

## R-416A Product Info Sheet

R416A is THE Choice for Improved Performance With Your R-12 Conversions.

- R-416A is EPA SNAP accepted for use in Stationary Systems, and Flooded Evaporators/Chillers.
- It is non-toxic, non-flammable (A1/A1 Rated) and UL classified (File # MH25671.)
- Is less than half the cost of hard to find R-12.
- Will be manufactured through 2020.
- No other blend can match R-416A's performance.

### Advantages of Aspen R-416A vs. R-12

- R-416A is approximately 1/2 the price
- R-416A has less than 1% the ozone depletion of R-12
- R-416A has 1/8th the global warming potential
- R-416A typically uses less energy to produce equivalent cooling
- R-416A has lower high and low side pressures
- R-416A will be manufactured throughout expected lifetime of the air conditioning and refrigeration equipment .



### Advantages of Aspen R-416A vs. R-22 Based Blends (R-401A, R-409A, R-414B)

- R-416A has lower discharge pressures and temperatures
- R-416A has lower glide and is classified as a NARM (Near Azeotrope)
- R-416A exhibits lower fractionation, it can be topped-off without loss of performance
- R-416A has better compatibility with the materials of construction in systems designed for R-12
- R-416A has a lower global warming and lower ozone depletion potential
- R-416A optimizes compressor performance: quieter, longer life with reduced current draw

### Advantages of Aspen R-416A vs. R-134a

- R-416A costs less to convert
- R-416A is designed to replace R-12
- R-416A is an enhanced R-134a blend
- R-416A is a lower pressure refrigerant
- R-416A is more compatible with existing oil in R-12 systems
- R-416A typically produces a faster interior cool down
- R-416A is less susceptible to system shutdown under hot idle conditions
- R-416A charged systems run at lower temperatures and pressures extending compressor and system life expectancy
- R-416A works better in undersized condensers

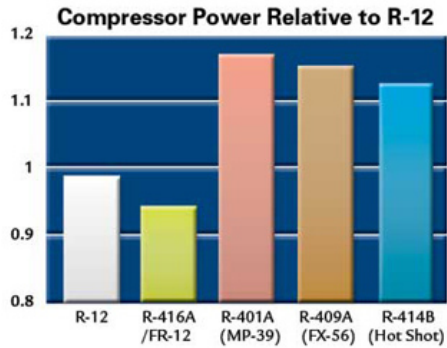
### Advantages of Aspen R-416A vs. RB276

- R-416A ASHRAE approved with "R" R-416A
- R-416A UL Classified
- R-416A A1/ A1 Non toxic, non flammable
- EPA Approved for automotive and stationary A.C. and chillers
- 12 year sales experience into domestic and global markets
- Blended and packaged by major refrigerant producer (s)
- Factory warranty, Factory Tech Support

## The Lower Pressure Solution™ for R-12

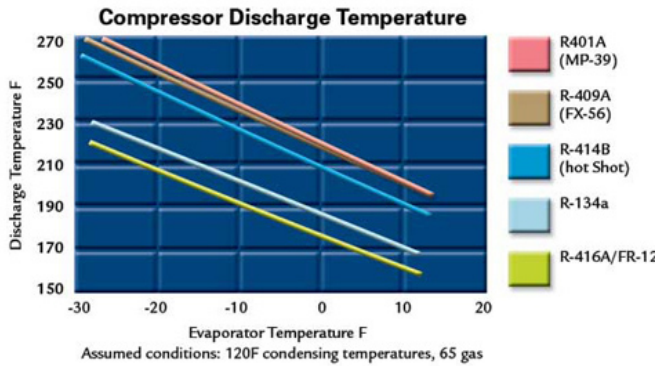
R-416A needs less compressor power, has a lower discharge temperature, has lower head pressures, lower glide, and has the best environmental performance.

### Graph 1 - Lower Compressor Power

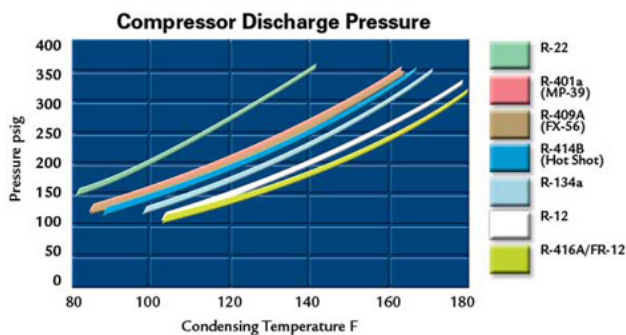


- Lower discharge temperature and pressure
- Less stress on the compressor, especially during hot gas defrost
- Cooler, quieter operation

### Graph 2 - Lower Discharge Temperature

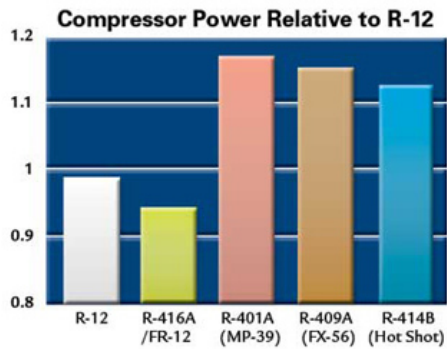


### Graph 3 - Lower Head Pressures

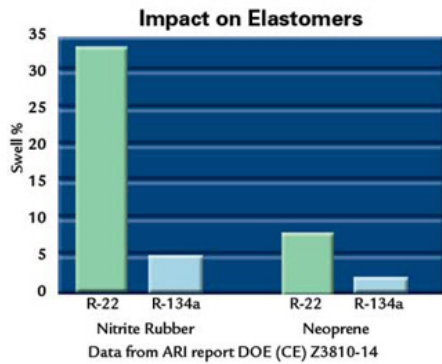


- Reliable Operation In High Ambient Conditions
- Less Strain On System Components

**Graph 4 - Less Fractionation than Others**

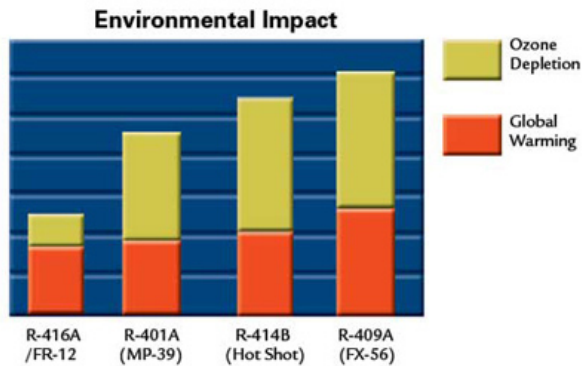


**Graph 5 - Elastomer**



- Works with R-12 & R-134a System Materials
- No Barrier Hoses Required
- Significantly Better Seal Compatibility Than R-22 Blends

**Graph 6 - Environmental**



- The Best Overall Environmentally
- Lowest Global Warming Potential (GWP), Even Than R-134A

Pressure/Temperature Chart					
Temperature		R-12	134a	R-416A	
°F	°C			Liquid Pressure	Vapor Pressure
-60	-51.1	19.0			
-55	-48.3	17.3			
-50	-45.6	15.4			
-45	-42.8	13.3			
-40	-40.0	11.0	14.8		
-35	-37.2	8.4	12.5		
-30	-34.4	5.5	9.9	12.1	13.4
-25	-31.7	2.3	6.9	9.6	11.0
-20	-28.9	0.6	3.7	6.7	8.3
-15	-26.1	2.4	0.6	3.5	5.3
-10	-23.3	4.5	1.9	0.0	2.0
-5	-20.6	6.7	4.0	1.9	0.8
0	-17.8	9.2	6.5	4.0	2.8
5	-15.0	11.8	9.1	6.3	5.0
10	-12.2	14.6	11.9	8.9	7.4
15	-9.4	17.7	15.0	11.6	10.0
20	-6.7	21.0	18.4	14.6	12.8
25	-3.9	24.6	22.1	17.8	15.9
30	-1.1	28.4	26.1	21.4	19.3
35	1.7	32.6	30.4	25.2	22.9
40	4.4	37.0	35.0	29.3	26.8
45	7.2	41.7	40.1	33.7	31.1
50	10.0	46.7	45.5	38.4	35.6
55	12.8	52.0	51.3	43.5	40.5
60	15.6	57.7	57.5	49.0	45.7
65	18.3	63.8	64.1	54.8	51.3
70	21.1	70.2	71.2	61.1	57.3
75	23.9	77.0	78.8	67.7	63.7
80	26.7	84.2	86.8	74.8	70.6
85	29.4	91.8	95.4	82.3	77.8
90	32.2	99.8	104.0	90.3	85.5
95	35.0	108.3	114.0	98.8	93.7
100	37.8	117.2	124.0	108.0	102.0
105	40.6	126.6	135.0	117.0	112.0
110	43.3	136.4	147.0	127.0	121.0
115	46.1	146.8	159.0	138.0	132.0
120	48.9	157.7	171.0	149.0	143.0
125	51.7	168.6	185.0	161.0	154.0
130	54.4	181.0	199.0	173.0	166.0
135	57.2	193.5	214.0	186.0	179.0
140	60.0	206.6	229.0	200.0	192.0
145	62.8	220.3	246.0	214.0	206.0
150	65.6	234.6	263.0	229.0	221.0
155	68.3	249.5	281.0		
160	71.1	265.1	299.3		

Refrigerant	Condensing Temperature	Condensing Pressure
<b>R-416A</b>	<b>110° F</b>	<b>127 PSIG</b>
R-12	110° F	136 PSIG
R-134a	110° F	147 PSIG
R-414B (Hot Shot)	110° F	147 PSIG
R-409A (FX-56)	110° F	172 PSIG
<b>R-416A</b>	<b>120° F</b>	<b>149 PSIG</b>
R-12	120° F	157 PSIG
R-134a	120° F	171 PSIG
R-414B (Hot Shot)	120° F	172 PSIG
R-409A (FX-56)	120° F	198 PSIG
<b>R-416A</b>	<b>130° F</b>	<b>173 PSIG</b>
R-12	130° F	181 PSIG
R-134a	130° F	199 PSIG
R-414B (Hot Shot)	130° F	197 PSIG
R-409A (FX-56)	130° F	227 PSIG

Note: Airgas Refrigerants, Inc. believes the information provided in this web site to be accurate to the best of our knowledge at the current time.