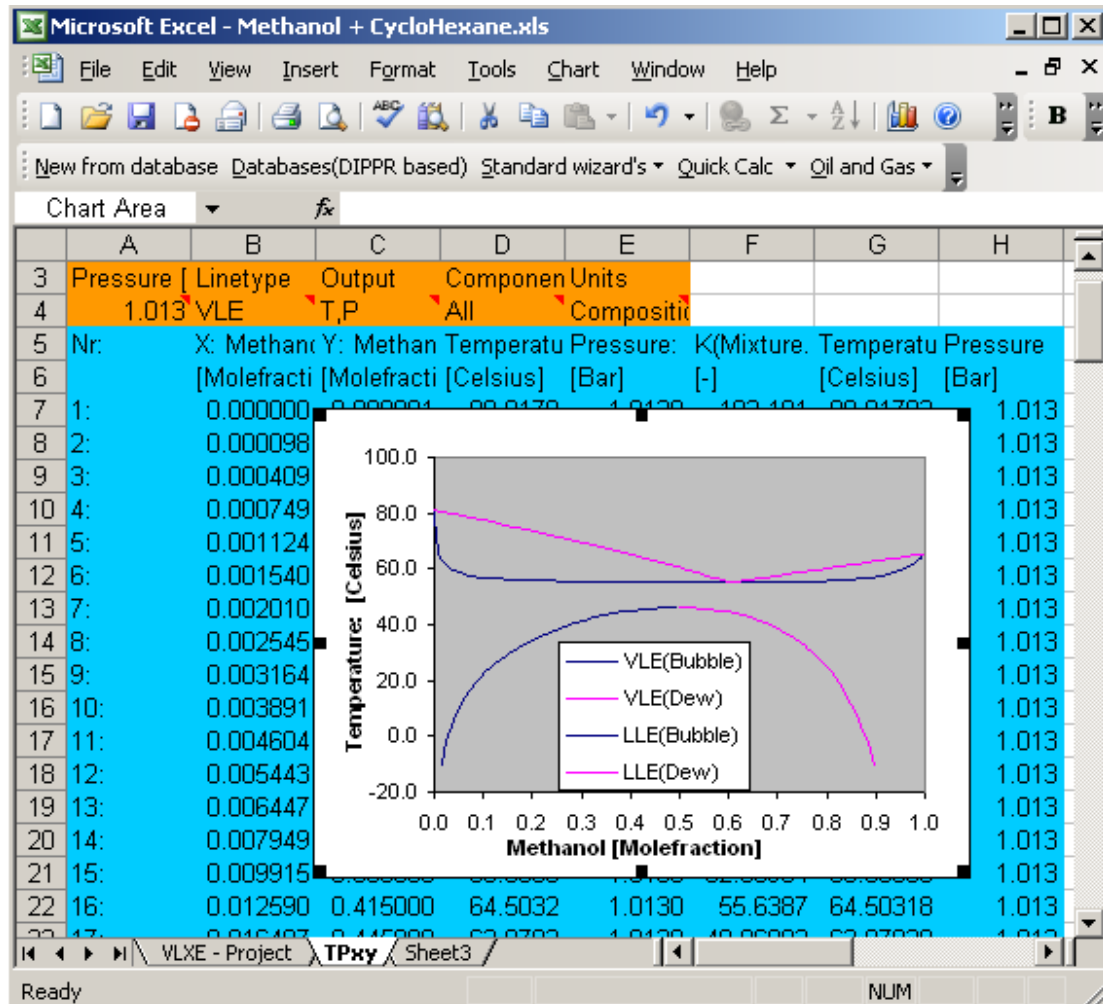


VLXE THERMODYNAMIC SOLUTIONS

VLXE Excel Add in gives access to the calculations and databases with in Excel



VLXE For Standard System

Offers wide range of calculations for standard systems from setting up of project sheets to linkage of flash units

VLXE APS

VLXE

ADVANTAGES and MODELS

VLXE offers broad variety of computations for

Calculations

Applications

Flash Calculations

- Multi-phase flash, VLE, LLE and VLLE
- Full range of flash's, (Pressure/Temperature, Pressure/Enthalpy, Pressure/Entropy + more).
- No limit on the number of phases.

Link Flash

- Flash calculations can be linked in an Excel sheet to create a flow sheet.

Critical Point

- Allow to calculate the critical points found in a mixture no matter the type of mixture.

Cloud Point

- VLE and LLE

Phase Diagram

- Trace lines, critical point, spinodal curves for based on given feed and given temperature.

Txy/Pxy Curves

- These functions let the user to perform a Txy and Pxy calculations respectively for given systems.

SLE

- These functions perform SLE polymer mass fractions and SLE temperature.

Fit Parameters

- Both pure components and kij's

Thermodynamic Models

All phase equilibria calculations performed in VLXE are based on the use of cubic equations of state (EOS). Six EOS are included in VLXE. Depending on the EOS a different number of mixing rules are included.

Equation of States

- Peng/Robinson
- Soave/Redlick/Kwong
- Sanchez/Lacombe (Original)
- Sanchez/Lacombe (Ideal Gas Limit)
- PC-SAFT
- Copolymer PC-SAFT

Models For Ideal Gas Heat Capacity

- DIPPR
- Polynomial Expression

VLXE

For Excel Add in

Setting Up Of Project Is Simple and Robust Due To Excel Add In Features

Define the System

Select the Components

Generate Report

VLXE - Databases

System:

- Standard
- Solvent/Polymer
- Solvent/coPolymer

Equation of state:

- Soave/Redlich/Kwong
- Peng/Robinson
- Sanchez/Lacombe
- Sanchez/Lacombe (IG)
- PC-SAFT

VLXE - Select system - Solvents

Select Add Insert Remove Clear

Solvents Settings

Search Index Search Short name Search Formula

n-hexane

Nr:	Type	DB index	Short Name
1	New	5	methane
2	New	10	n-hexane

Index	Short name	Formula	M
7	Propane	C3H8	44.097
8	n-butane	C4H10	58.123
9	n-pentane	C5H12	72.15
10	n-hexane	C6H14	96.177

Microsoft Excel - Example.xls

File Edit View Insert Format Tools Data Window VLXE Help

New from database Databases(DIPPR based) Standard wizard's Quick Calc Oil and Gas

F29

Sheet version	Number of solvents	Number of polymers	Equation of state
8	2	0	Soave/Redlich/Kwong

Units (θ)	Temperature	Pressure	Composition
In:	Celsius	Bar	Massfraction
Out:	Celsius	Bar	Massfraction

Solvent Index	Name	Database index	Type
1	methane	5	
2	n-hexane	10	

Solvent Index	Name	Heat of formation [kJ/kg]	Ideal gas Cp: C(1) [kJ/kg·K]
1	methane		
2	n-hexane		

VLXE Examples

Cloud Point

The screenshot shows an Excel spreadsheet with the following data in row 2:

methane [	n-hexane [	Pressure [	Output	Componen	Units	Pointtype	Temperatu	methane [	n-hexane [	Pressure [	Output	Componen	Units	Pointtype
0.5	0.5	10 T,C(2)		All	Compositi	VLE	-118.339	1	2.89E-07	10 Fixed 2D		All	C(In,Mass)	VLE

Cloud Point calculation as a single row output

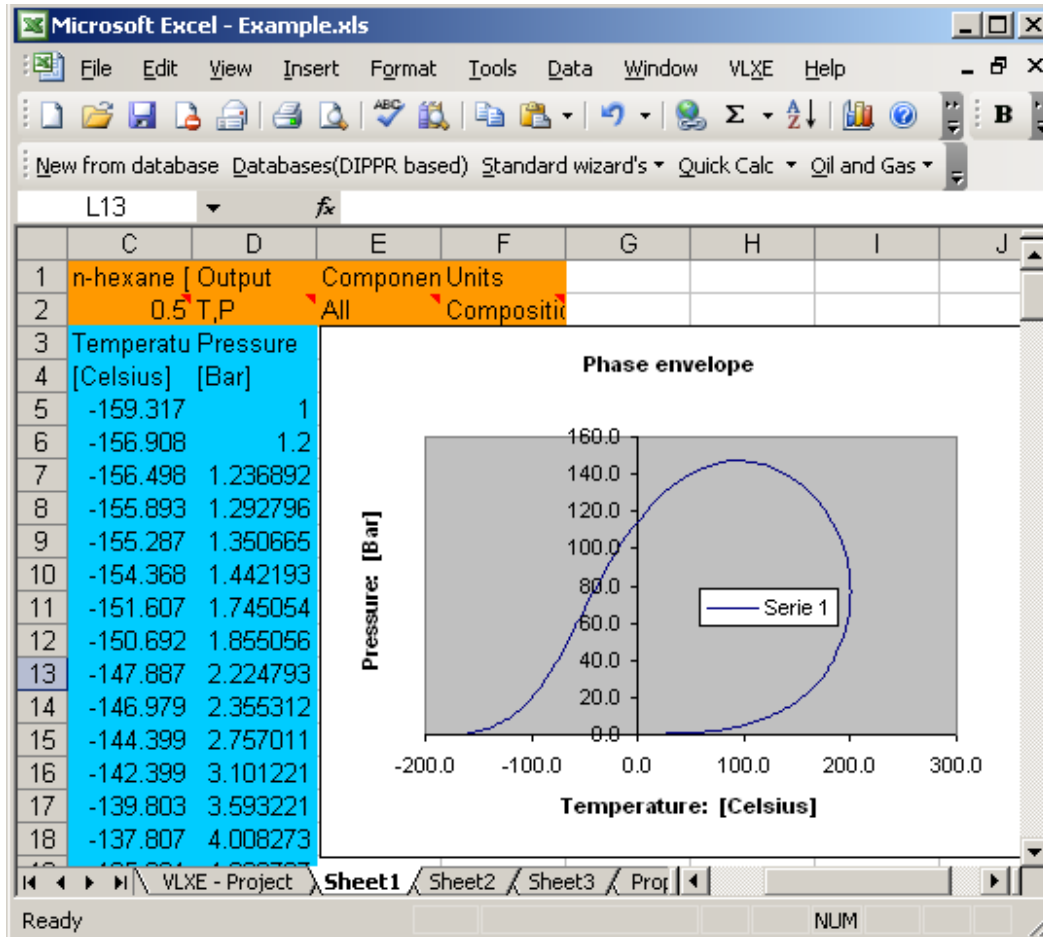
The screenshot shows an Excel spreadsheet with the following data in rows 3-14:

Property	System	Feed	Phase 1	Phase 2
Pressure [	10			
Temperatu	154.7506			
Componen				
methane [	0.156946	0.156946	0.156946	1
n-hexane [	0.843054	0.843054	0.843054	2.89E-07
Phase frac			1	0
Phase frac			1	0
Compressi	0.065704	0.065704	0.065704	0.850465
Density [g	0.604564	0.604564	0.604564	0.014661

Cloud Point Calculation as a function range output

VLXE Examples

Phase Diagram



phase envelope

VLXE Examples

Flash Calculation

	A	B	C	D	E	F
1	methane [t	Ethane [M	n-octane [t	n-nonane [	Temperatu	Pressure [
2	0.25	0.25	0.25	0.25	400	100
3	Property	System	Feed	Phase 1	Phase 2	
4	Pressure [		100			
5	Temperatu		400			
6						
7	Componen					
8	methane [t	0.25	0.25	0.227934	0.635549	
9	Ethane [M	0.25	0.25	0.245412	0.330169	
10	n-octane [t	0.25	0.25	0.263118	0.020796	
11	n-nonane [	0.25	0.25	0.263536	0.013486	
12						
13	Phase frac			0.945865	0.054135	
14	Phase frac			0.981821	0.018179	
15	Compressi	0.514251	0.486179	0.492772	0.889539	
16	Density [g,	0.421859	0.446218	0.456982	0.0819	
17	Volume [ci	171.0298	161.6935	163.8864	295.8431	

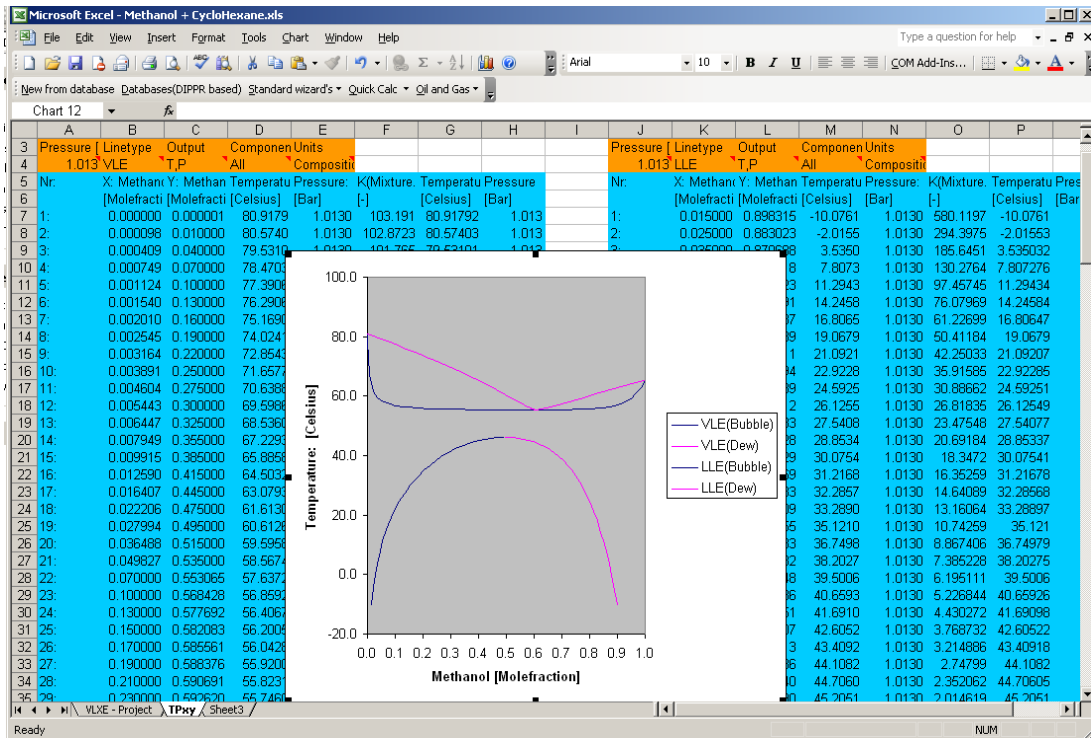
Flash Calculation
(methane+ ethane +
n-octane+ n-nonane)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	methane [t	Ethane [M	n-octane [t	n-nonane [	Temperatu	Pressure [	FlashType	Output	Componen	Units						
2	0.25	0.25	0.25	0.25	400	100	2 Fixed 2D	All	C(In,Molefr							
3	Property	System	Feed	Phase 1	Phase 2											
4	Pressure [		100				methane [t	Ethane [M	n-octane [t	n-nonane [	Temperature [	Pressure [	FlashType	Output	Componen	Units
5	Temperatu		400				0.25	0.25	0.25	0.25	250	↑	2 Fixed 2D	All	C(In,Molefr	
6							Property	System	Feed	Phase 1	Phase 2					
7	Componen						Pressure [		1							
8	methane [t	0.25	0.25	0.227934	0.635549		Temperatu		250							
9	Ethane [M	0.25	0.25	0.245412	0.330169											
10	n-octane [t	0.25	0.25	0.263118	0.020796		Componen									
11	n-nonane [	0.25	0.25	0.263536	0.013486		methane [t	0.227934	0.227934	0.003441	0.503071138					
12							Ethane [M	0.245412	0.245412	0.040512	0.496535794					
13	Phase frac			0.945865	0.054135		n-octane [t	0.263118	0.263118	0.47754	0.000324032					
14	Phase frac			0.981821	0.018179		n-nonane [	0.263536	0.263536	0.478507	6.90359E-05					
15	Compressi	0.514251	0.486179	0.492772	0.889539		Phase frac			0.550682	0.449318184					
16	Density [g,	0.421859	0.446218	0.456982	0.0819		Phase frac			0.861728	0.138272285					
17	Volume [ci	171.0298	161.6935	163.8864	295.8431		Compressi	0.451077	0.006307	0.009077	0.992789861					
18	Enthalpy [I	-86.2376	-86.9854	-90.2134	128.4809											

How to link
Flash
Calculation to
create flow
sheet

VLXE Examples

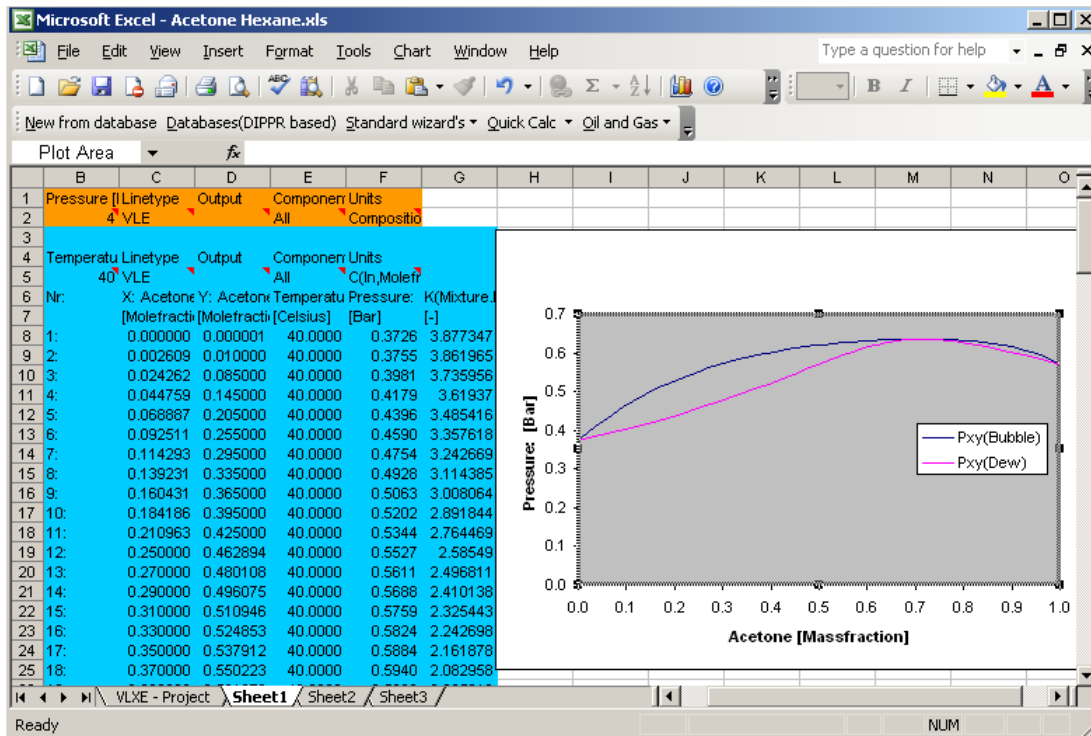
T_{xy}/P_{xy} Calculations for Association Components



T_{xy}/P_{xy} Calculations

VLXE Examples

Pxy Calculations for Polar Components



P_{xy}
Calculations
for Polar
System

VLXE is accessible on our website and may be downloaded. If you are interested and would like more information please contact VLXE by means of any of the following address

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