

▲ Degree of Superheat =  $45.5^{\circ}\text{F} - 35.5^{\circ}\text{F} = 10^{\circ}\text{F}$

▲ 60 psig yields ~ 35.5°F (using dew point)

45.5°F

**Example:** Find the superheat on a system which uses Genetron® R-422D when the pressure at the evaporator outlet reads 60 psig and your surface thermometer reads 45.5°F

• Superheat = Actual Temperature - Dew Temperature

• Get the Dew temperature from the "Dew" column

• Use gauges to determine the pressure at the evaporator coil outlet, and a thermometer to get the actual temperature at the same point.

## Procedure:

# SUPERHEAT



▲ Degree of Subcooling =  $96^{\circ}\text{F} - 90^{\circ}\text{F} = 6^{\circ}\text{F}$

▲ 200 psig yields ~ 96°F (using Bubble temp)

**Example:** Find the amount of subcooling on a system using Genetron® R-422D when the liquid line temperature reads 90°F and the liquid line pressure is 200 psig.

• Subcooling = Bubble Temperature - Actual Temperature

• Use the Bubble column to get the bubble temperature

• Use gauges to determine the pressure at the condenser coil outlet, and a thermometer to get the actual temperature at the same point.

## Procedure:

# SUBCOOLING



### Contact Honeywell

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### Honeywell Advanced Materials

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# PT CHART FOR GENETRON® 422D

New Pressure-based Charts  
Make Calculating Glide Easier

**GENETRON® 422D (R-442D)**

**PRESSURE BASED PT CHART**

Pressure (psig)	Temperature			Pressure (psig)	Temperature		
	°F				°F		
	Avg	Bubble	Dew		Avg	Bubble	Dew
0.0	-41.4	-45.8	-37.0	215.0	103.1	100.9	105.3
5.0	-30.0	-34.2	-25.9	220.0	104.7	102.5	106.8
10.0	-20.8	-24.8	-16.7	225.0	106.2	104.1	108.4
15.0	-12.9	-16.8	-8.9	230.0	107.7	105.6	109.8
20.0	-5.9	-9.7	-2.1	235.0	109.2	107.1	111.3
25.0	0.3	-3.4	4.0	240.0	110.7	108.6	112.8
30.0	5.9	2.3	9.6	245.0	112.1	110.1	114.2
35.0	11.1	7.6	14.7	250.0	113.6	111.5	115.6
40.0	15.9	12.4	19.4	255.0	115.0	113.0	117.0
45.0	20.4	17.0	23.8	260.0	116.3	114.4	118.3
50.0	24.6	21.2	27.9	265.0	117.7	115.8	119.7
55.0	28.5	25.2	31.8	270.0	119.1	117.1	121.0
60.0	32.3	29.0	35.5	275.0	120.4	118.5	122.3
65.0	35.9	32.7	39.1	280.0	121.7	119.8	123.6
70.0	39.3	36.1	42.4	285.0	123.0	121.2	124.9
75.0	42.5	39.4	45.6	290.0	124.3	122.5	126.1
80.0	45.6	42.6	48.7	295.0	125.6	123.7	127.4
85.0	48.6	45.6	51.6	300.0	126.8	125.0	128.6
90.0	51.5	48.5	54.5	305.0	128.0	126.3	129.8
95.0	54.3	51.4	57.2	310.0	129.3	127.5	131.0
100.0	57.0	54.1	59.9	315.0	130.5	128.7	132.2
105.0	59.6	56.7	62.4	320.0	131.7	130.0	133.4
110.0	62.1	59.3	64.9	325.0	132.8	131.1	134.5
115.0	64.6	61.8	67.4	330.0	134.0	132.3	135.6
120.0	67.0	64.2	69.7	335.0	135.1	133.5	136.8
125.0	69.3	66.6	72.0	340.0	136.3	134.7	137.9
130.0	71.5	68.9	74.2	345.0	137.4	135.8	139.0
135.0	73.7	71.1	76.4	350.0	138.5	137.0	140.1
140.0	75.9	73.3	78.5	355.0	139.6	138.1	141.2
145.0	78.0	75.4	80.5	360.0	140.7	139.2	142.2
150.0	80.0	77.5	82.6	365.0	141.8	140.3	143.3
155.0	82.0	79.5	84.5	370.0	142.8	141.4	144.3
160.0	84.0	81.5	86.5	375.0	143.9	142.5	145.4
165.0	85.9	83.4	88.3	380.0	145.0	143.5	146.4
170.0	87.7	85.3	90.2	385.0	146.0	144.6	147.4
175.0	89.6	87.2	92.0	390.0	147.0	145.6	148.4
180.0	91.4	89.0	93.8	395.0	148.0	146.7	149.4
185.0	93.2	90.8	95.5	400.0	149.0	147.7	150.4
190.0	94.9	92.6	97.2	405.0	150.0	148.7	151.3
195.0	96.6	94.3	98.9	410.0	151.0	149.7	152.3
200.0	98.3	96.0	100.5	415.0	152.0	150.7	153.2
205.0	99.9	97.7	102.1	420.0	152.9	151.7	154.2
210.0	101.5	99.3	103.7	425.0	153.9	152.7	155.1

## Charge Calculation

Product	ASHRAE Number	Refrigerant Type	Refrigerant Class	Lubricant Used*	Liquid Density (lbs/ft <sup>3</sup> ) <sup>†</sup> at 80°F
Genetron 422D	422D	Blend	HFC/HC	POE/MO	70.9
Genetron® 22	R-22	Single Component	HCFC	MO	73.9

\* POE = polyol ester, MO = mineral oil, AB = Alkylbenzene \*\* Divide by 7.48 to convert to lbs/gal.

† U.S. production stopped Dec. 31, 1995.

When retrofitting a system with a new refrigerant, use this formula to determine amount needed:  
 Pounds of new refrigerant =  $\frac{\text{Pounds of original refrigerant} \times \text{density of new refrigerant (at 80°F)}}{\text{density of original refrigerant (at 80°F)}}$

**EXAMPLE**

If you were using 1,000 pounds of R-22, you'll need about 959 pounds of 422D, as follows:

$$\text{Pounds of 422D} = \frac{1,000 \times 70.9}{73.9} = 959$$



Scan to learn more about our new PT Chart.



Scan to learn more about calculating Glide.