SOLSTICE® N15 (R-515B)

TECHNICAL DATA SHEET

Solstice® N15 (R-515B) is a nonflammable (A1) azeotropic blend designed as a long-term replacement for R-134a in medium- and high-temperature applications. It has a low Global Warming Potential (GWP) of only 292, 80% lower than R-134a.

PHYSICAL PROPERTIES

Solstice® N15 (R-515B)	
Class/Type	Azeotropic blend
Formula"	R-1234ze / R-227ea (91.1% / 8.9%)
Appearance	Colorless
ODP	0
GWP 4th IPCC	292
Flammability Limits – ASTM E681-04 @ 21°C	Nonflammable
ASHRAE Std. 34 Safety Class	A1
LFL (% vol)	Nonflammable

PROPERTIES	
Molecular weight	117.5 lbm/lb-mol
Boiling temperature @ 0 psig	-2.0°F
Critical temperature	228.0°F
Critical pressure	507 psig
Critical volume	0.0322 ft³/lbm
Critical Density	31.03 lbm/ft³
Vapor Density at 0 psig Boiling Point	0.367 lbm/ft³
Liquid Density at 32°F	78.56 lbm/ft³
Liquid Density at 77°F	73.65 lbm/ft³
Vapor Density at 77°F	1.69 lbm/ft³
Liquid Heat Capacity at 77°F	0.33 Btu/lbm-°F
Vapor Heat Capacity at 77°F	0.23 Btu/lbm-°F
Heat of Vaporization at Boiling Point	81.7 Btu/lbm
Saturated Pressure at 77°F	57.45 psig
Liquid Thermal Conductivity at 77°F	0.042 Btu/hr-ft-°F
Vapor Thermal Conductivity at 77°F	0.008 Btu/hr-ft-°F
Liquid Viscosity at 77°F	0.4864 lbm/ft-hr
Vapor Viscosity at 77°F	0.0299 lbm/ft-hr

BENEFITS

- Nonflammable (ASHRAE A1)
- Reduced GWP: 80% lower than R-134a
- Efficiency comparable to R-134a
- Zero glide
- Lower discharge temperature compared to R-134a
- Can be used in equipment designed for R-1234ze
- Higher critical temperature compared to R-134a
- Low operating pressures

APPLICATIONS

Commercial Refrigeration Application:

- Supermarket refrigeration systems
- Remote condensing units
- High-temperature side of cascade refrigeration systems
- Flooded systems
- Stand-alone units
- Waterloop systems for discount stores and supermarkets
- Food service

Heating/Cooling Applications:

- Chillers
- Heat pumps
- High-ambient air conditioning

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MATERIALS COMPATIBILITY

Solstice does not recommend the use of chlorinated solvents to clean refrigeration systems or components.

DESICCANTS

Desiccant driers compatible with Solstice® N15 (R-515B) are commercially available. Contact individual drier manufacturers for specific recommendations.

LUBRICANTS

Polyolester (POE) oil is recommended for using Solstice N15. Compressor manufacturers typically qualify specific lubricants for use with their products. Users should check with the equipment manufacturer for the recommended lubricants for their system.

PLASTICS AND ELASTOMERS

Solstice N15 is compatible with most common materials. In the case of retrofit systems that may contain chlorinated materials, please contact your Solstice sales representative for specific information.

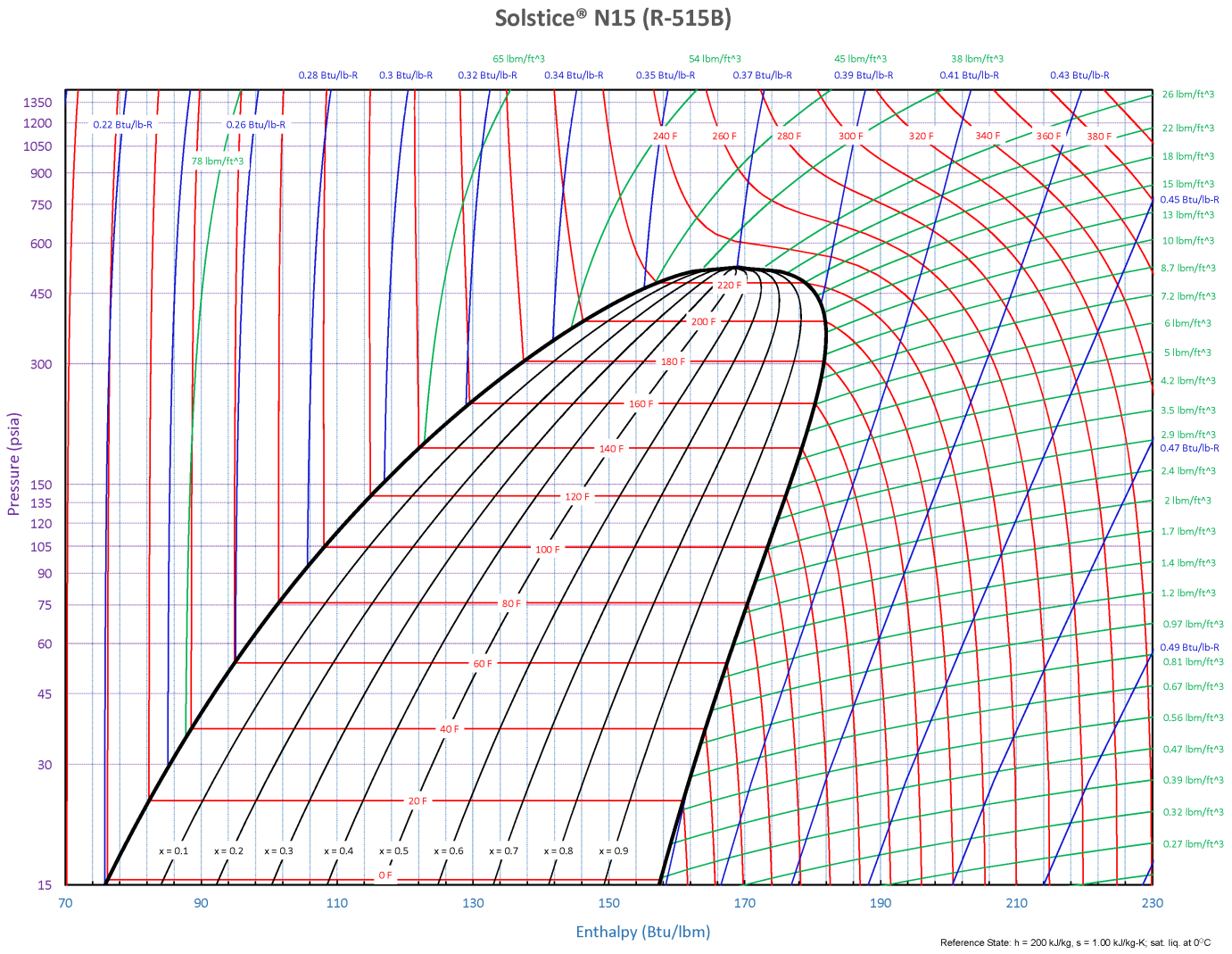
SAFETY AND STORAGE

Solstice recommends reading the Safety Data Sheet (SDS) before using Solstice N15. According to the compressed gas classification, Solstice N15 is nonflammable. It has similar storage and handling requirements to R-404A in bulk and cylinder.

LEAK DETECTION

Leak detectors can be used for pinpointing specific leaks or for monitoring an entire room on a continual basis. Leak detection is important for refrigerant conservation, equipment protection and performance, reduction of emissions and protection of those coming in contact with the system. Customers should consult the equipment manufacturer for appropriate detectors.

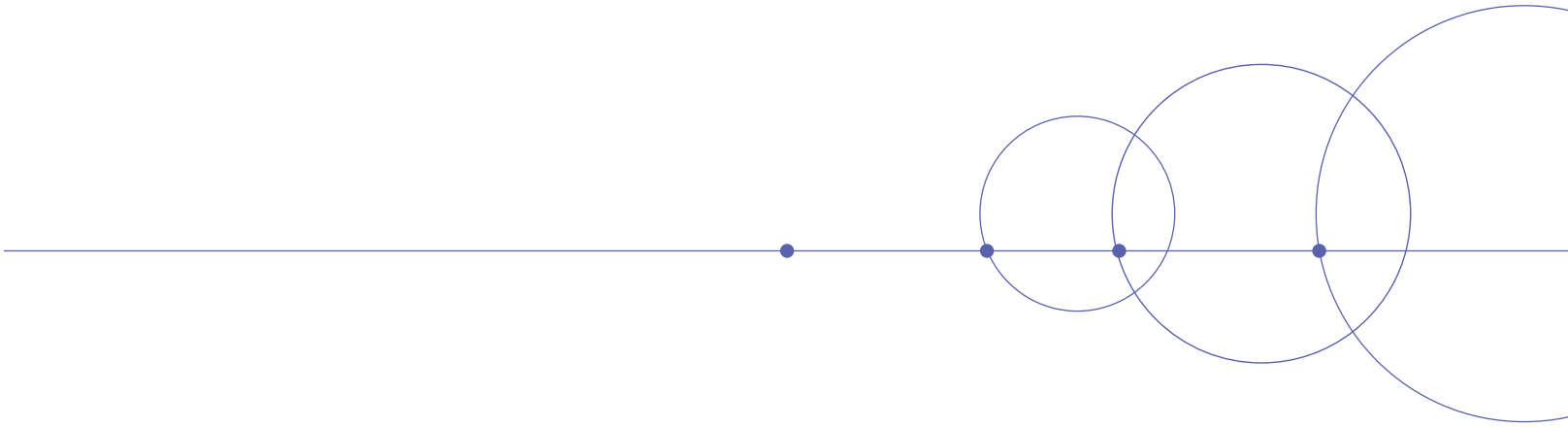
PRESSURE AND ENTHALPY



R-515B	
Temperature (°F)	Pressure (psig)
0	0.7
2	1.5
4	2.3
6	3.1
8	3.9
10	4.8
12	5.7
14	6.6
16	7.6
18	8.6
20	9.6
22	10.7
24	11.8
26	13
28	14.2
30	15.4
32	16.6
34	17.9
36	19.3
38	20.7
40	22.1
42	23.6
44	25.1
46	26.7
48	28.3
50	29.9
52	31.6
54	33.4
56	35.2

R-515B	
Temperature (°F)	Pressure (psig)
58	37.1
60	39
62	40.9
64	42.9
66	45
68	47.2
70	49.3
72	51.6
74	53.9
76	56.2
78	58.7
80	61.2
82	63.7
84	66.3
86	69
88	71.7
90	74.6
92	77.4
94	80.4
96	83.4
98	86.5
100	89.7
102	92.9
104	96.2
106	99.6
108	103.1
110	106.6
112	110.3
114	114

R-515B	
Temperature (°F)	Pressure (psig)
116	117.8
118	121.6
120	125.6
122	129.6
124	133.8
126	138
128	142.3
130	146.7
132	151.2
134	155.7
136	160.4
138	165.2
140	170.1
142	175
144	180.1
146	185.3
148	190.5
150	195.9
152	201.4
154	207
156	212.7
158	218.5
160	224.4
162	230.4
164	236.5
166	242.8
168	249.2
170	255.7



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