

Getting started with Simulis® Thermodynamics

Use Case 5: Create pseudo-compounds from TBP and
API gravity data curves

Software & Services In Process Simulation

We guide You to efficiency



ProSim

About pseudo-compounds.....





Simulis® Thermodynamics oil characterization environment enables you to characterize petroleum fluids using experimental data.

The oil will be characterized by a set of pseudo-compounds (or pseudo-components) in order to reduce the computational effort.

Each pseudo-compound will be defined by physical properties just like usual compounds. These properties are automatically generated from experimental data and used in the fluid thermodynamic package.

This document presents the different steps to follow in order to generate pseudo-compounds from a crude oil TBP 760 curve and an API gravity data curve.

The following steps will be followed:

-  **Step 1: Select the light ends (when necessary)**
-  **Step 2: Enter assay characterization data**
-  **Step 3: Generate the pseudo-compounds**
-  **Step 4: Analyze the results**

Before studying this chapter, it is recommended to consult “Getting Started with Simulis® Thermodynamic: Use Case 1”.

About pseudo-compounds.....

Method 1:

A petroleum cut can be characterized by selecting two or three of the following properties:

- Normal boiling point.
- Molecular weight.
- Watson characterization factor.
- API degree.
- Specific gravity .

Method 2:

It can also be characterized by experimental distillation curve and gravity (or density) data (TBP or ASTM curves).

Pseudo compound generation

Use this window to create pseudo-compounds for a petroleum cut.

Select 2 or 3 known parameters

☐ Normal boiling point

☐ Molecular weight

☐ Watson characterization factor

☐ API Degree

☐ Specific gravity

Data

Temperature	Molecular weight

Select the models used to calculate the properties

Molecular weight : TWU

Critical temperature : TWU

Critical pressure : TWU

Critical molar volume : TWU

Pitzer acentric factor : Edminster

Ideal gas heat capacity : API Data Books

Heat of vaporization : Kistiakowski

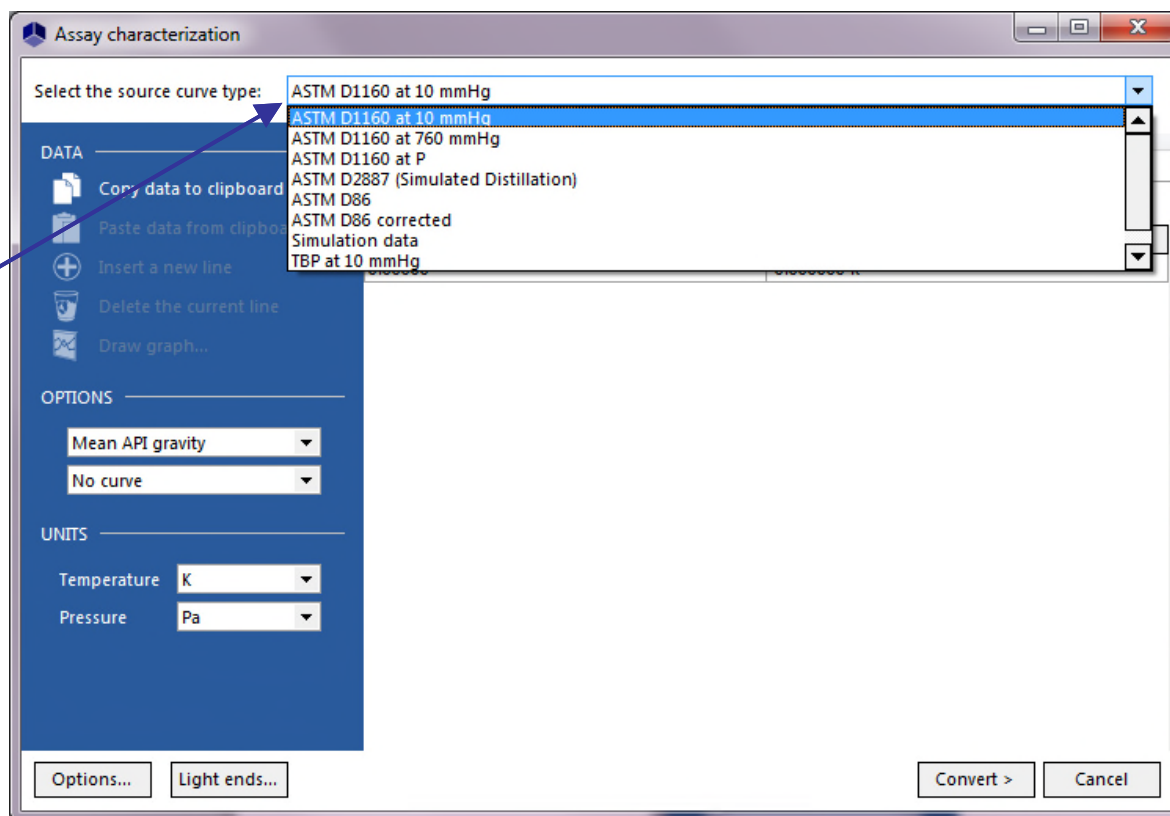
Use a TBP/ASTM curve...

Generate Cancel

About pseudo-compounds...

All physical properties are calculated from an internally generated TBP curve at atmospheric conditions. All other curves are automatically converted into TBP curve.

Access the different types of curve.



Preparation of the data

Prepare the required information in an Excel spreadsheet.

1. TBP distillation curve.

TBP distillation	
LV percent	°F
3.83	98
5	125
10	167
20	227
30	291
40	370
50	460
60	552
70	643
80	799
90	1023
100	1440

Light Ends, LV Percent on Crude	
Propane	0.18
i-Butane	0.3
n-Butane	0.69

3. Light ends list and volume % on crude (if any light ends are identified).

API gravity	
Mid LV percent	°API
12	66.7
19	55.3
40	37.6
62	27
82	19

Mean API gravity 35

2. API gravity curve.

TBPCUTS :		
Tstart	Tend	Nb pseudos
50	150	4
150	550	16
550	750	4
750	1250	5

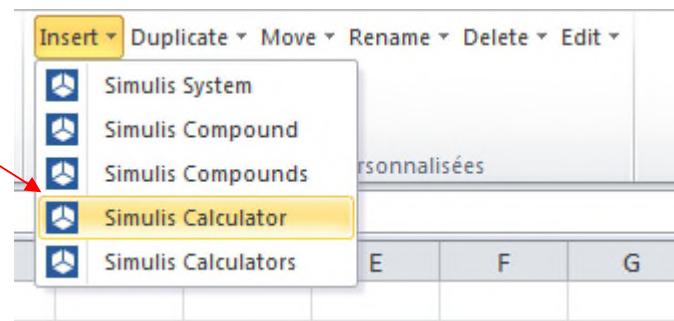
4. Number of required pseudo-compounds (optional).

Step 1: Select the light ends

ACCESS THE THERMODYNAMIC CALCULATOR EDITOR:

- If you are using Simulis Thermodynamics in Excel:

Create the calculator object in a spreadsheet



- If you are using Simulis Thermodynamics within another ProSim environnement (ProSimPlus, BatchReactor, BatchColumn etc...):

Click on the thermodynamic icon to open the calculator editor:



or



Simulis Thermodynamics is a « software component » that you can integrate into different applications: ProSim software, Excel, Matlab, your own software, etc...

Step 1: Select the light ends

Search results

COMPOUNDS

CRITERIA

Search

☒ Name or synonym

☒ Exact name

☐ CAS registry number

☐ Chemical formula

☐ Specific ID

☐ Advanced

OPTIONS

☒ Clear previous results

SEARCH IN

☒ All servers

- ☐ Simulis® Thermodynamic Pack...
- ☐ Simulis® Compounds Files
 - ☐ Common files
 - ☐ DIPPR L15+
 - ☐ HNO3
 - ☐ Sponsor 10-2018
 - ☐ Standard 2007
 - ☐ Standard 2009
 - ☐ Standard 2011
 - ☐ Standard 2013
 - ☐ Standard 2015
 - ☐ Standard 2017
 - ☒ Standard 2019
 - ☐ User files
- ☐ Simulis® SQLite Databases

Name: n-BUTANE
Location: Standard 2019 (Simulis® SQLite Databases\Common databases)
CAS registry number: 106-97-8
Specific ID: (52ED2C2F-9757-454A-875A-BDFC906BCD9B)

Search results | Favorites | History

#	IUPAC name (or compo...	Chemical form...	CAS num...	Molecular wei...	Bubble temper...	Chemical family
3	n-BUTANE	C4H10	106-97-8	58.1222	272.650	n-Alkanes

Selected compounds:

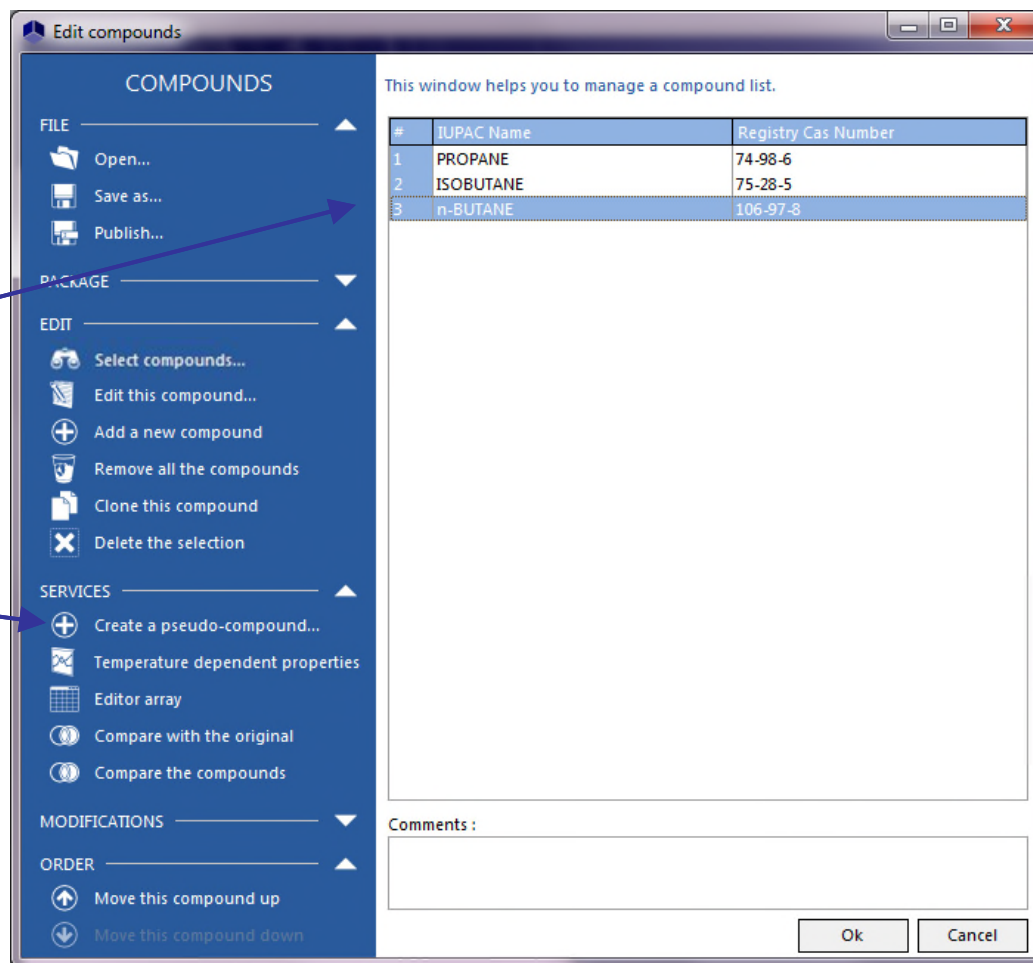
Name
PROPANE
ISOBUTANE

Define light ends: Import Propane, Isobutane and n-Butane from the database and close the window.

Step 1: Select the light ends

Your list of light ends is defined...

...click on “*Create a pseudo-compound*”.



Step 2: Enter assay characterization data

Select “Use a TBP/ASTM curve”.

Pseudo compound generation

PETROLEUM CUT

Use this window to create pseudo-compounds for a petroleum cut.

Select 2 or 3 known parameters

- ☐ Normal boiling point
- ☐ Molecular weight
- ☐ Watson characterization factor
- ☐ API Degree
- ☐ Specific gravity

Data

Select the models used to calculate the properties

Step 2: Enter assay characterization data

1. Select a type of curve (“*TBP at 760 mmHg*” in this example).

2. Select your options for defining the gravity.

3. Select your temperature unit (“°F” in this example).

The screenshot shows the 'Assay characterization' dialog box. It has a title bar with standard window controls. The main area is divided into three sections: 'DATA', 'OPTIONS', and 'UNITS'. The 'DATA' section on the left contains icons for 'Copy data to clipboard', 'Paste data from clipboard', 'Insert a new line', 'Delete the current line', and 'Draw graph...'. The 'SELECT the source curve type:' dropdown menu is open, showing a list of options: 'TBP at 760 mmHg', 'ASTM D1160 at 760 mmHg', 'ASTM D1160 at P', 'ASTM D2887 (Simulated Distillation)', 'ASTM D86', 'ASTM D86 corrected', 'Simulation data', 'TBP at 10 mmHg', and 'TBP at 760 mmHg'. The 'OPTIONS' section contains two dropdown menus: 'Mean API gravity' and 'API gravity data curve'. The 'UNITS' section contains a dropdown menu for 'Temperature' set to '°F'. At the bottom, there are buttons for 'Options...', 'Light ends...', 'Convert >', and 'Cancel'. Three blue arrows point from the instructional text on the left to the 'TBP at 760 mmHg' option, the 'Mean API gravity' dropdown, and the 'Temperature °F' dropdown respectively.

Step 2: Enter assay characterization data

Enter your experimental values for the TBP and the API gravity.

Assay characterization

Select the source curve type: TBP at 760 mmHg

Mean API gravity: 35.0000

Volume percent distilled	Temperatures	Volume percent...	API gravity data ...
3.83000	98 °F	12.0000	66.7000
5.00000	125 °F	19.0000	55.3000
10.0000	167 °F	40.0000	37.6000
20.0000	227 °F	62.0000	27.0000
30.0000	291 °F	82.0000	19.0000
40.0000	370 °F		
50.0000	460 °F		
60.0000	552 °F		
70.0000	643 °F		
80.0000	799 °F		
90.0000	1023 °F		
100.000	1440 °F		

DATA

- Copy data to clipboard
- Paste data from clipboard
- Insert a new line
- Delete the current line
- Draw graph...

OPTIONS

Mean API gravity: [dropdown]

API gravity data curve: [dropdown]

UNITS

Temperature: °F [dropdown]

Options... Light ends...

Convert > Cancel

If light ends have been selected, click on "Light ends".

Step 2: Enter assay characterization data

Enter your experimental values for the volume percentage of light ends.

Compound name	Bubble temp. (K)	Molecular weight (g...	Density (g/c...	Volume %
PROPANE	231.11	44.0956	0.5057698814	0.18
ISOBUTANE	261.43	58.1222	0.5632467376	0.3
n-BUTANE	272.65	58.1222	0.5843151162	0.69

1.17000

Ok Cancel

Click on "OK" to confirm.

Step 2: Enter assay characterization data

Click on "Options".

Assay characterization

Select the source curve type: TBP at 760 mmHg

Mean API gravity

35.0000

DATA

- Copy data to clipboard
- Paste data from clipboard
- Insert a new line
- Delete the current line
- Draw graph...

OPTIONS

Mean API gravity

API gravity data curve

UNITS

Temperature °F

Volume percent distilled	Temperatures	Volume percent...	API gravity data ...
3.83000	98 °F	12.0000	66.7000
5.00000	125 °F	19.0000	55.3000
10.0000	167 °F	40.0000	37.6000
20.0000	227 °F	62.0000	27.0000
30.0000	291 °F	82.0000	19.0000
40.0000	370 °F		
50.0000	460 °F		
60.0000	552 °F		
70.0000	643 °F		
80.0000	799 °F		
90.0000	1023 °F		
100.000	1440 °F		

Options... Light ends... Convert > Cancel

Step 2: Enter assay characterization data

Select the number of pseudo-compounds you want to generate for the different temperature ranges.

Here, 29 pseudo compounds will be generated.

Options

Intervals | Conversions

Temperature intervals for distillation cuts

Values are expressed in: °F

Copy Paste Reset

T Min.	T Max.	Number of compou...	Delta T
50	150	4	25
150	550	16	25
550	750	4	50
750	1250	100	100

Ok Cancel

Click on "OK" to confirm.

Step 3: Generate the pseudo-compounds

Assay characterization

Select the source curve type: TBP at 760 mmHg

DATA

- Copy data to clipboard
- Paste data from clipboard
- Insert a new line
- Delete the current line
- Draw graph...

OPTIONS

Mean API gravity

API gravity data curve

UNITS

Temperature °F

Volume percent distilled	Temperatures	Volume percent...	API gravity data ...
3.83000	98 °F	12.0000	66.7000
5.00000	125 °F	19.0000	55.3000
10.0000	167 °F	40.0000	37.6000
20.0000	227 °F	62.0000	27.0000
30.0000	291 °F	82.0000	19.0000
40.0000	370 °F		
50.0000	460 °F		
60.0000	552 °F		
70.0000	643 °F		
80.0000	799 °F		
90.0000	1023 °F		
100.000	1440 °F		

Options... Light ends... Convert > Cancel

Click on “**Convert**” to generate pseudo-compounds.

Step 3: Generate the pseudo-compounds

This window displays the data that was generated. 32 compounds will be taken into account:

- 3 light ends already defined (C3, iC4 and nC4).
- 29 pseudo compounds as explained before.

The user can plot graphs to analyze the results.

Assay characterization

Number of points: 32.0000

DATA

- Copy data to clipboard
- Paste data from clipboard
- Insert a new line
- Delete the current line
- Draw graph...

UNITS

Temperature: °F

Molar mass: kg/mol

Bubble p...	Molecula...	Specific g...	Molar fra...	API degree	Watson c...	VolumePe...
-43.672 °F	0.0440956 k	0.506251	3.97384E-00	148.006	14.7457	9.00000E-00
10.904 °F	0.0581222 k	0.563782	5.59575E-00	119.483	13.7964	0.330000
31.1 °F	0.0581222 k	0.584871	1.33516E-00	110.434	13.4865	0.825000
37.037 °F	0.0590957 k	0.593720	3.59597E-00	106.828	13.3389	2.09448
88.0953 °F	0.070319 kg	0.615489	1.46531E-00	98.3985	13.2937	3.45135
113.627 °F	0.0761553 k	0.630196	1.78813E-00	93.0333	13.1821	4.44188
138.874 °F	0.0820988 k	0.655550	4.09439E-00	84.3493	12.8556	6.32442
162.804 °F	0.087439 kg	0.691167	5.63134E-00	73.2263	12.3535	9.48892
187.48 °F	0.0927145 k	0.725036	6.38154E-00	63.6628	11.9300	13.4368
212.462 °F	0.0984203 k	0.750741	6.10495E-00	56.9803	11.6679	17.6117
237.447 °F	0.104667 kg	0.769632	5.69905E-00	52.3541	11.5209	21.6808
262.449 °F	0.110815 kg	0.786762	5.38019E-00	48.3510	11.4032	25.6399
287.323 °F	0.116887 kg	0.802102	4.91039E-00	44.9114	11.3121	29.4455
312.263 °F	0.123266 kg	0.815079	4.27208E-00	42.1028	11.2545	32.9624
337.319 °F	0.130053 kg	0.825714	3.76335E-00	39.8668	11.2285	36.1621
362.429 °F	0.137257 kg	0.834442	3.37793E-00	38.0744	11.2265	39.1282
387.483 °F	0.144808 kg	0.841941	3.15887E-00	36.5641	11.2384	41.9667
412.485 °F	0.152573 kg	0.849252	2.99971E-00	35.1172	11.2502	44.7619
437.469 °F	0.160558 kg	0.856456	2.84402E-00	33.7157	11.2611	47.5310
462.491 °F	0.168803 kg	0.863526	2.69790E-00	32.3631	11.2718	50.2702
487.499 °F	0.177297 kg	0.870476	2.58285E-00	31.0548	11.2820	52.9912
512.5 °F	0.186053 kg	0.877324	2.47910E-00	29.7859	11.2916	55.7079
537.501 °F	0.19509 kg	0.884064	2.38318E-00	28.5562	11.3007	58.4242
575.044 °F	0.209218 kg	0.894010	4.54398E-00	26.7756	11.3135	62.5292
624.889 °F	0.22908 kg	0.906974	4.15989E-00	24.5132	11.3281	67.9896
672.804 °F	0.250106 kg	0.917671	2.58425E-00	22.6946	11.3585	72.5226
774.734 °F	0.276402 kg	0.975398	1.88087E-00	21.4077	11.4333	75.7978

Ok Cancel

Select series

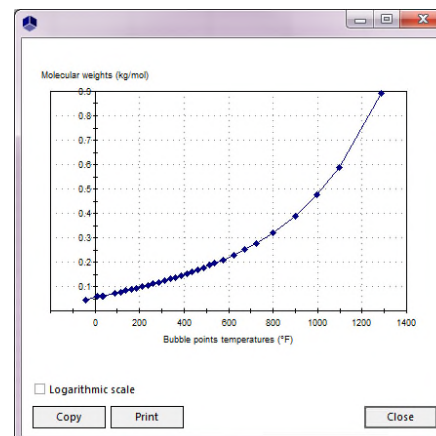
X axis:

- ☒ Bubble points temperatures
- ☐ Molecular weights
- ☐ Specific gravity
- ☐ Molar fractions
- ☐ API degree
- ☐ Watson characterization factor
- ☐ VolumePercentOut

Y axes:

- ☒ Molecular weights
- ☐ Specific gravity
- ☐ Molar fractions
- ☐ API degree
- ☐ Watson characterization factor
- ☐ VolumePercentOut

Ok Cancel



Example of graph: molecular weights (MW) vs. bubble points temperatures.

Step 3: Generate the pseudo-compounds



At this stage, it is important to save the composition of the mixture. This composition will be required afterward to carry out simulations or compute mixture properties. Once this window is closed, it will no longer be possible to access the composition.

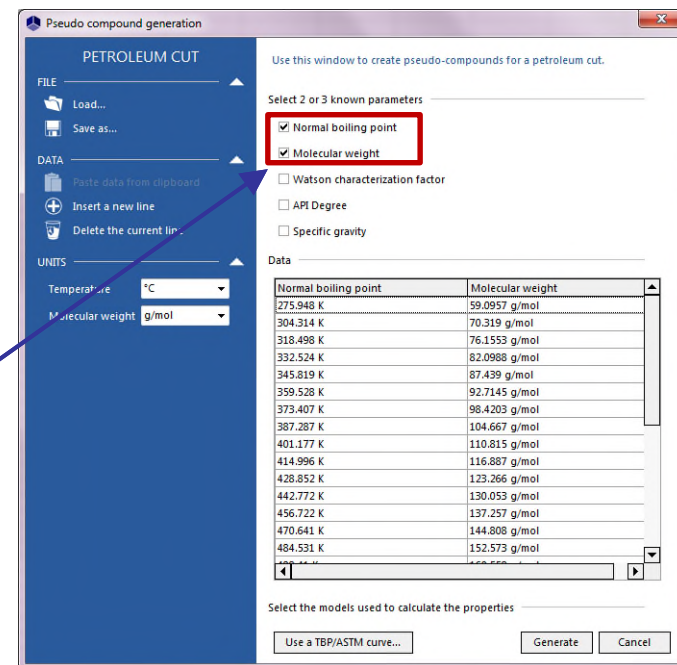
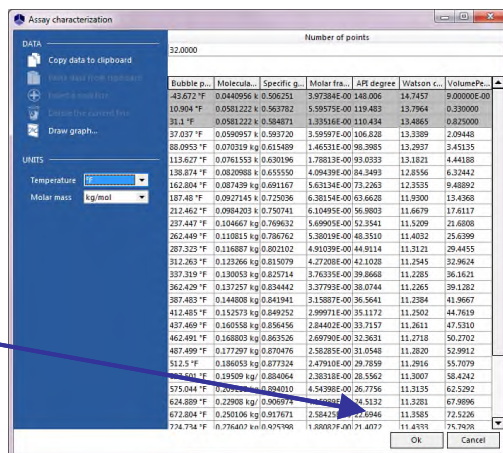
Click on the table

The screenshot shows the 'Assay characterization' window. On the left, a sidebar contains several options: 'Copy data to clipboard' (highlighted with a red box), 'Paste data from clipboard', 'Insert a new line', 'Delete the current line', and 'Draw graph...'. Below these are 'UNITS' settings for Temperature (°F) and Molar mass (kg/mol). The main area displays a table with columns: Bubble p..., Molecula..., Specific g..., Molar fra..., API degree, Watson c..., and VolumePe... The table contains 20 rows of data. A blue arrow points from the text 'Click on the table' to the table area.

Bubble p...	Molecula...	Specific g...	Molar fra...	API degree	Watson c...	VolumePe...
-43.672 °F	0.0440956 k	0.506251	3.97384E-00	148.006	14.7457	9.00000E-00
10.904 °F	0.0581222 k	0.563782	5.59575E-00	119.483	13.7964	0.330000
31.1 °F	0.0581222 k	0.584871	1.33516E-00	110.434	13.4865	0.825000
37.037 °F	0.0590957 k	0.593720	3.59597E-00	106.828	13.3389	2.09448
88.0953 °F	0.070319 kg	0.615489	1.46531E-00	98.3985	13.2937	3.45135
113.627 °F	0.0761553 k	0.630196	1.78813E-00	93.0333	13.1821	4.44188
138.874 °F	0.0820988 k	0.655550	4.09439E-00	84.3493	12.8556	6.32442
162.804 °F	0.087439 kg	0.691167	5.63134E-00	73.2263	12.3535	9.48892
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212.462 °F	0.0984203 k	0.750741	6.10495E-00	56.9803	11.6679	17.6117
237.447 °F	0.104667 kg	0.769632	5.69905E-00	52.3541	11.5209	21.6808
262.449 °F	0.110815 kg	0.786762	5.38019E-00	48.3510	11.4032	25.6399
287.323 °F	0.116887 kg	0.802102	4.91039E-00	44.9114	11.3121	29.4455
312.263 °F	0.123266 kg	0.815079	4.27208E-00	42.1028	11.2545	32.9624
337.319 °F	0.130053 kg	0.825714	3.76335E-00	39.8668	11.2285	36.1621
362.429 °F	0.137257 kg	0.834442	3.37793E-00	38.0744	11.2265	39.1282
387.483 °F	0.144808 kg	0.841941	3.15887E-00	36.5641	11.2384	41.9667
412.485 °F	0.152573 kg	0.849252	2.99971E-00	35.1172	11.2502	44.7619
437.469 °F	0.160558 kg	0.856456	2.84402E-00	33.7157	11.2611	47.5310
462.491 °F	0.168803 kg	0.863526	2.69790E-00	32.3631	11.2718	50.2702
487.499 °F	0.177297 kg	0.870476	2.58285E-00	31.0548	11.2820	52.9912
512.5 °F	0.186053 kg	0.877324	2.47910E-00	29.7859	11.2916	55.7079
537.501 °F	0.19509 kg	0.884064	2.38318E-00	28.5562	11.3007	58.4242
575.044 °F	0.209218 kg	0.894010	4.54398E-00	26.7756	11.3135	62.5292
624.889 °F	0.22908 kg	0.906974	4.15989E-00	24.5132	11.3281	67.9896
672.804 °F	0.250106 kg	0.917671	2.58425E-00	22.6946	11.3585	72.5226
774.734 °F	0.276407 kg	0.925398	1.88087E-00	21.4077	11.4333	75.7978

Click on « Copy data to clipboard » in order to paste the table into Excel or paste the composition into a feed module of ProSimPlus

Step 3: Generate the pseudo-compounds



Click on “OK” to close this window and come back to the Petroleum Cut window.

Select 2 or 3 parameters that will be used for the calculation of physical properties. In this example, select:

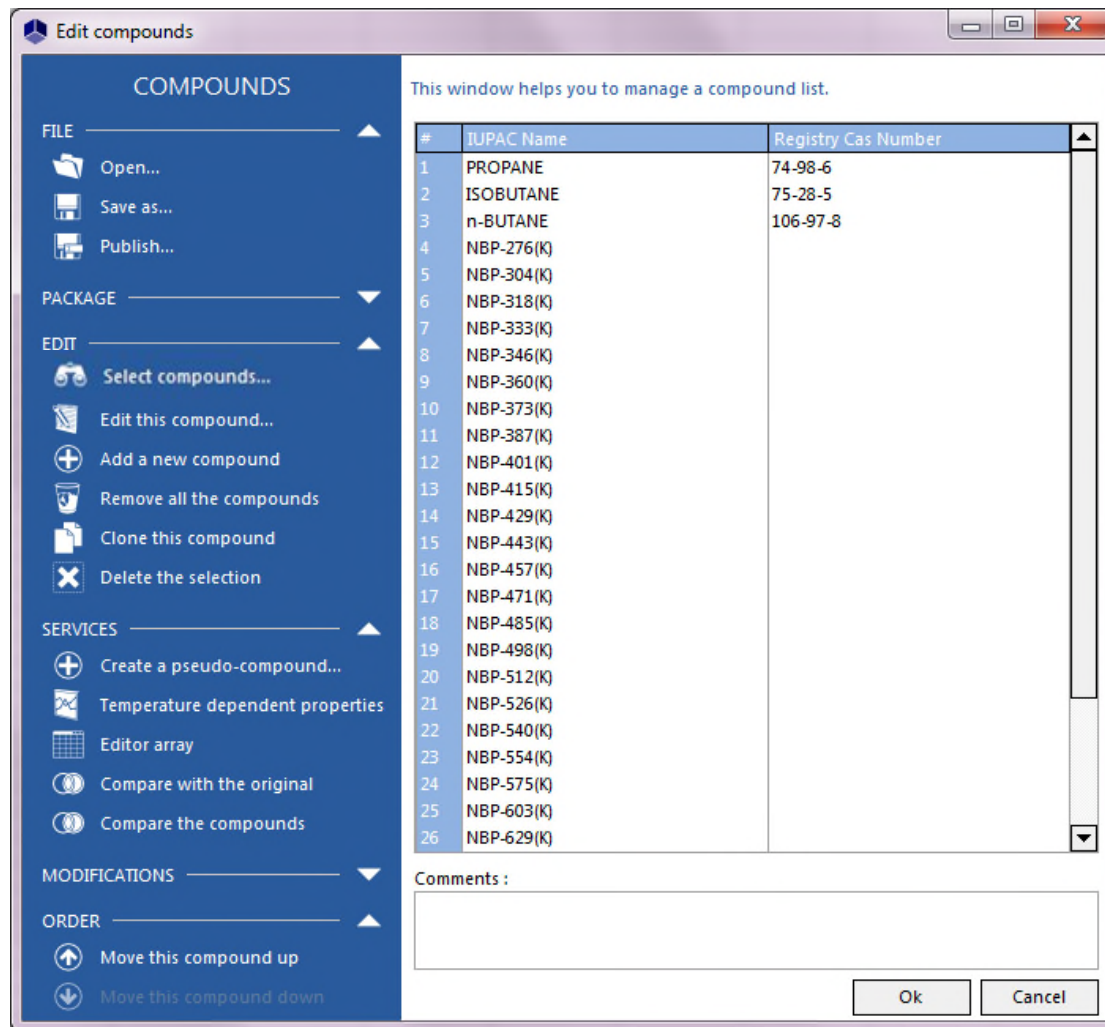
- normal boiling point.
- molecular weight.

Click on “Generate” to create the pseudo-compounds.

Step 3: Generate the pseudo-compounds

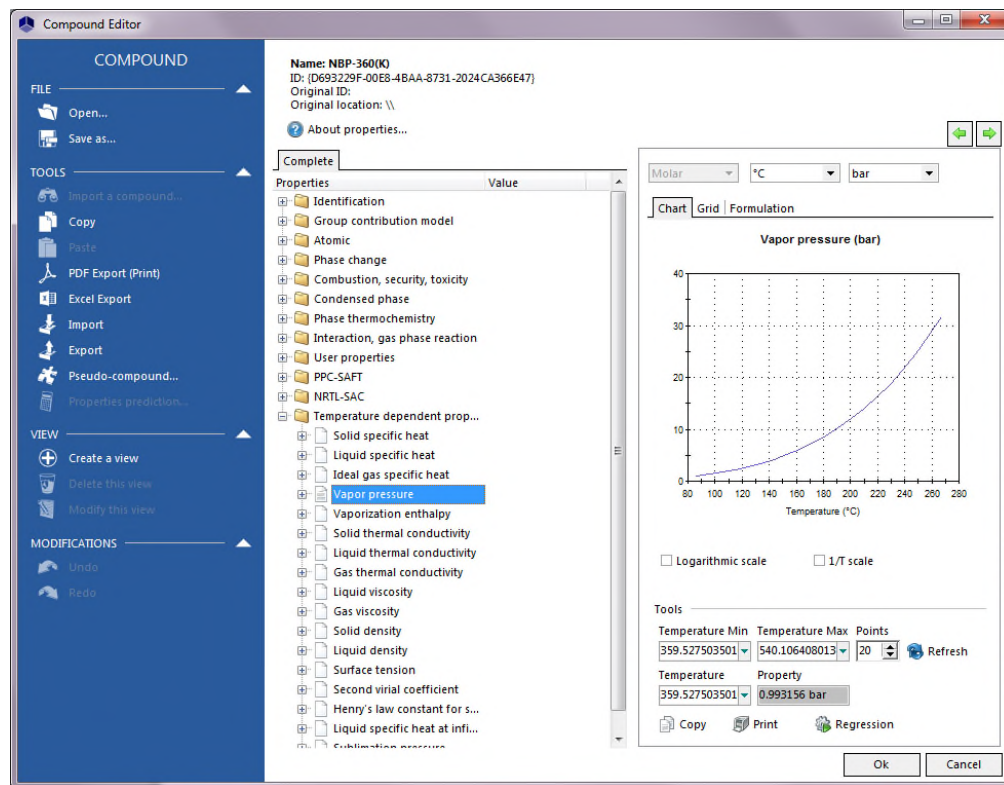
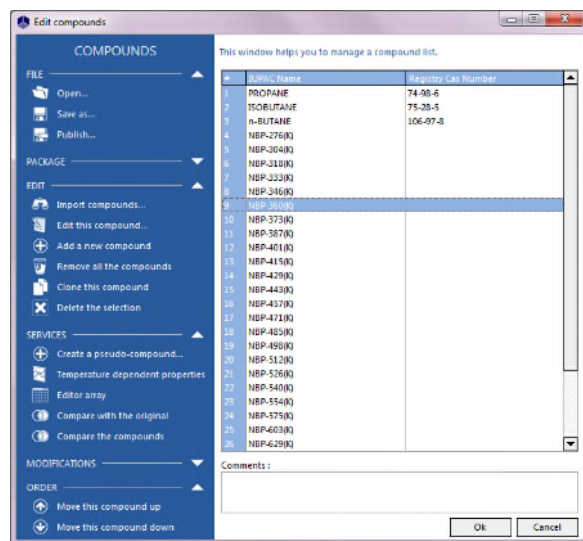
The pseudo-compounds have been automatically generated.

They are named “NBP-” (for Normal Boiling Point) followed by the value expressed in Kelvin.



Step 4: Analyze the results

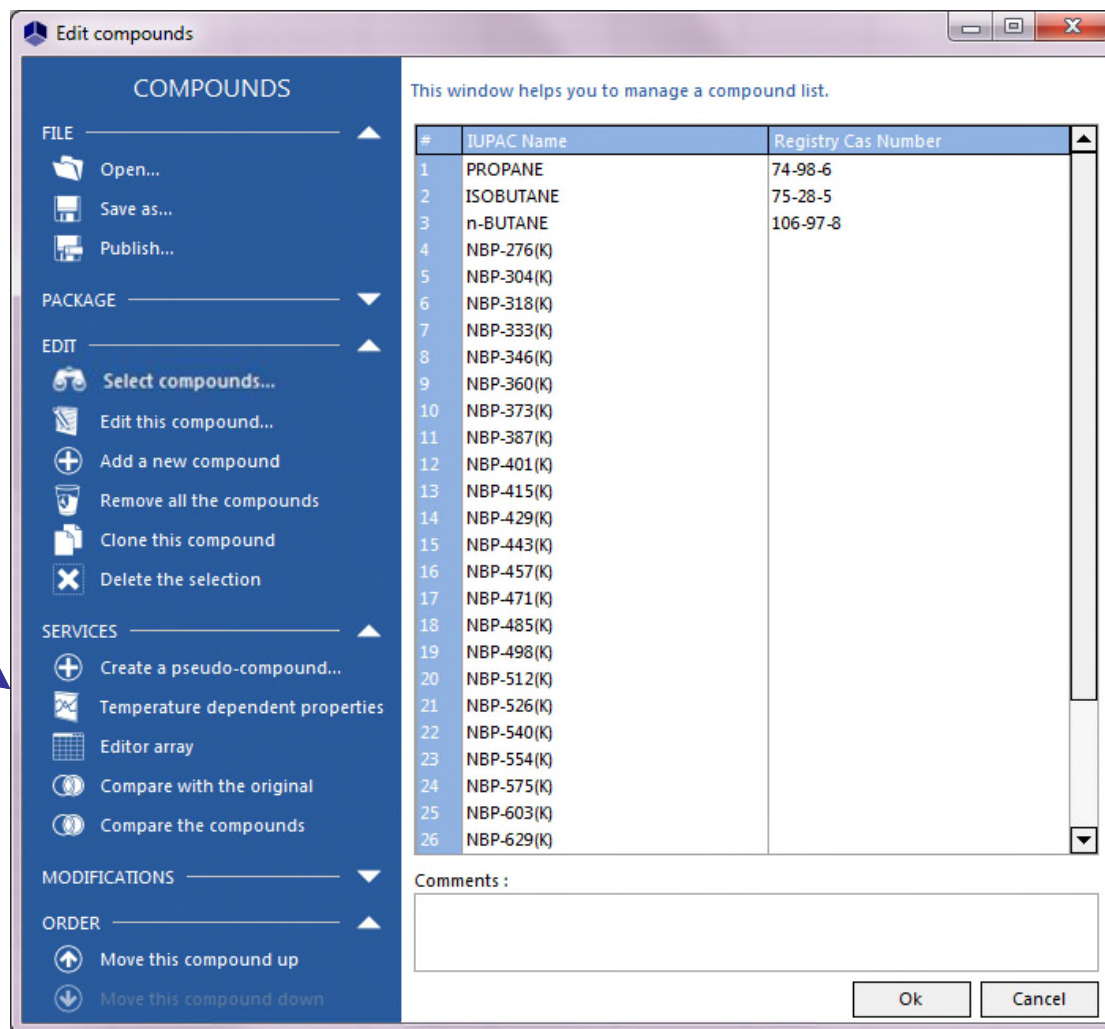
You can access physical properties by double clicking on a pseudo-compound.



The Compound Editor window allows you to browse through the properties generated for each compound. Some properties can be plotted on a graph (in this example, the vapor pressure of the pseudo-compound NBP-360(K)).

Step 4: Analyze the results

It is also possible to compare temperature dependant properties between different compounds



Step 4: Analyze the results

1. Select “*atm*” for pressure and “°F” for temperature.

2. Select “*Vapor pressure*”.

3. Select the compounds that will be used for the comparison. Here we check “*All*” to select all compounds, then uncheck the four heaviest ones.

4. Enter the temperature range: 100°C to 200°C.

The screenshot shows the 'Temperature dependent properties' dialog box. The left sidebar has a blue background with the title 'TEMPERATURE DEPENDANT PROPERTIES'. It contains two sections: 'ACTIONS' and 'CHART'. The 'ACTIONS' section has icons for 'Calculate and plot', 'Unit system', 'Copy', and 'Print'. The 'CHART' section has checkboxes for 'Lines', 'Points', and 'Legend'. The main area on the right has a title bar, a description, and tabs for 'Data', 'Chart', and 'Grid'. The 'Data' tab is active. It features a 'Property' dropdown menu set to 'Vapor pressure'. Below this is a 'Compounds' list with a table of names and checkboxes. The first five compounds are checked: NBP-575(K), NBP-603(K), NBP-629(K), NBP-658(K), and NBP-699(K). The next four are unchecked: NBP-754(K), NBP-810(K), NBP-865(K), and NBP-969(K). Below the list is a checkbox for 'All / None' which is checked. At the bottom, there is a 'Temperature bounds' section with two radio buttons. The first is selected: 'Specify the temperature bounds [TMin,TMax]'. It has two dropdown menus for 'Temperature min.' (set to 100 °C) and 'Temperature max.' (set to 200 °C). The second radio button is 'Use the temperature bounds of the compounds'. To the right of this section is a 'Number of points' spinner set to 20. A 'Close' button is at the bottom right.

TEMPERATURE DEPENDANT PROPERTIES

ACTIONS

- Calculate and plot
- Unit system
- Copy
- Print

CHART

- ☒ Lines
- ☐ Points
- ☒ Legend

This window helps you to compare the same temperature dependent property of several compounds.

Data | Chart | Grid

Property: Vapor pressure

Compounds

Name	Selected
NBP-575(K)	<input checked="" type="checkbox"/>
NBP-603(K)	<input checked="" type="checkbox"/>
NBP-629(K)	<input checked="" type="checkbox"/>
NBP-658(K)	<input checked="" type="checkbox"/>
NBP-699(K)	<input checked="" type="checkbox"/>
NBP-754(K)	<input type="checkbox"/>
NBP-810(K)	<input type="checkbox"/>
NBP-865(K)	<input type="checkbox"/>
NBP-969(K)	<input type="checkbox"/>

☒ All / None

Temperature bounds

☒ Specify the temperature bounds [TMin,TMax]

Temperature min.: 100 °C

Temperature max.: 200 °C

☐ Use the temperature bounds of the compounds

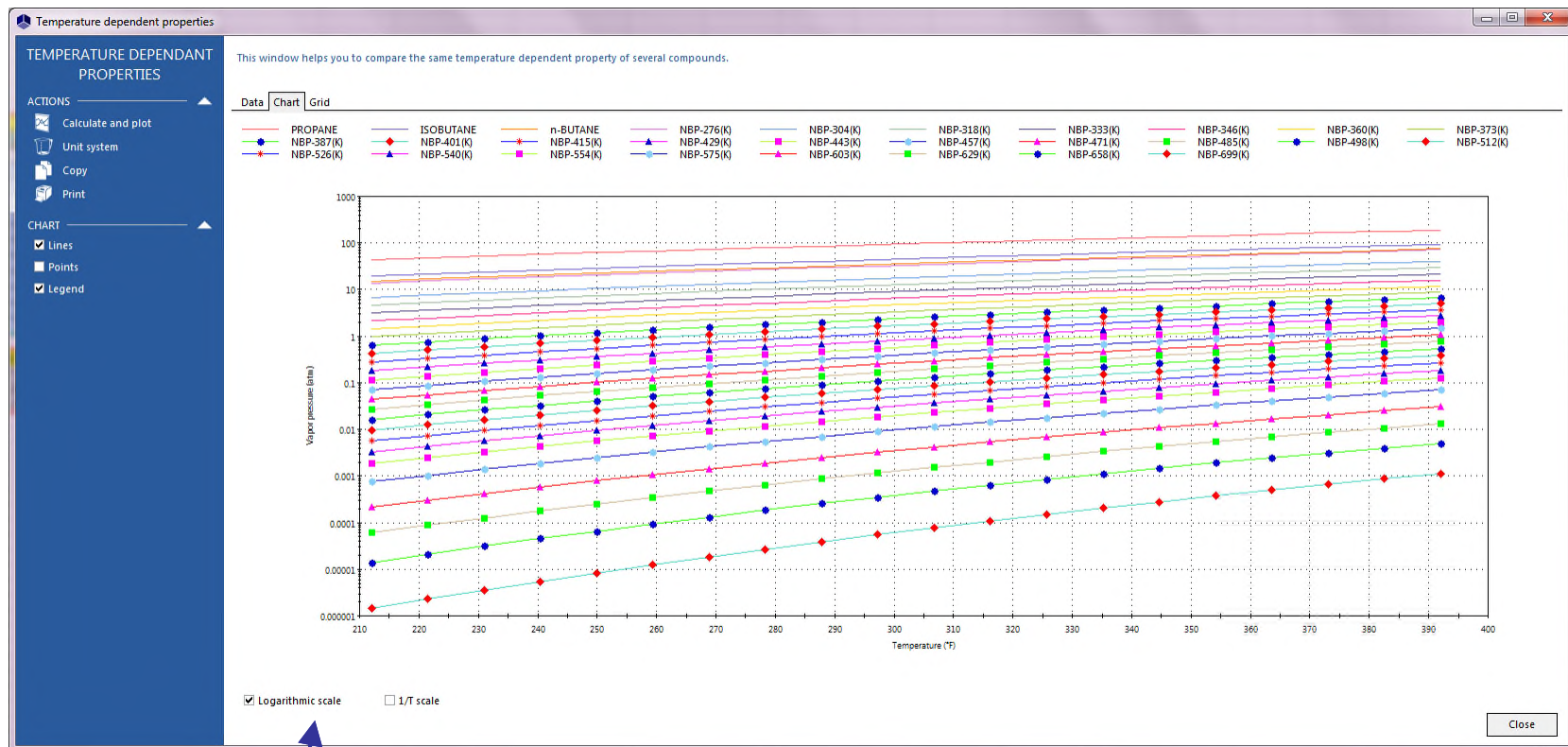
Number of points: 20

Close

5. When all parameters are defined, click on “*Calculate and plot*”.

Step 4: Analyze the results

Click on the “*Chart*” tab to view the graph.



Check the “*Logarithmic scale*” option.

Step 5: Paste the mixture composition into the application that is used



The table that includes the mixture composition has been copied in the step 3. You can now paste it into the application you are using.

▪ If you are using Simulis Thermodynamics in Excel:

Copy the table into the Excel spreadsheet. The “Molar fractions” column corresponds to the mixture composition.

	A	B	C	D	E	F	G
1							
2							
3		Bubble points temperatures	Molecular weights	Specific gravity	Molar fractions	API degree	Watson characterization factor
4		-43.672 °F	0.0440956 kg/mol	0.50625104	0.003973842	148.0055935	14.7456688
5		10.904 °F	0.0581222 kg/mol	0.56378233	0.00559575	119.4833889	13.796359
6		31.1 °F	0.0581222 kg/mol	0.58487074	0.013351639	110.4337975	13.4865056
7		37.037 °F	0.0590957 kg/mol	0.59371967	0.035959719	106.8279607	13.3388579
8		88.0953 °F	0.070319 kg/mol	0.6154890	0.014653073	98.39849966	13.2936590
9		113.627 °F	0.0761553 kg/mol	0.63019602	0.017881326	91.0331137	13.1820851
10		138.874 °F	0.0820988 kg/mol	0.65555007	0.040943872	84.34926212	12.855611
11		162.804 °F	0.087439 kg/mol	0.69116679	0.056313386	73.22627078	12.353524
12		187.48 °F	0.0927145 kg/mol	0.72503566	0.063815434	63.66281276	11.9304474
13		212.462 °F	0.0984203 kg/mol	0.75074144	0.061049453	56.98033703	11.6679471
14		237.447 °F	0.104667 kg/mol	0.76963195	0.056990482	52.35411302	11.5208777
15		262.449 °F	0.110815 kg/mol	0.78676239	0.053801903	48.35099505	11.4031828
16		287.323 °F	0.116887 kg/mol	0.80210234	0.048103901	44.91140371	11.3120756
17		312.263 °F	0.123266 kg/mol	0.81507923	0.042720759	42.10275457	11.2545134
18		337.319 °F	0.130053 kg/mol	0.82571401	0.037633485	39.66683859	11.2284827
19		362.420 °F	0.137257 kg/mol	0.83444219	0.033779329	38.07435905	11.2265177
20		387.483 °F	0.144808 kg/mol	0.84194076	0.031588744	36.56408039	11.2364334
21		412.485 °F	0.152573 kg/mol	0.84925219	0.029997053	35.11717326	11.2502249
22		437.469 °F	0.160558 kg/mol	0.85645598	0.028440201	33.7157298	11.2611174

▪ If you are using Simulis Thermodynamics within ProSimPlus:

In the configuration window of the feed module, select “Mole fractions” for the flowrate specification, then right click in the table to paste the mixture composition.



Process feed (SALIM)

Name: Process feed

Desc:

Identification Parameters Scripts Report Streams Notes Advanced

Copy Paste

Flowrates and fractions Temperature and Pressure

Flowrate specification Mole fractions

#	Components	Mole fractions
1	PROPANE	0
2	ISOBUTANE	0
3	n-BUTANE	0
4	NBP-278(K)	0
5	NBP-304(K)	0
6	NBP-318(K)	0
7	NBP-333(K)	0
8	NBP-346(K)	0

Sum: 0.0000 1 - sum: 1.0000

Total flowrate Mass flowrate

Total mass flowrate 0 lb/h

Copy
Paste
Paste Simulis data "Molar fractions"
Convert into mass

**ProSim SA**

51, rue Ampère
Immeuble Stratège A
F-31670 Labège
France

☎: +33 (0) 5 62 88 24 30



ProSim

Software & Services In Process Simulation

www.prosim.net
info@prosim.net

**ProSim, Inc.**

325 Chestnut Street, Suite 800
Philadelphia, PA 19106
U.S.A.

☎: +1 215 600 3759