



## PRESSURE-TEMPERATURE CHART

TEMP (°F)	National R-422B	
	Liquid (psig)	Vapor (psig)
-40	0.9	2.7"
-35	3.0	0.9"
-30	5.4	1.1
-25	7.9	3.2
-20	10.7	5.7
-15	13.8	8.3
-10	17.1	11.3
-5	20.7	14.5
0	24.7	18.0
5	29.0	21.9
10	33.6	26.1
15	38.6	30.6
20	43.9	35.5
25	49.7	40.8
30	55.9	46.6
35	62.5	52.7
40	69.6	59.4
45	77.2	66.5
50	85.3	74.1
55	93.9	82.2
60	103	90.9
65	113	100
70	123	110
75	134	120
80	145	132
85	158	143
90	170	156
95	184	169
100	198	183
105	213	198
110	229	213
115	246	230
120	263	247
125	281	265
130	301	284
135	321	304
140	342	326

Values from NIST Refprop 8.0 Red Figures (IN Hg) Vacuum

# R-422B

## APPLICATIONS:

- ◆ Residential Air Conditioning
- ◆ Commercial Air Conditioning

## PERFORMANCE:

- ◆ Best match at warmer evaporator temps / AC
- ◆ Lower discharge temperature than R-22
- ◆ Slightly lower capacity than R-22
- ◆ No oil change required

**Non-Ozone Depleting / Nonflammable / Non-toxic**

## Physical Properties of Refrigerants

Refrigerant Classification	HFC
Molecular Weight	108.5
Boiling Point (1atm, °F)	-42.4
Critical Pressure (psia)	574.1
Critical Temperature (°F)	181.8
Critical Density (lb./ft <sup>3</sup> )	32.9
Liquid Density (70 °F, lb./ft <sup>3</sup> )	73.05
Vapor Density (bp, lb./ft <sup>3</sup> )	0.363
Heat of Vaporization (bp, BTU/lb.)	84.2
Specific Heat Liquid (70 °F, BTU/lb. °F)	0.3385
Specific Heat Vapor (1atm, 70 °F, BTU/lb. °F)	0.201
Ozone Depletion Potential (CFC 11 = 1.0)	0
Global Warming Potential (CO <sub>2</sub> = 1.0)	2525
ASHRAE Standard 34 Safety Rating	A1

## Temperature Glide (°F)

## NATIONAL R-422B

Refrigerant Classification	HFC
Molecular Weight	108.5
Boiling Point (1atm, °F)	-42.4
Critical Pressure (psia)	574.1
Critical Temperature (°F)	181.8
Critical Density (lb./ft <sup>3</sup> )	32.9
Liquid Density (70 °F, lb./ft <sup>3</sup> )	73.05
Vapor Density (bp, lb./ft <sup>3</sup> )	0.363
Heat of Vaporization (bp, BTU/lb.)	84.2
Specific Heat Liquid (70 °F, BTU/lb. °F)	0.3385
Specific Heat Vapor (1atm, 70 °F, BTU/lb. °F)	0.201
Ozone Depletion Potential (CFC 11 = 1.0)	0
Global Warming Potential (CO <sub>2</sub> = 1.0)	2525
ASHRAE Standard 34 Safety Rating	A1
Temperature Glide (°F)	5

## AVAILABLE SIZES

Type	Size
Cylinder	25 lb.
	110 lb.



## National Refrigerants, Inc.

11401 Roosevelt Boulevard  
Philadelphia, PA 19154  
Tel: 800.262.0012  
fax: 215.698.7466  
web: www.refrigerants.com  
e-mail: info@refrigerants.com

## General Considerations:

- **Fixed Expansion Devices.** Systems with orifice tubes may not perform exactly the same when retrofitted since high and low side pressures and other refrigerant properties are slightly different from R-22. Replacement of the orifice tube, however, is not usually required.
- **TXVs.** Properly sized R-22 TXVs will most likely be suitable for use with R-422B. If the valve is running at the limit of its capacity with R-22, it may appear to be undersized after retrofit and may need to be replaced.
- **Filter Dryer.** A filter drier should be added to a system as part of the retrofit process. If one already exists, the filter drier should be replaced with the same type currently in use.
- **Lubricant.** R-422B is compatible with mineral oil, alkylbenzene oil and polyolester oil. The hydrocarbon component in R-422B will help move mineral oil around most systems that do not have receivers. For any system that has difficulty with oil return, the addition of a few ounces of POE oil will help keep the mineral oil moving back to the compressor.
- **Performance.** R-422B may lose some capacity compared to R-22.\* In a properly designed system, however, this will result in slightly longer run times. Low side pressure will be a few PSI lower than R-22 and high side pressures will be very similar.
- **Seals and O-Rings.** For any retrofit job it is recommended to change Schrader valve cores, o-rings on caps, and any seals found to be leaking before the retrofit takes place.



## Retrofit Procedures:

1. Collect baseline data for operation of the system with existing R-22 charge. Make note of any obvious performance problems with the system. Leak check the system as well, identifying any repairs to perform during the retrofit process.
2. Disconnect electrical power to system and properly recover the R-22 charge. Do not top off a system that contains R-22 with R-422B. Record the weight of R-22 recovered.
3. Perform any required maintenance or repair operations previously identified, including replacement of Schrader cores and filter drier.
4. If desired, pressurize and leak check the system by preferred method. Evacuate the system down to 250 microns and confirm that it holds.
5. Remove liquid R-422B from the cylinder and charge the system to about 90% to 95% of the original R-22 charge size.
6. Restart the system and allow it to come to normal operation conditions. Compare the new operation data to the R-22 baseline data. Adjust charge or system settings as needed.
7. Place a label on the system indicating that it contains R-422B refrigerant and the oil type.

## Servicing Considerations:

- R-422B can be added to a system during servicing, if required, without recovering the existing R-422B charge. Verify system performance. If the system has a critical charge, however, it is recommended that any remaining refrigerant be removed prior to servicing.
- This refrigerant blend must be removed from the cylinder as a liquid.
- Follow industry approved best practices for recovery of refrigerant and achieve full vacuum on the system at the end of the recovery process. Avoid mixing refrigerants during recovery.
- Recovery of R-422B requires a recovery cylinder with a service pressure of 260 psig minimum.

\* Capacity loss will be greater in high ambient temperatures.

