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This sample spreadsheet gives an excellent illustration of how to call RefCycle externally and retrieve the data into this program. Using the same approach and similar coding, other applications such as Word can be called. Please review the code in each button to get an idea on how to use this feature.

This sample works on the assumption that Refcycle was installed in a directory on drive C called REFCYCLE.

You can examine the Macro executed for every button by choosing a macro tab at the bottom of the screen.

Click on a button to activate calculations and then select a tab at the bottom of the screen to review results.

This button calls RefCycle to calculate saturated properties at 50 degrees F for R-22 refrigerant using the following syntax:

C:\refcycle\refcycle.exe SATURATED /R:22 /T:50 /U:E /F:output.csv

using English units and output sent to a file called output.csv

This button calls RefCycle to calculate superheated properties at 30 degrees C and 10KPa for HP-80 refrigerant using the following syntax:

C:\refcycle\refcycle.exe SUPERHEATED /R:HP80 /T:30 /P:10 /U:M /F:superh.csv

using SI units and output sent to a file called superh.csv

This button calls RefCycle to calculate system cycle properties at

45 F evaporating Temperature, 130 F condensing Temperature

20 F superheat, 15 F subcooling, 90% volumetric efficiency, .5 cubic ft per minute displacement

for AC9000 refrigerant using the following syntax:

C:\refcycle\refcycle.exe CYCLE /R:AC9000 /T:45 /C:130 /H:20 /S:15 /E:90 /V:.5 /U:E /F:cycleout.csv

Main Menu

using English units and output sent to a file called cycleout.csv

Saturated Properties Results

RefCycle 1.0
Refrigerant

saturated properties Report
22 using English units.

TEMP ° F	PRESSURE		VOLUME		DENSITY	
	LIQUID	VAPOR	LIQUID	VAPOR	LIQUID	VAPOR
	Pf	Pv	vf	vg	1/vf	1/vg
50	98.7269	98.7269	0.0128151	0.55606	78.0329	1.79837

Saturated Properties Results

RefCycle 1.0 saturated properties Report
Refrigerant 22

TEMP	PRESSURE	
° F	LIQUID	VAPOR
	Pf	Pv
50	98.7269	98.7269

Saturated Properties Results

	ENTHALPY		ENTROPY	
	Btu/Lb		Btu/Lb.R	
LIQUID	LATENT	VAPOR	LIQUID	VAPOR
hf	hfg	hg	sf	sg
24.27496	84.67768	108.95264	0.051897	0.218032

Saturated Properties Results

using English units.

VOLUME		DENSITY			ENTHALPY
Ft ³ /Lb		Lb/Ft ³			Btu/Lb
LIQUID	VAPOR	LIQUID	VAPOR	LIQUID	LATENT
vf	vg	1/vf	1/vg	hf	hfg
0.0128151	0.55606	78.0329	1.79837	24.27496	84.67768

Saturated Properties Results

ENTROPY			
Btu/Lb.R			
VAPOR	LIQUID	VAPOR	
hg	sf	sg	
108.95264	0.051897	0.218032	

Saturated Properties Results

RefCycle 1 saturated properties Report

Refrigerant 22 using English units.

TEMP ° F	PRESSURE		VOLUME		DENSITY		
	LIQUID Pf	VAPOR Pv	LIQUID vf	VAPOR vg	LIQUID 1/vf	VAPOR 1/vg	LIQUID hf
50	98.7269	98.7269	0.012815	0.55606	78.0329	1.79837	24.27496

Saturated Properties Results

ENTHALPY		ENTROPY	
Btu/Lb		Btu/Lb.R	
LATENT	VAPOR	LIQUID	VAPOR
hfg	hg	sf	sg
84.67768	108.9526	0.051897	0.218032

SuperHeated Properties Results

superheated properties for:

Refrigerant

HP80

using SI units.

TEMPERATURE	PRESSURE	VOLUME	ENTHALPY	ENTROPY
-78.1	10	0.2	95.623	0.18386
° C	KPa	M ³ /Kg	KJ/Kg	KJ/Kg.K
30	10	2.47859	392.1845	2.02974

Cycle Analysis Results

RefCycle 1.0 Cycle Analysis Report

English Units

Rfrigerant	AC9000	
Evaporator Temperature	45 ° F	Condenser Temperature
Amount of Superheating	200 ° F	Amount of Subcooling
Volumetric Flow Rate	900 ft ³ /min	Compressor Efficiency

Compressor

Capacity	47961.44 Btu/hr	Mass Flow	33.91
Power	203.07 watts	Volumetric Eff.	900
EER	26.13 Btu/lb	Enthalpy Difference	20.53

Condenser

Heating Capacity	54227.2 Btu/lb.°F	Mass Flow	33.91
COP	78.23	Enthalpy Difference	177.68

Expansion Device

Mass Flow	33.91 lb/hr	Enthalpy Difference	0
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Evaporator

Refrigeration Capacity	47961.44 Btu/lb.°F	Mass Flow	33.91
COP	69.19	Enthalpy Difference	20.53

	Temp. ° F	Pressure PSIA	Volume ft ³ /lb	Density lb/ft ³	Enthalpy Btu/lb	Entropy Btu/lb.R	Cp Btu/lb.°F
Comp. In.	252.57	96.09	0.88	1.13	162.15	0.31	0.99
Comp. Out.	354.05	333.7	0.28	3.61	182.68	0.31	1.11
Cond. In.	354.05	333.7	0.28	3.61	182.68	0.31	
Cond. Out.	-23.95	333.7	0.01	83.78	5.01	0.01	
Exp. In.	-23.95	333.7	0.01	83.78	5.01	0.01	
Exp. Out.	37.43	96.09	0.76	1.31	5.01	0.01	
Comp. In.	37.43	96.09	0.76	1.31	5.01	0.01	
Comp. Out.	252.57	96.09	0.88	1.13	162.15	0.31	

Cycle Analysis Results

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130 ° F
150 ° F
0.5 %

—

lb/hr
%

—

lb/hr
Btu/lb

—

Btu/lb

—

lb/hr
Btu/lb

—

Cv
Btu/lb.°F

0.88
0.97