULATIONS

GRIT (Gases Research Innovation & Technology) is committed to the continuous improvement of our inbuilt Quality Control, Environment and Major Accident Prevention Systems as well as close collaboration with our product and service providers. The scope of the system includes the packaging, commercialisation, storage and innovation of technical gases and the management of residual fluorinated gas and halogenated solvents.

All this work is reflected in our certificates ISO 9001 & ISO 14001. GRIT also meets AHRI 700 standard for new and recycled refrigerants.

THERMODYNAMIC PROPERTIES CHART:

Bubble point

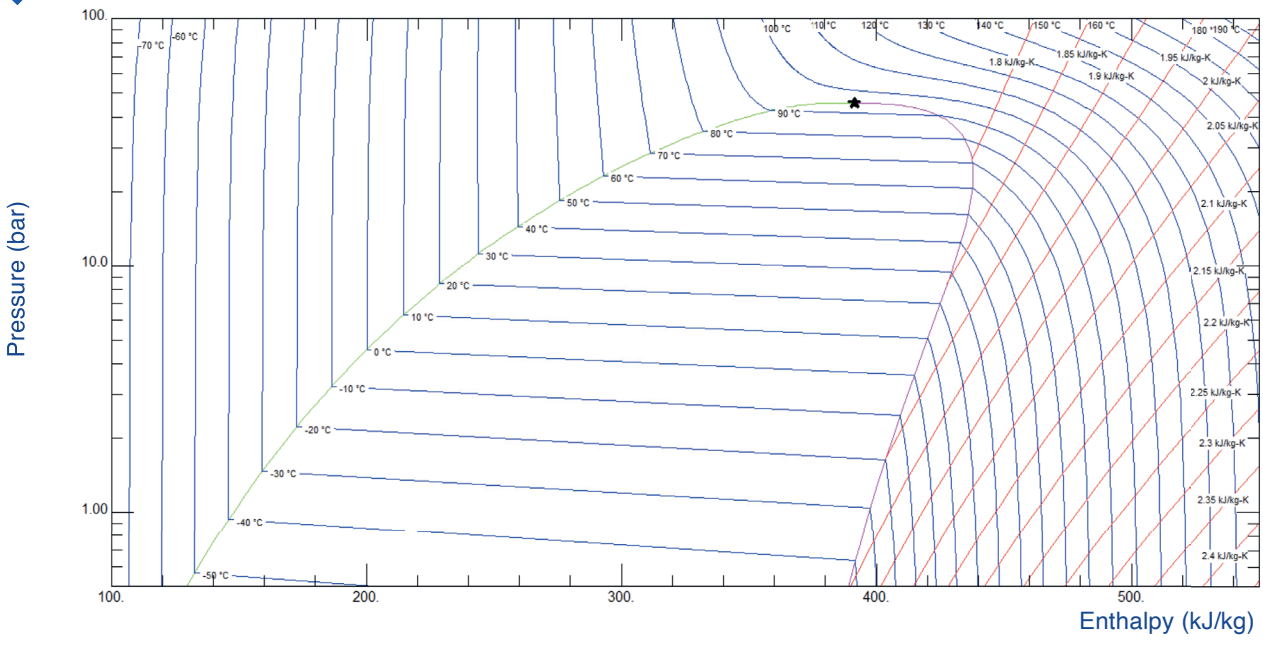
Temperature (ºC)	Absolute pressure (bar)	Liquid density (kg/l)	Gas density (kg/l)	Liquid enthalpy (kJ/kg)	Gas enthalpy (kJ/kg)
-40	0,93	1,36	0,0038	145,81	415,54
-35	1,18	1,35	0,0047	152,41	417,44
-30	1,47	1,33	0,0059	159,05	419,34
-25	1,81	1,32	0,0072	165,75	421,25
-20	2,22	1,30	0,0088	172,49	423,14
-15	2,69	1,29	0,0106	179,30	425,01
-10	3,24	1,27	0,0127	186,17	426,86
-5	3,86	1,26	0,0151	193,10	428,66
0	4,58	1,24	0,0179	200,11	430,42
5	5,39	1,22	0,0210	207,19	432,11
10	6,30	1,20	0,0247	214,36	433,73
15	7,33	1,19	0,0288	221,61	435,27
20	8,48	1,17	0,0335	228,97	436,71
25	9,76	1,15	0,0388	236,43	438,04
30	11,17	1,13	0,0448	244,02	439,24
35	12,74	1,11	0,0517	251,73	440,28
40	14,46	1,08	0,0595	259,60	441,14
45	16,34	1,06	0,0684	267,62	441,80
50	18,40	1,04	0,0785	275,84	442,22

Borea GR-22 (R-481A)

Dew point

Temperature (ºC)	Absolute pressure (bar)	Liquid density (kg/l)	Gas density (kg/l)	Liquid enthalpy (kJ/kg)	Gas enthalpy (kJ/kg)
-40	0,63	1,39	0,0030	147,93	391,70
-35	0,82	1,37	0,0038	154,15	394,77
-30	1,04	1,36	0,0048	160,43	397,82
-25	1,31	1,34	0,0059	166,78	400,82
-20	1,63	1,33	0,0073	173,21	403,79
-15	2,02	1,31	0,0089	179,72	406,71
-10	2,47	1,30	0,0108	186,30	409,57
-5	2,99	1,28	0,0130	192,97	412,37
0	3,60	1,26	0,0155	199,72	415,10
5	4,29	1,24	0,0184	206,57	417,75
10	5,09	1,23	0,0217	213,50	420,32
15	5,99	1,21	0,0256	220,54	422,79
20	7,01	1,19	0,0299	227,69	425,15
25	8,15	1,17	0,0348	234,95	427,39
30	9,44	1,15	0,0405	242,34	429,49
35	10,87	1,13	0,0469	249,87	431,44
40	12,45	1,11	0,0542	257,56	433,21
45	14,21	1,08	0,0625	265,41	434,78
50	16,16	1,06	0,0721	273,46	436,10

PRESSURE DIAGRAM – ENTHALPY (P-h)



Borea
SUSTAINABLE REFRIGERANTS

Borea GR-22 (R-481A)

INSTRUCTIONS:

Cargar en el sistema por fase líquida, puede ser necesario ajustar la regulación de la válvula de expansión. Debido a que es compatible con todos los lubricantes comúnmente empleados, no requiere cambio del aceite original de la instalación.

MORE INFORMATION:

If you want more information about our products, contact us.

EUROPE — GRIT, Gases Research Innovation & Technology

BARCELONA

Our plant:
P. I. "El Punsic", parcela 8.3,
08279 Avinyó, Barcelona. España.

Our office:
Avda. Diagonal 403, 6º 3ª
08008 Barcelona. Spain.

Phone: (+34) 932 721 400
E-mail: grit@grit.es
Website: www.gasesgrit.com

USA — Summit Refrigerants

HOUSTON

8541 East North Belt
Humble, Texas 77396

Phone: (+1) 281-540-2653
Toll-Free: (+1) 866-971-2653
Fax: (+1) 281-540-0385

DALLAS

2080 McDaniel Drive
Suite 200
Carrollton, Texas 75006

Phone: (+1) 469-458-3195
Fax: (+1) 469-458-3085

BATON ROUGE

10080 Industriplex Avenue
Gonzales, LA 70737

Phone: (+1) 225-744-2653
Fax: (+1) 225-677-6106