



Tutorial

G^{raf}Compounder 5.0

01. September 2023

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Content :

GrafCompounder 5.0

Step by Step
with
Screen Shots
From Start
to first calculated
Compound

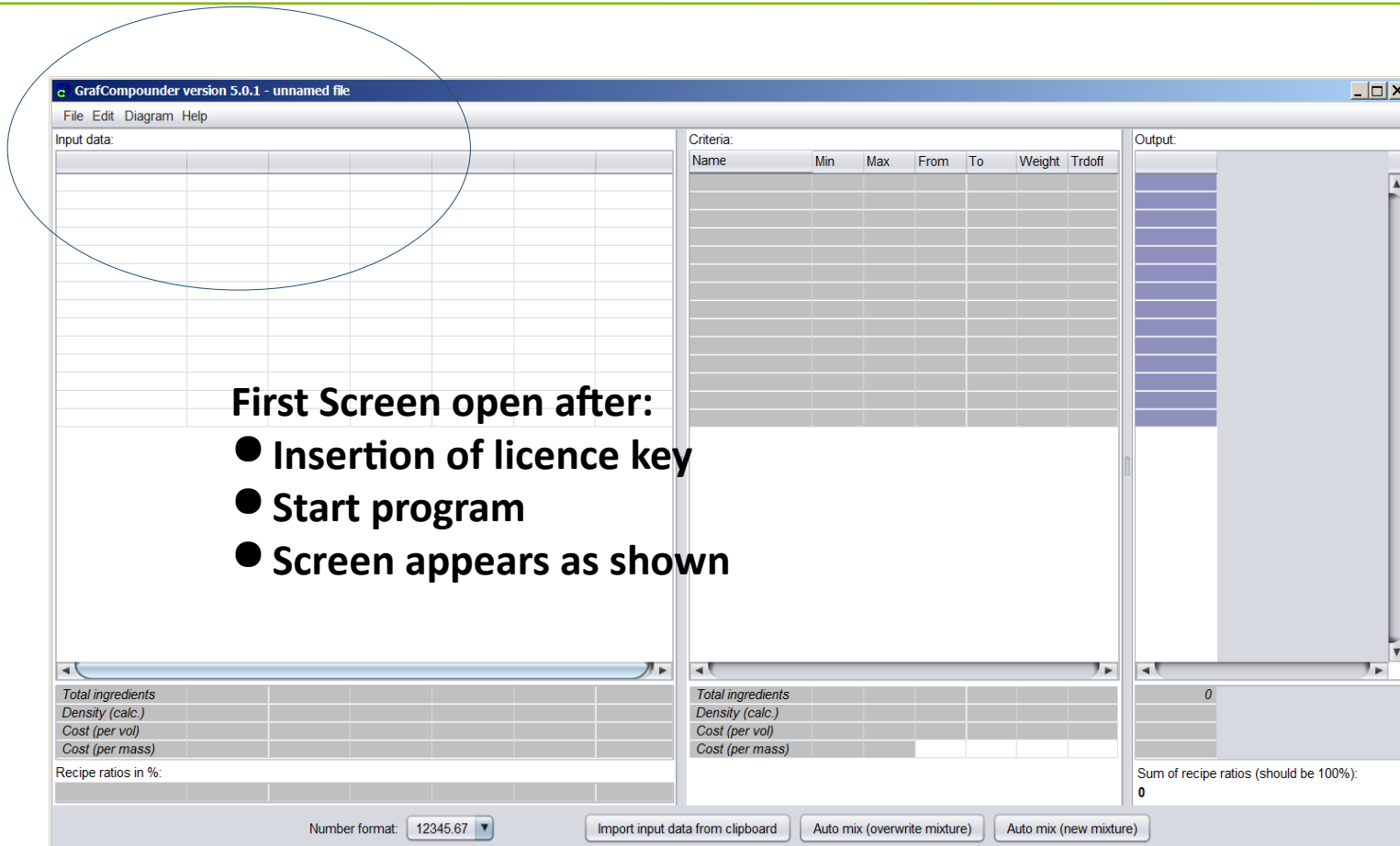


The screenshot displays the GrafCompounder software interface with a recipe table. The table includes columns for Code, Cost, Density, Ingredients, and Recipes. A large watermark 'GrafCompounder Version 5' is overlaid on the screen. The interface also shows a 'Crystals' table on the right and a summary table at the bottom.

Code	Cost	Density	Ingredients	Recipes
D001	280.00	0.82	H ₂ O (SMR-10)	
PR001	170.00	1.92	H ₂ O	
D002	24.00	2.71	CaCO ₃	
D003	118.00	0.65	Na ₂ SO ₄ ·10H ₂ O	
PR002	300.00	0.50	ZnO	
PR003	165.00	0.80	Stearic Acid	
D004	524.00	1.15	PPD	
PR004	150.00	1.60	G	
PR005	380.00	1.1	TUTT.	
PR006	200.00	1.25	CaE	

Closing Remarks

Start G^{raf}Compounder 5.0

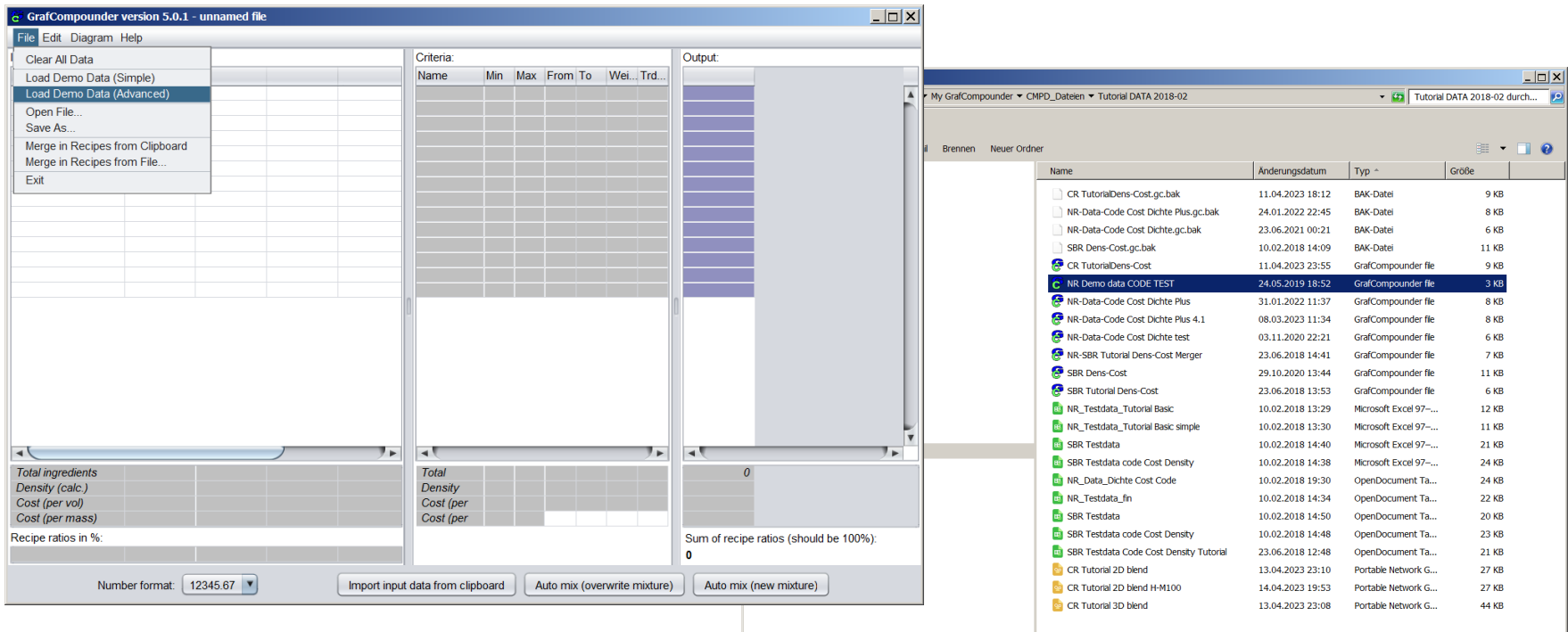


First Screen open after:

- Insertion of licence key
- Start program
- Screen appears as shown

Start G^{raf}Compounder 5.0

- Open pull down menu „Load Demo Data (Simple)“
 - Open File “compound.gc”
 - Any other table files: “Copy / Paste” for incorporation



The screenshot shows the GrafCompounder 5.0.1 application window. The 'File' menu is open, and 'Load Demo Data (Simple)' is selected. The main window is divided into several sections: 'Criteria' (a table with columns Name, Min, Max, From, To, Wei..., Trd...), 'Output' (a table with a single cell containing '0'), and a summary section at the bottom with fields for 'Total ingredients', 'Density (calc.)', 'Cost (per vol)', and 'Cost (per mass)'. The 'Sum of recipe ratios (should be 100%)' is also shown as '0'. A file explorer window is open in the background, showing a list of files in the 'Tutorial DATA 2018-02' folder. The file 'NR Demo data CODE TEST' is selected.

Name	Änderungsdatum	Typ	Größe
CR TutorialDens-Cost.gc.bak	11.04.2023 18:12	BAK-Datei	9 KB
NR-Data-Code Cost Dichte Plus.gc.bak	24.01.2022 22:45	BAK-Datei	8 KB
NR-Data-Code Cost Dichte.gc.bak	23.06.2021 00:21	BAK-Datei	6 KB
SBR Dens-Cost.gc.bak	10.02.2018 14:09	BAK-Datei	11 KB
CR TutorialDens-Cost	11.04.2023 23:55	GrafCompounder file	9 KB
NR Demo data CODE TEST	24.05.2019 18:52	GrafCompounder file	3 KB
NR-Data-Code Cost Dichte Plus	31.01.2022 11:37	GrafCompounder file	8 KB
NR-Data-Code Cost Dichte Plus 4.1	08.03.2023 11:34	GrafCompounder file	8 KB
NR-Data-Code Cost Dichte test	03.11.2020 22:21	GrafCompounder file	6 KB
NR-SBR Tutorial Dens-Cost Merger	23.06.2018 14:41	GrafCompounder file	7 KB
SBR Dens-Cost	29.10.2020 13:44	GrafCompounder file	11 KB
SBR Tutorial Dens-Cost	23.06.2018 13:53	GrafCompounder file	6 KB
NR_Testdata_Tutorial Basic	10.02.2018 13:29	Microsoft Excel 97-...	12 KB
NR_Testdata_Tutorial Basic simple	10.02.2018 13:30	Microsoft Excel 97-...	11 KB
SBR Testdata	10.02.2018 14:40	Microsoft Excel 97-...	21 KB
SBR Testdata code Cost Density	10.02.2018 14:38	Microsoft Excel 97-...	24 KB
NR_Data_Dichte Cost Code	10.02.2018 19:30	OpenDocument Ta...	24 KB
NR_Testdata_fin	10.02.2018 14:34	OpenDocument Ta...	22 KB
SBR Testdata	10.02.2018 14:50	OpenDocument Ta...	20 KB
SBR Testdata code Cost Density	10.02.2018 14:48	OpenDocument Ta...	23 KB
SBR Testdata Code Cost Density Tutorial	23.06.2018 12:48	OpenDocument Ta...	21 KB
CR Tutorial 2D blend	13.04.2023 23:10	Portable Network G...	27 KB
CR Tutorial 2D blend H-M100	14.04.2023 19:53	Portable Network G...	27 KB
CR Tutorial 3D blend	13.04.2023 23:08	Portable Network G...	44 KB



Start GrafCompounder 5.0

Loaded

- Demo Data (Simple) - left
- Demo Data (Advanced): With additional columns Code: / Cost: / Density: - right

Ingredients: / Properties: / Recipes: Column

Start GrafCompounder 5.0

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

Demo Data				50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Code:	Cost:	Density:	Ingredients:	Recipes:					
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00	45.00	20.00
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00	20.00	20.00
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00	25.00	5.00
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00	5.00	5.00
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00	2.00	2.00
G001	924.00	1.15	IPPD	2.00	2.00	2.00	2.00	2.00	2.00
H001	158.00	1.80	S	1.50	1.50	1.50	1.50	1.50	1.50
K001	396.00	1.11	TMTD - 80						
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	0.65	0.65	0.65
Code:			Properties:						
PR001			MooneyML(1+4) 100°C	32.00	36.00	31.00	34.00	30.00	30.00
PR002			Mooney 15 / 120°C	28.00	28.00	32.00	28.00	32.00	32.00
PR003			Density [g/ccm]	1.08	1.12	1.16	1.13	1.16	1.16
PR004			Hardness [°ShA]	42.00	41.00	40.00	48.00	48.00	48.00
PR007			M300 [Mpa]	1.80	3.00	3.00	4.40	4.60	4.60
PR008			TS [Mpa]	25.00	21.00	15.00	25.00	20.00	20.00
PR009			EB [%]	785.00	725.00	690.00	715.00	705.00	690.00
PR010			C-Set -26°C /24h [%]	22.00	28.00	30.00	17.00	19.00	19.00
PR011			C-Set 0°C /24h [%]	10.00	14.00	14.00	8.00	12.00	12.00
PR012			C-Set 23°C /72h [%]	8.00	10.00	14.00	9.00	13.00	13.00
PR013			C-Set 70°C /24h [%]	39.00	50.00	61.00	44.00	50.00	50.00
Total ingredients				146.15	186.15	226.15	161.15	201.15	251.15
Density (calc.)				1.096	1.115	1.128	1.137	1.147	1.186
Cost (per vol)				262.547	237.377	220.712	259.187	235.816	263.816
Cost (per mass)				239.55	212.894	195.667	227.957	205.594	239.55

Recipe ratios in %:

50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
100.00	100.00	100.00	100.00	100.00	100.00

Criteria:

Name	Min	Max	From	To	Wei...	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4) 100°C	30	60				
Mooney 15 / 120°C	11	32				
Density	1.08	1.2				
Hardness	40	61				
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25				
EB [%]	540	785				
C-Set -26°C	17	77				
C-Set 0°C	8	16				
C-Set 23°C	8	18				
C-Set 70°C	17	61				

Output:

Mixture1

0

Sum of recipe ratios (should be 100%): 0

Number format: 12345.67

Import input data from clipboard

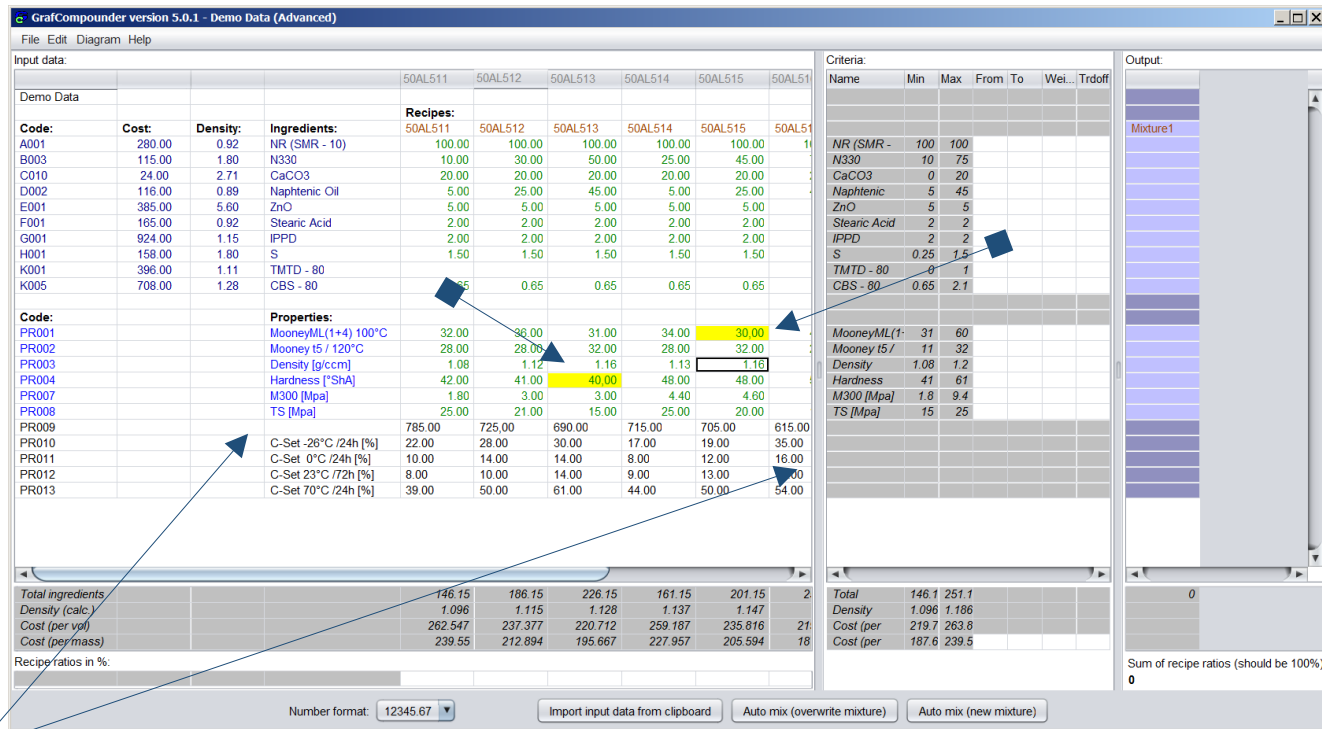
Auto mix (overwrite mixture)

Auto mix (new mixture)

Columns: Numbers in Blue

Recipes: Numbers in Green

Start GrafCompounder 5.0



Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

- Empty Cell in Properties: Column = Data not recognized; Criteria fields empty.
- Number in yellow field: Wrong number format, excluded from calculation

Start GrafCompounder 5.0 – Predict a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

				50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Demo Data									
Code:	Cost:	Density:	Ingredients:	Recipes:					
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00	45.00	
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00	20.00	
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00	25.00	
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00	5.00	
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00	2.00	
G001	924.00	1.15	IPPD	2.00	2.00	2.00	2.00	2.00	
H001	158.00	1.80	S	1.50	1.50	1.50	1.50	1.50	
K001	396.00	1.11	TMTD - 80						
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	0.65	0.65	
Properties:									
PR001			MooneyML(1+4) 100°C	32.00	36.00	31.00	34.00	30.00	
PR002			Mooney t5 / 120°C	28.00	28.00	32.00	28.00	32.00	
PR003			Density [g/ccm]	1.08	1.12	1.16	1.13	1.16	
PR004			Hardness [*StA]	42.00	41.00	40.00	48.00	48.00	
PR007			M300 [Mpa]	1.80	3.00	3.00	4.40	4.60	
PR008			TS [Mpa]	25.00	21.00	15.00	25.00	20.00	
PR009			EB [%]	785.00	725.00	690.00	715.00	705.00	
PR010			C-Set -26°C /24h [%]	22.00	28.00	30.00	17.00	19.00	
PR011			C-Set 0°C /24h [%]	10.00	14.00	14.00	8.00	12.00	
PR012			C-Set 23°C /72h [%]	8.00	10.00	14.00	9.00	13.00	
PR013			C-Set 70°C /24h [%]	39.00	50.00	61.00	44.00	50.00	

Criteria:

Name	Min	Max	From	To	Wei..	Trdoff
NR (SMR -	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1-	30	60				
Mooney t5 /	11	32				
Density	1.08	1.2				
Hardness	40	61				
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25				
EB [%]	540	785				
C-Set -26°C	17	77				
C-Set 0°C	8	16				
C-Set 23°C	8	18				
C-Set 70°C	17	61				

Output:

Mixture1

Sum of recipe ratios (should be 100%)
0

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Program Screen with Data ready for calculation:

Option 1: Automix (overwrite mixture): writing result in “mixture 1” column

Overwrites „mixture n“ column (cells in blue color)

Option 2: Automix (new mixture):

creates “mixture 2” column

creates new “mixture n” column

Start GrafCompounder 5.0 – Predict a compound

The screenshot shows the GrafCompounder 5.0.1 - Demo Data (Advanced) interface. The 'Criteria' window is highlighted with a blue circle, and a blue arrow points to the 'Criteria' table. The 'Output' window shows 'Mixture1'.

Criteria:	Name	Min	Max	From	To	Wei...	Trdoff
	NR (SMR -	100	100				
	N330	10	75				
	CaCO3	0	20				
	Naphtenic	5	45				
	ZnO	5	5				
	Stearic Acid	2	2				
	IPPD	2	2				
	S	0.25	1.5				
	TMTD - 80	0	1				
	CBS - 80	0.65	2.1				
	MooneyML(1-	30	60				
	Mooney 15 /	11	32				
	Density	1.08	1.2				
	Hardness	40	61				
	M300 [Mpa]	1.8	9.4				
	TS [Mpa]	15	25				
	EB [%]	540	785				
	C-Set -26°C	17	77				
	C-Set 0°C	8	16				
	C-Set 23°C	8	18				
	C-Set 70°C	17	61				

The Criteria window: Fill in specification data in “Criteria” window

(Remark: “cost per vol” can not be a target = **grey cell**:
 {there is no compound yet, therefore no density}
 “cost per mass” can be targeted = **blanc cell**)

Start GrafCompounder 5.0 – Predict a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

				50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Demo Data									
Code:	Cost:	Density:	Ingredients:	Recipes:					
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00	45.00	
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00	20.00	
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00	25.00	
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00	5.00	
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00	2.00	
G001	924.00	1.15	IPPD	2.00	2.00	2.00	2.00	2.00	
H001	158.00	1.80	S	1.50	1.50	1.50	1.50	1.50	
K001	396.00	1.11	TMTD - 80						
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	0.65	0.65	
Properties:									
PR001			MooneyML(1+4) 100°C	32.00	36.00	31.00	34.00	30.00	
PR002			Mooney t5 / 120°C	28.00	28.00	32.00	28.00	32.00	
PR003			Density [g/ccm]	1.08	1.12	1.16	1.13	1.16	
PR004			Hardness [*ShA]	42.00	41.00	40.00	48.00	48.00	
PR007			M300 [Mpa]	1.80	3.00	3.00	4.40	4.60	
PR008			TS [Mpa]	25.00	21.00	15.00	25.00	20.00	
PR009			EB [%]	785.00	725.00	690.00	715.00	705.00	
PR010			C-Set -26°C /24h [%]	22.00	28.00	30.00	17.00	19.00	
PR011			C-Set 0°C /24h [%]	10.00	14.00	14.00	8.00	12.00	
PR012			C-Set 23°C /72h [%]	8.00	10.00	14.00	9.00	13.00	
PR013			C-Set 70°C /24h [%]	39.00	50.00	61.00	44.00	50.00	
Total ingredients				146.15	186.15	226.15	161.15	201.15	
Density (calc.)				1.096	1.115	1.128	1.137	1.147	
Cost (per vol)				262.547	237.377	220.712	259.187	235.816	
Cost (per mass)				239.55	212.894	195.667	227.957	205.594	

Recipe ratios in %:

	50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Total	146.1	251.1				
Density	1.096	1.186				
Cost (per	219.7	263.8				
Cost (per	187.6	239.5				

Criteria:

Name	Min	Max	From	To	Wei...	Trdoff
NR (SMR -	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(f-	30	60				
Mooney t5 /	11	32				
Density	1.08	1.2				
Hardness	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C	17	77		20		
C-Set 0°C	8	16		10		
C-Set 23°C	8	18		10		
C-Set 70°C	17	61		20		

Output:

Mixture1

Sum of recipe ratios (should be 100%): 0

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Chose criteria values and put them in the “Criteria” Window
 (You can also copy / paste data from a specification if it is organized similar)

Start GrafCompounder 5.0 – Predict a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

Demo Data				50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Code:	Cost:	Density:	Ingredients:	Recipes:					
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00	45.00	
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00	20.00	
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00	25.00	
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00	5.00	
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00	2.00	
G001	924.00	1.15	IPPD	2.00	2.00	2.00	2.00	2.00	
H001	158.00	1.80	S	1.50	1.50	1.50	1.50	1.50	
K001	396.00	1.11	TMTD - 80						
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	0.65	0.65	
Code:		Properties:							
PR001		MooneyML(1+4) 100°C	32.00	36.00	31.00	34.00	30.00		
PR002		Mooney t5 / 120°C	28.00	28.00	32.00	28.00	32.00		
PR003		Density [g/ccm]	1.08	1.12	1.16	1.13	1.16		
PR004		Hardness [*ShA]	42.00	41.00	40.00	48.00	48.00		
PR007		M300 [Mpa]	1.80	3.00	3.00	4.40	4.60		
PR008		TS [Mpa]	25.00	21.00	15.00	25.00	20.00		
PR009		EB [%]	785.00	725.00	690.00	715.00	705.00	600	
PR010		C-Set -26°C /24h [%]	22.00	28.00	30.00	17.00	19.00	20	
PR011		C-Set 0°C /24h [%]	10.00	14.00	14.00	8.00	12.00	10	
PR012		C-Set 23°C /72h [%]	8.00	10.00	14.00	9.00	13.00	10	
PR013		C-Set 70°C /24h [%]	39.00	50.00	61.00	44.00	50.00	20	
Total ingredients				146.15	186.15	226.15	161.15	201.15	21.00
Density (calc.)				1.096	1.115	1.128	1.137	1.147	
Cost (per vol)				262.547	237.377	220.712	259.187	235.816	21.00
Cost (per mass)				239.55	212.894	195.667	227.957	205.594	18.00

Recipe ratios in %:

	50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Total	146.1	186.1	226.1	161.1	201.1	21.0
Density	1.096	1.115	1.128	1.137	1.147	
Cost (per	219.7	263.8				
Cost (per	187.6	239.5				

Criteria:

Name	Min	Max	From	To	Wei...	Trdoff
NR (SMR -	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1-	30	60				
Mooney t5 /	11	32				
Density	1.08	1.2				
Hardness	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C	17	77		20		
C-Set 0°C	8	16		10		
C-Set 23°C	8	18		10		
C-Set 70°C	17	61		20		

Output:

Mixture1

0

Sum of recipe ratios (should be 100%):
0

Number format: 12345.67

Import input data from clipboard

Auto mix (overwrite mixture)

Auto mix (new mixture)

Click on Button: "Auto mix (overwrite mixture)"

Start GrafCompounder 5.0 – Predict a compound

c:\GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

Demo Data				50AL511	50AL512	50AL513	50AL514	50AL515	50AL516	
Code:	Cost:	Density:	Ingredients:	Recipes:						
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00	100.00	100.00	
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00	45.00		
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00	20.00		
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00	25.00		
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00	5.00		
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00	2.00		
G001	924.00	1.15	IPPD							
H001	158.00	1.80	S							
K001	396.00	1.11	TMTD							
K005	708.00	1.28	CBS -							

Criteria:

Name	Min	Max	From	To	Wei...	Trdoff
NR (SMR -	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic	5	45				
ZnO	5	5				
Stearic Acid	2	2				

Output:

Mixture1

Automatic mixing in process ...

Score of best mixture so far (lower is better): 926.1061

Take best mixture so far Cancel

Total ingredients						
Density (calc.)	1.096	1.115	1.128	1.137	1.147	
Cost (per vol)	262.547	237.377	220.712	259.187	235.816	21.1
Cost (per mass)	239.55	212.894	195.667	227.957	205.594	18.1

Recipe ratios in %:

Total	146.1	251.1				
Density	1.096	1.186				
Cost (per	219.7	263.8				
Cost (per	187.6	239.5				

Sum of recipe ratios (should be 100%): 0

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Accept: **“Take best mixture so far”**

(Value of Fitness Function = 926.. shows, not all criteria could be met)



Start GrafCompounder 5.0 – Predict a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

				50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Demo Data									
Code:	Cost:	Density:	Ingredients:	Recipes:					
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00	45.00	
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00	20.00	
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00	25.00	
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00	5.00	
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00	2.00	
G001	924.00	1.15	IPPD	2.00	2.00	2.00	2.00	2.00	
H001	158.00	1.80	S	1.50	1.50	1.50	1.50	1.50	
K001	396.00	1.11	TMTD - 80						
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	0.65	0.65	
Code:			Properties:						
PR001			MooneyML(1+4) 100°C	32.00	36.00	31.00	34.00	30.00	
PR002			Mooney t5 / 120°C	28.00	28.00	32.00	28.00	32.00	
PR003			Density [g/ccm]	1.08	1.12	1.16	1.13	1.16	
PR004			Hardness [°ShA]	42.00	41.00	40.00	48.00	48.00	
PR007			M300 [Mpa]	1.80	3.00	3.00	4.40	4.60	
PR008			TS [Mpa]	25.00	21.00	15.00	25.00	20.00	
PR009			EB [%]	785.00	725.00	690.00	715.00	705.00	6
PR010			C-Set -26°C /24h [%]	22.00	28.00	30.00	17.00	19.00	
PR011			C-Set 0°C /24h [%]	10.00	14.00	14.00	8.00	12.00	
PR012			C-Set 23°C /72h [%]	8.00	10.00	14.00	9.00	13.00	
PR013			C-Set 70°C /24h [%]	39.00	50.00	61.00	44.00	50.00	
Total ingredients				146.15	186.15	226.15	161.15	201.15	2
Density (calc.)				1.096	1.115	1.128	1.137	1.147	
Cost (per vol)				262.547	237.377	220.712	259.187	235.816	21
Cost (per mass)				239.55	212.894	195.667	227.957	205.594	18
Recipe ratios in %:							46.25		

Criteria:

Name	Min	Max	From	To	Wei...	Trdoff
NR (SMR -	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1-	30	60				
Mooney t5 /	11	32				
Density	1.08	1.2				
Hardness	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C	17	77		20		
C-Set 0°C	8	16		10		
C-Set 23°C	8	18		10		
C-Set 70°C	17	61		20		

Output:

Mixture1	Value
Mixture1	100
	35.75
	20
	5
	5
	2
	2
	1.5
	0
	0.65
	47.975
	23.7
	1.16225
	54.9875
	6.335
	23.925
	631.6875
	23.45
	10.6875
	9.5375
	44
Total	
Total	171.9
Density	1.164
Cost (per	257.119
Cost (per	220.893

Sum of recipe ratios (should be 100%)
100

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

First prediction of a compound is finished.

View result in "Output" window.

GrafCompounder 5.0 – Tune Prediction of a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

				50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Demo Data									
Code:	Cost:	Density:	Ingredients:	Recipes:					
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00	45.00	
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00	20.00	
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00	25.00	
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00	5.00	
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00	2.00	
G001	924.00	1.15	IPPD	2.00	2.00	2.00	2.00	2.00	
H001	158.00	1.80	S	1.50	1.50	1.50	1.50	1.50	
K001	396.00	1.11	TMTD - 80						
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	0.65	0.65	
Code:			Properties:						
PR001			MooneyML (1+4) 100°C	32.00	36.00	31.00	34.00	30.00	
PR002			Mooney t5 / 120°C	28.00	28.00	32.00	28.00	32.00	
PR003			Density [g/ccm]	1.08	1.12	1.16	1.13	1.16	
PR004			Hardness [°ShA]	42.00	41.00	40.00	48.00	48.00	
PR007			M300 [Mpa]	1.80	3.00	3.00	4.40	4.60	
PR008			TS [Mpa]	25.00	21.00	15.00	25.00	20.00	
PR009			EB [%]	785.00	725.00	690.00	715.00	705.00	
PR010			C-Set -26°C /24h [%]	22.00	28.00	30.00	17.00	19.00	
PR011			C-Set 0°C /24h [%]	10.00	14.00	14.00	8.00	12.00	
PR012			C-Set 23°C /72h [%]	8.00	10.00	14.00	9.00	13.00	
PR013			C-Set 70°C /24h [%]	39.00	50.00	61.00	44.00	50.00	
Total ingredients				146.15	186.15	226.15	161.15	201.15	
Density (calc.)				1.096	1.115	1.128	1.137	1.147	
Cost (per vol)				262.547	237.377	220.712	259.187	235.816	
Cost (per mass)				239.55	212.894	195.667	227.957	205.594	
Recipe ratios in %:							46.25		

Criteria:

Name	Min	Max	Fro...	To	W...	Tr...
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML (1+4) 100°C	30	60				
Mooney t5 / 120°C	11	32				
Density [g/ccm]	1.08	1.2				
Hardness [°ShA]	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C /24h [%]	17	77		20		
C-Set 0°C /24h [%]	8	16		10		
C-Set 23°C /72h [%]	8	18		10		
C-Set 70°C /24h [%]	17	61		20		

Output:

Mixture1	100
N330	35.75
CaCO3	20
Naphtenic Oil	5
ZnO	5
Stearic Acid	2
IPPD	2
S	1.5
TMTD - 80	0
CBS - 80	0.65
MooneyML (1+4) 100°C	47.975
Mooney t5 / 120°C	23.7
Density [g/ccm]	1.16225
Hardness [°ShA]	54.9875
M300 [Mpa]	6.335
TS [Mpa]	23.925
EB [%]	631.6875
C-Set -26°C /24h [%]	23.45
C-Set 0°C /24h [%]	10.6875
C-Set 23°C /72h [%]	9.5375
C-Set 70°C /24h [%]	44
Total ingredients	171.9
Density (calc.)	1.164
Cost (per vol)	257.119
Cost (per mass)	220.893

Sum of recipe ratios (should be 100%): 100

Number format: 12345.67

Import input data from clipboard | Auto mix (overwrite mixture) | Auto mix (new mixture)

Refine Result: C- 70°C seems to high

Criteria window: Put in “Weight” (select any number: 10 for demonstration)

GrafCompounder 5.0 – Tune Prediction of a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

				50AL511	50AL512	50AL513	50AL514	50AL515	50AL516
Demo Data									
Code:	Cost:	Density:	Ingredients:	Recipes:					
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00	100.00	
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00	45.00	
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00	20.00	
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00	25.00	
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00	5.00	
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00	2.00	
G001	924.00	1.15	IPPD	2.00	2.00	2.00	2.00	2.00	
H001	158.00	1.80	S	1.50	1.50	1.50	1.50	1.50	
K001	396.00	1.11	TMTD - 80						
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	0.65	0.65	
Code:			Properties:						
PR001			MooneyML(1+4) 100°C	32.00	36.00	31.00	34.00	30.00	
PR002			Mooney t5 / 120°C	28.00	28.00	32.00	28.00	32.00	
PR003			Density [g/ccm]	1.08	1.12	1.16	1.13	1.16	
PR004			Hardness [*ShA]	42.00	41.00	40.00	48.00	48.00	
PR007			M300 [Mpa]	1.80	3.00	3.00	4.40	4.60	
PR008			TS [Mpa]	25.00	21.00	15.00	25.00	20.00	
PR009			EB [%]	785.00	725.00	690.00	715.00	705.00	
PR010			C-Set -26°C /24h [%]	22.00	28.00	30.00	17.00	19.00	
PR011			C-Set 0°C /24h [%]	10.00	14.00	14.00	8.00	12.00	
PR012			C-Set 23°C /72h [%]	8.00	10.00	14.00	9.00	13.00	
PR013			C-Set 70°C /24h [%]	39.00	50.00	61.00	44.00	50.00	
Total ingredients				146.15	186.15	226.15	161.15	201.15	
Density (calc.)				1.096	1.115	1.128	1.137	1.147	
Cost (per vol)				262.547	237.377	220.712	259.187	235.816	
Cost (per mass)				239.55	212.894	195.667	227.957	205.594	
Recipe ratios in %:				13.75					

Criteria:

Name	Min	Max	Fro...	To	W...	Tr...
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4) 100°C	30	60				
Mooney t5 / 120°C	11	32				
Density [g/ccm]	1.08	1.2				
Hardness [*ShA]	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C /24h [%]	17	77		20		
C-Set 0°C /24h [%]	8	16		10		
C-Set 23°C /72h [%]	8	18		10		
C-Set 70°C /24h [%]	17	61		20	10	

Output:

	Mixture1	Mixture2
NR (SMR - 10)	100	100
N330	35.75	44.5
CaCO3	20	2.75
Naphtenic Oil	5	9.3125
ZnO	5	5
Stearic Acid	2	2
IPPD	2	2
S	1.5	0.421875
TMTD - 80	0	0.8625
CBS - 80	0.65	1.900625
MooneyML(1+4) 100°C	47.975	39.7625
Mooney t5 / 120°C	23.7	13.3375
Density [g/ccm]	1.16225	1.105875
Hardness [*ShA]	54.9875	56.6625
M300 [Mpa]	6.335	8.355
TS [Mpa]	23.925	23.275
EB [%]	631.6875	573.6875
C-Set -26°C /24h [%]	23.45	69.4375
C-Set 0°C /24h [%]	10.6875	15.175
C-Set 23°C /72h [%]	9.5375	16.625
C-Set 70°C /24h [%]	44	20.025
Total ingredients	171.9	168.7475
Density (calc.)	1.164	1.109
Cost (per vol)	257.119	263.67
Cost (per mass)	220.893	237.755
Sum of recipe ratios (should be 100%)		
100		

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Button “Automix (new mixture)” to watch changes

Accept result and evaluate: C-set 70°C/24h improved at the expense of C-Set-26°C/24h

GrafCompounder 5.0 – Tune Prediction of a compound

The screenshot displays the GrafCompounder 5.0.1 interface with three main panels:

- Input data:** A table with columns for Demo Data, Recipes (50AL511, 50AL512, 50AL513, 50AL514), and Properties (PR001-PR013).
- Criteria:** A table listing various material properties such as NR (SMR - 10), MooneyML(1+4) 100°C, Density [g/ccm], Hardness [°ShA], M300 [Mpa], TS [Mpa], EB [%], and C-Set values at different temperatures and times.
- Output:** A table showing three mixture results (Mixture1, Mixture2, Mixture3) with their respective values for each criterion.

Blue arrows point from the text below to specific cells in the Criteria and Output tables.

“Weight” and “TrdOff” in Criteria Window:

C-set -26°C/24h: Put “weight” to improve

C-set 70°C/24h : put “Trdoff” not to give up too much

Choose “Auto mix (new mixture)”, evaluate results side by side!

(Play with the numbers of „weight” and “Trdoff” to study effect)

GrafCompounder 5.0 – Tune Prediction of a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

				50AL511	50AL512	50AL513	50AL514
Demo Data							
Code:	Cost:	Density:	Ingredients:	Recipes:			
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00	50.00	25.00
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	20.00
D002	116.00	0.89	Naphtenic Oil	5.00	25.00	45.00	5.00
E001	385.00	5.60	ZnO	5.00	5.00	5.00	5.00
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	2.00
G001	924.00	1.15	IPPD	2.00	2.00	2.00	2.00
H001	158.00	1.80	S	1.50	1.50	1.50	1.50
K001	396.00	1.11	TMTD - 80				
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	0.65
Properties:							
PR001			MooneyML(1+4) 100°C	32.00	36.00	31.00	34.00
PR002			Mooney t5 / 120°C	28.00	28.00	32.00	28.00
PR003			Density [g/ccm]	1.08	1.12	1.16	1.11
PR004			Hardness [°ShA]	42.00	41.00	40.00	48.00
PR007			M300 [Mpa]	1.80	3.00	3.00	4.4
PR008			TS [Mpa]	25.00	21.00	15.00	25.00
PR009			EB [%]	785.00	725.00	690.00	715.00
PR010			C-Set -26°C /24h [%]	22.00	28.00	30.00	17.00
PR011			C-Set 0°C /24h [%]	10.00	14.00	14.00	8.00
PR012			C-Set 23°C /72h [%]	8.00	10.00	14.00	9.00
PR013			C-Set 70°C /24h [%]	39.00	50.00	61.00	44.00
Total ingredients				146.15	186.15	226.15	161.1
Density (calc.)				1.096	1.115	1.128	1.13
Cost (per vol)				262.547	237.377	220.712	259.18
Cost (per mass)				239.55	212.894	195.667	227.95

Recipe ratios in %:

33.5

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Criteria:

Name	Min	Max	From	To	Wei...	Trdroff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4) 100°C	30	60				
Mooney t5 / 120°C	11	32				
Density [g/ccm]	1.08	1.2				
Hardness [°ShA]	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C /24h [%]	17	77		20	50	
C-Set 0°C /24h [%]	8	16		10		
C-Set 23°C /72h [%]	8	18		10		
C-Set 70°C /24h [%]	17	61		20	10	10

Output:

Mixture1	Mixture2	Mixture3
100	100	100
35.75	44.5	36.6
20	2.75	6.7
5	9.3125	8.325
5	5	5
2	2	2
2	2	2
1.5	0.421875	0.68875
0	0.8625	0.685
0.65	1.900625	1.61425
47.975	39.7625	37.985
23.7	13.3375	16.895
1.16225	1.105875	1.09995
54.9875	56.6625	53.305
6.335	8.355	6.854
23.925	23.275	23.67
631.6875	573.6875	622.075
23.45	69.4375	58.575
10.6875	15.175	13.99
9.5375	16.625	14.65
44	20.025	24.37
171.9	168.7475	163.573
1.164	1.109	1.106
257.119	263.67	263.363
220.893	237.755	238.122

Sum of recipe ratios (should be 100%): 100

Dealing with Cost as a target: Criteria window: Put in "cost" target in "Cost per mass" cell

GrafCompounder 5.0 – Tune Prediction of a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

			50AL511	50AL512	50AL513
Demo Data					
Code:	Cost:	Density:	Recipes:		
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00
C010	24.00	2.71	CaCO3	20.00	20.00
D002	116.00	0.89	Naphthenic Oil	5.00	25.00
E001	385.00	5.60	ZnO	5.00	5.00
F001	165.00	0.92	Stearic Acid	2.00	2.00
G001	924.00	1.15	IPPD	2.00	2.00
H001	158.00	1.80	S	1.50	1.50
K001	396.00	1.11	TMTD - 80		
K005	708.00	1.28	CBS - 80	0.65	0.65
Code:	Properties:				
PR001	MooneyML(1+4) 100°C		32.00	36.00	31.00
PR002	Mooney t5 / 120°C		28.00	28.00	32.00
PR003	Density [g/ccm]		1.08	1.12	1.16
PR004	Hardness [°ShA]		42.00	41.00	40.00
PR007	M300 [Mpa]		1.80	3.00	3.00
PR008	TS [Mpa]		25.00	21.00	15.00
PR009	EB [%]		785.00	725.00	690.00
PR010	C-Set -26°C /24h [%]		22.00	28.00	30.00
PR011	C-Set 0°C /24h [%]		10.00	14.00	14.00
PR012	C-Set 23°C /72h [%]		8.00	10.00	14.00
PR013	C-Set 70°C /24h [%]		39.00	50.00	61.00
Total ingredients			146.15	186.15	226.15
Density (calc.)			1.096	1.115	1.128
Cost (per vol)			262.547	237.377	220.712
Cost (per mass)			239.55	212.894	195.667
Recipe ratios in %:			33.5		

Criteria:

Name	Min	Max	From	To	Wei...	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphthenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4) 100°C	30	60				
Mooney t5 / 120°C	11	32				
Density [g/ccm]	1.08	1.2				
Hardness [°ShA]	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C /24h [%]	17	77	20	50		
C-Set 0°C /24h [%]	8	16	10			
C-Set 23°C /72h [%]	8	18	10			
C-Set 70°C /24h [%]	17	61	20	10	10	

Output:

	Mixture1	Mixture2	Mixture3	Mixture4
	100	100	100	100
	35.75	44.5	36.6	36.6
	20	2.75	6.7	6.7
	5	9.3125	8.325	8.325
	5	5	5	5
	2	2	2	2
	2	2	2	2
	1.5	0.421875	0.66875	0.66875
	0	0.8625	0.665	0.665
	0.65	1.900625	1.61425	1.61425
	47.975	39.7625	37.985	37.985
	23.7	13.3375	16.695	16.695
	1.16225	1.105875	1.09995	1.09995
	54.9875	56.6625	53.305	53.305
	6.335	8.355	6.854	6.854
	23.925	23.275	23.67	23.67
	631.6875	573.6875	622.075	622.075
	23.45	69.4375	58.575	58.575
	10.6875	15.175	13.99	13.99
	9.5375	16.625	14.65	14.65
	44	20.025	24.37	24.37
	171.9	166.7475	163.573	163.573
	1.164	1.109	1.106	1.106
	257.119	263.67	263.363	263.363
	220.893	237.755	238.122	238.122

Sum of recipe ratios (should be 100%):
100

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Almost no Change!

Dealing with Cost as a target:

Output window: "cost" target no match.

Chose „Automix (new mixture)“, evaluate influence on compound and properties

GrafCompounder 5.0 – Tune Prediction of a compound

GrafCompounder version 5.0.1 - Demo Data (Advanced)

File Edit Diagram Help

Input data:

				50AL511	50AL512
Demo Data					
Code:	Cost:	Density:	Ingredients:	Recipes: 50AL511	50AL512
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00
C010	24.00	2.71	CaCO3	20.00	20.00
D002	116.00	0.89	Naphtenic Oil	5.00	25.00
E001	385.00	5.60	ZnO	5.00	5.00
F001	165.00	0.92	Stearic Acid	2.00	2.00
G001	924.00	1.15	IPPD	2.00	2.00
H001	158.00	1.80	S	1.50	1.50
K001	396.00	1.11	TMTD - 80		
K005	708.00	1.28	CBS - 80	0.65	0.65
Properties:					
PR001			MooneyML(1+4) 100°C	32.00	36.00
PR002			Mooney I5 / 120°C	28.00	28.00
PR003			Density [g/ccm]	1.08	1.11
PR004			Hardness [°ShA]	42.00	41.00
PR007			M300 [Mpa]	1.80	3.00
PR008			TS [Mpa]	25.00	21.00
PR009			EB [%]	785.00	725.00
PR010			C-Set -26°C /24h [%]	22.00	28.00
PR011			C-Set 0°C /24h [%]	10.00	14.00
PR012			C-Set 23°C /72h [%]	8.00	10.00
PR013			C-Set 70°C /24h [%]	39.00	50.00
Total ingredients				146.15	186.1
Density (calc.)				1.096	1.11
Cost (per vol)				262.547	237.37
Cost (per mass)				239.55	212.89

Recipe ratios in %:

Total ingredients	146.15	251.15		
Density (calc.)	1.096	1.186		
Cost (per vol)	219.72	263.87		
Cost (per mass)	187.63	239.55	200	50

Criteria:

Name	Min	Max	From	To	Wei...	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4) 100°C	30	60				
Mooney I5 / 120°C	11	32				
Density [g/ccm]	1.08	1.2				
Hardness [°ShA]	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C /24h [%]	17	77		20	50	
C-Set 0°C /24h [%]	8	16		10		
C-Set 23°C /72h [%]	8	18		10		
C-Set 70°C /24h [%]	17	61		20	10	10

Output:

	Mixture1	Mixture2	Mixture3	Mixture4	Mixture5
	100	100	100	100	100
	35.75	44.5	36.6	36.6	53.375
	20	2.75	6.7	6.7	4.5
	5	9.3125	8.325	8.325	13.375
	5	5	5	5	5
	2	2	2	2	2
	2	2	2	2	2
	1.5	0.421875	0.66875	0.66875	0.53125
	0	0.8825	0.665	0.665	0.775
	0.65	1.900625	1.61425	1.61425	1.77375
	47.975	39.7625	37.985	37.985	40.55
	23.7	13.3375	16.695	16.695	14.15
	1.16225	1.105875	1.09995	1.09995	1.13025
	54.9875	56.6625	53.305	53.305	59.45
	6.335	8.355	6.854	6.854	8.995
	23.925	23.275	23.67	23.67	21.875
	631.6875	573.6875	622.075	622.075	551.25
	23.45	69.4375	58.575	58.575	65.75
	10.6875	15.175	13.99	13.99	15.1
	9.5375	16.625	14.65	14.65	17.775
	44	20.025	24.37	24.37	24.425
	171.9	168.7475	163.573	163.573	183.33
	1.164	1.109	1.106	1.106	1.13
	257.119	263.67	263.363	263.363	256.087
	220.893	237.755	238.122	238.122	226.626

Sum of recipe ratios (should be 100%):
100

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Dealing with Cost as a target:

Put a “Weight” on „Cost per mass“: Effect on CB (*Up*) at expense of C-Set-26°C/24h

GrafCompounder 5.0 – Confirmation trial

GrafCompounder version 5.0.1 - tutorial GC 5 File.gc

File Edit Diagram Help

Input data:

Demo Data			50AL511	50AL512	50AL513	50AL514
Code:	Cost:	Density:	Recipes:			
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00
B003	115.00	1.80	N330	10.00	30.00	50.00
C010	24.00	2.71	CaCO3	20.00	20.00	20.00
D002	116.00	0.89	Naphthenic Oil	5.00	25.00	45.00
E001	385.00	5.60	ZnO	5.00	5.00	5.00
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00
G001	924.00	1.15	IPPD	2.00	2.00	2.00
H001	158.00	1.80	S	1.50	1.50	1.50
K001	396.00	1.11	TMTD - 80			
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65
Code:		Properties:				
PR001		MooneyML(1+4) 100°C	32.00	36.00	31.00	
PR002		Mooney I5 / 120°C	28.00	28.00	32.00	
PR003		Density [g/ccm]	1.08	1.12	1.16	
PR004		Hardness [*ShA]	42.00	41.00	40.00	
PR007		M300 [Mpa]	1.80	3.00	3.00	
PR008		TS [Mpa]	25.00	21.00	15.00	
PR009		EB [%]	785.00	725.00	690.00	
PR010		C-Set -26°C /24h [%]	22.00	28.00	30.00	
PR011		C-Set 0°C /24h [%]	10.00	14.00	14.00	
PR012		C-Set 23°C /72h [%]	8.00	10.00	14.00	
PR013		C-Set 70°C /24h [%]	39.00	50.00	61.00	
Total			146.15	186.15	226.15	
Density			1.096	1.115	1.128	
Cost (per vol)			262.547	237.377	220.712	
Cost (per mass)			239.55	212.894	195.667	

Criteria:

Name	Min	Max	From	To	Weight	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphthenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4)	30	60				
Mooney I5 /	11	32				
Density [g/ccm]	1.08	1.2				
Hardness [*ShA]	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C /24h	17	77		20	50	
C-Set 0°C /24h	8	16		10		
C-Set 23°C /72h	8	18		10		
C-Set 70°C /24h	17	61		20	10	10
Total ingredients	146.15	251.15				
Density (calc.)	1.096	1.186				
Cost (per vol)	219.72	263.87				
Cost (per mass)	187.63	239.55		200	50	

Output:

Mixture1	Mixture2	Mixture3	Mixture4	Mixture5
100	100	100	100	100
35.75	44.5	36.6	36.6	53.375
20	2.75	6.7	6.7	4.5
5	9.3125	8.325	8.325	13.375
5	5	5	5	5
2	2	2	2	2
2	2	2	2	2
1.5	0.421875	0.66875	0.66875	0.53125
0	0.8625	0.665	0.665	0.775
0.65	1.900625	1.61425	1.61425	1.77375
47.975	39.7625	37.985	37.985	40.55
23.7	13.3375	16.695	16.695	14.15
1.16225	1.105875	1.09995	1.09995	1.13025
54.9875	56.6625	53.305	53.305	59.45
6.335	8.355	6.854	6.854	8.995
23.925	23.275	23.67	23.67	21.875
631.6875	573.6875	622.075	622.075	551.25
23.45	69.4375	58.575	58.575	65.75
10.6875	15.175	13.99	13.99	15.1
9.5375	16.625	14.65	14.65	17.775
44	20.025	24.37	24.37	24.425
171.9	168.7475	163.573	163.573	183.33
1.164	1.109	1.106	1.106	1.13
257.119	263.67	263.363	263.363	256.087
220.893	237.755	238.122	238.122	226.626

Sum of recipe ratios (should be 100%):
100

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Preparing Confirmation Trial

- Select a Compound for confirmation (*Example mixture 5*)
- Highlight column mixture ..

GrafCompounder 5.0 – Confirmation trail

GrafCompounder version 5.0.1 - tutorial GC 5 File.gc

File Edit Diagram Help

Input data:

Demo Data				50AL511	50AL512	50AL513	50AL514
Code:	Cost:	Density:	Ingredients:	Recipes:			
A001	280.00	0.92	NR (SMR - 10)	100.00	100.00	100.00	5
B003	115.00	1.80	N330	10.00	30.00	50.00	
C010	24.00	2.71	CaCO3	20.00	20.00	20.00	
D002	116.00	0.89	Naphthenic Oil	5.00	25.00	45.00	
E001	385.00	5.60	ZnO	5.00	5.00	5.00	
F001	165.00	0.92	Stearic Acid	2.00	2.00	2.00	
G001	924.00	1.15	IPPD	2.00	2.00	2.00	
H001	158.00	1.80	S	1.50	1.50	1.50	
K001	396.00	1.11	TMTD - 80				
K005	708.00	1.28	CBS - 80	0.65	0.65	0.65	
Code:			Properties:				
PR001			MooneyML(1+4) 100°C	32.00	36.00	31.00	
PR002			Mooney I5 / 120°C	28.00	28.00	32.00	
PR003			Density [g/ccm]	1.08	1.12	1.16	
PR004			Hardness [°ShA]	42.00	41.00	40.00	
PR007			M300 [Mpa]	1.80	3.00	3.00	
PR008			TS [Mpa]	25.00	21.00	15.00	
PR009			EB [%]	785.00	725.00	690.00	
PR010			C-Set -26°C /24h [%]	22.00	28.00	30.00	
PR011			C-Set 0°C /24h [%]	10.00	14.00	14.00	
PR012			C-Set 23°C /72h [%]	8.00	10.00	14.00	
PR013			C-Set 70°C /24h [%]	39.00	50.00	61.00	

Criteria:

Name	Min	Max	From	To	Weight	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphthenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4)	30	60				
Mooney I5 /	11	32				
Density [g/ccm]	1.08	1.2				
Hardness [°ShA]	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C /24h	17	77		20	50	
C-Set 0°C /24h	8	16		10		
C-Set 23°C /72h	8	18		10		
C-Set 70°C /24h	17	61		20	10	10

Output:

Mixture1	Mixture2	Mixture3	Mixture4	Mixture5
100	100	100		
35.75	44.5	36.6		
20	2.75	6.7		
5	9.3125	8.325		
5	5	5		
2	2	2		
2	2	2		
1.5	0.421875	0.66875	0.66875	0.53125
0	0.8625	0.665	0.665	0.775
0.65	1.900625	1.61425	1.61425	1.77375
47.975	39.7625	37.985	37.985	40.55
23.7	13.3375	16.695	16.695	14.15
1.16225	1.105875	1.09995	1.09995	1.13025
54.9875	56.6625	53.305	53.305	59.45
6.335	8.355	6.854	6.854	8.995
23.925	23.275	23.67	23.67	21.875
631.6875	573.6875	622.075	622.075	551.25
23.45	69.4375	58.575	58.575	65.75
10.6875	15.175	13.99	13.99	15.1
9.5375	16.625	14.65	14.65	17.775
44	20.025	24.37	24.37	24.425
171.9	168.7475	163.573	163.573	183.33
1.164	1.109	1.106	1.106	1.13
257.119	263.67	263.363	263.363	256.067
220.893	237.755	238.122	238.122	226.626

Sum of recipe ratios (should be 100%):
100

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Preparing Confirmation Trial

- Select a Compound for confirmation (*Example mixture 5*)
- Pull down menu, select "Append mixture column into Input recipes"

GrafCompounder 5.0 – Confirmation trail

Criteria:

Name	Min	Max	From	To	Weight	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4)	30	60				
Mooney I5 /	11	32				
Density (g/ccm)	1.08	1.2				
Hardness	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C	17	77		20	50	
C-Set 0°C /24h	8	16		10		
C-Set 23°C	8	18		10		
C-Set 70°C	17	61		20	10	10

Output:

Mixture1	Mixture2	Mixture3	Mixture4	Mixture5
100	100	100	100	100
35.75	44.5	36.6	36.6	53.375
20	2.75	6.7	6.7	4.5
5	9.3125	8.325	8.325	13.375
5	5	5	5	5
2	2	2	2	2
2	2	2	2	2
1.5	0.421875	0.66875	0.66875	0.53125
0	0.8625	0.665	0.665	0.775
0.85	1.900625	1.61425	1.61425	1.77375
47.975	39.7625	37.985	37.985	40.55
23.7	13.3375	16.695	16.695	14.15
1.16225	1.105875	1.09995	1.09995	1.13025
54.9875	56.6625	53.305	53.305	59.45
6.335	8.355	6.854	6.854	8.995
23.925	23.275	23.67	23.67	21.875
631.6875	573.6875	622.075	622.075	551.25
23.45	69.4375	58.575	58.575	65.75
10.6875	15.175	13.99	13.99	15.1
9.5375	16.625	14.65	14.65	17.775
44	20.025	24.37	24.37	24.425

Recipe ratios in %:

22.5	77.5
------	------

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Preparing Confirmation Trial

- after “Append mixture column into Input recipes” selected, compound appears in “Input data” window as “gc-unconfirmed”

GrafCompounder 5.0 – Confirmation trail

GrafCompounder version 5.0.1 - tutorial GC 5 File.gc

File Edit Diagram Help

Input data:

50AL513	50AL514	50AL515	50AL516	50AL517	50AL518	50AL542	Mixture5
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
50.00	25.00	45.00	75.00	45.00	85.00	50.00	50.00
20.00	20.00	20.00	20.00	20.00	20.00		
45.00	5.00	25.00	45.00	5.00	25.00	10.00	15.00
5.00	5.00	5.00	5.00	5.00	5.00		
2.00	2.00	2.00	2.00	2.00	2.00	2.00	
2.00	2.00	2.00	2.00	2.00	2.00	2.00	
1.50	1.50	1.50	1.50	1.50	1.50	0.25	0.50
						1.00	0.00
0.65	0.65	0.65	0.65	0.65	0.65	2.10	1.70
31.00	34.00	30.00	42.00	60.00	39.00	41.00	40.55
32.00	28.00	32.00	22.00	20.00	25.00	11.00	14.15
1.16	1.13	1.16	1.19	1.19	1.20	1.11	1.13025
40.00	48.00	48.00	52.00	61.00	61.00	59.00	59.45
3.00	4.40	4.60	5.30	8.00	7.60	9.40	8.995
15.00	25.00	20.00	15.30	23.00	18.00	23.00	21.875
690.00	715.00	705.00	615.00	560.00	590.00	540.00	551.25
30.00	17.00	19.00	35.00	29.00	27.00	77.00	65.75
14.00	8.00	12.00	16.00	13.00	12.00	16.00	15.1
14.00	9.00	13.00	16.00	10.00	17.00	18.00	17.775
61.00	44.00	50.00	54.00	44.00	50.00	17.00	24.425

Criteria:

Name	Min	Max	From	To	Weight	Trdoff
MooneyML(1+4)	30	60				
Mooney I5/	11	32				
Density [g/ccm]	1.08	1.2				
Hardness	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -28°C	17	77		20	50	
C-Set 0°C/24h	8	76		10		
C-Set 23°C	8	76		10		
C-Set 70°C	17	61		20	10	10

Output:

Mixture1	Mixture2	Mixture3	Mixture4	Mixture5
100	100	100	100	100
35.75	44.5	36.6	36.6	53.375
20	2.75	6.7	6.7	4.5
5	9.3125	8.325	8.325	13.375
5	5	5	5	5
2	2	2	2	2
2	2	2	2	2
1.5	0.421875	0.66875	0.66875	0.53125
0	0.8625	0.665	0.665	0.775
0.65	1.900625	1.61425	1.61425	1.77375
47.975	39.7625	37.985	37.985	40.55
23.7	13.3375	16.695	16.695	14.15
1.16225	1.105875	1.09995	1.09995	1.13025
54.9875	56.6625	53.305	53.305	59.45
6.335	8.355	6.854	6.854	8.995
23.925	23.275	23.67	23.67	21.875
631.6875	573.6875	622.075	622.075	551.25
23.45	69.4375	58.575	58.575	65.75
10.6875	15.175	13.99	13.99	15.1
9.5375	16.625	14.65	14.65	17.775
44	20.025	24.37	24.37	24.425
171.9	168.7475	163.573	163.573	183.33
1.164	1.109	1.106	1.106	1.13
257.119	263.67	263.363	263.363	256.087
220.893	237.755	238.122	238.122	226.626

Sum of recipe ratios (should be 100%): 100

Recipe ratios in %:

						22.5	77.5
--	--	--	--	--	--	------	------

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Preparing Confirmation Trial

- Left Mouse click cell, Right mouse click for Pull down Menu
- Select: "Round values to two decimal places"

GrafCompounder 5.0 – Confirmation trail

Input data:

50AL513	50AL514	50AL515	50AL516	50AL517	50AL518	50AL542	Mixture5
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100
50.00	25.00	45.00	75.00	45.00	65.00	50.00	53.375
20.00	20.00	20.00	20.00	20.00	20.00		4.5
45.00	5.00	25.00	45.00	5.00	25.00	10.00	13.375
5.00	5.00	5.00	5.00	5.00	5.00	5.00	5
2.00	2.00	2.00	2.00	2.00	2.00	2.00	2
2.00	2.00	2.00	2.00	2.00	2.00	2.00	2
1.50	1.50	1.50	1.50	1.50	1.50		0.25
							0.5
0.65	0.65	0.65	0.65	0.65	0.65		2.10
							1.7
31.00	34.00	30.00	42.00	60.00	39.00	41.00	
32.00	28.00	32.00	22.00	20.00	25.00	11.00	
1.16	1.13	1.16	1.19	1.19	1.20	1.11	1.7
40.00	48.00	48.00	52.00	61.00	61.00	59.00	
3.00	4.40	4.60	5.30	8.00	7.60	9.40	
15.00	25.00	20.00	15.30	23.00	18.00	23.00	21.00
690.00	715.00	705.00	615.00	560.00	590.00	540.00	551.25
30.00	17.00	19.00	35.00	29.00	27.00	77.00	65.75
14.00	8.00	12.00	16.00	13.00	12.00	16.00	15.1
14.00	9.00	13.00	16.00	10.00	17.00	18.00	17.775
61.00	44.00	50.00	54.00	44.00	50.00	17.00	24.425

Criteria:

Name	Min	Max	From	To	Weight	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				

Output:

Mixture1	Mixture2	Mixture3	Mixture4	Mixture5
100	100	100	100	100
35.75	44.5	36.6	36.6	53.375
20	2.75	6.7	6.7	4.5
5	9.3125	8.325	8.325	13.375
5	5	5	5	5
2	2	2	2	2
2	2	2	2	2
1.5	0.421875	0.66875	0.66875	0.53125
0	0.8625	0.665	0.665	0.775
0.65	1.90625	1.61425	1.61425	1.77375
47.975	39.7625	37.985	37.985	40.55
23.7	13.3375	16.695	16.695	14.15
1.16225	1.105875	1.09995	1.09995	1.13025
54.9875	56.6625	53.305	53.305	59.45
6.335	8.355	6.854	6.854	8.995
23.925	23.275	23.67	23.67	21.875
631.6875	573.6875	622.075	622.075	551.25
23.45	69.4375	58.575	58.575	65.75
10.6875	15.175	13.99	13.99	15.1
9.5375	16.625	14.65	14.65	17.775
44	20.025	24.37	24.37	24.425
171.9	168.7475	163.573	163.573	183.33
1.164	1.109	1.106	1.106	1.13
257.119	263.67	263.363	263.363	256.087
220.893	237.755	238.122	238.122	226.626

Recipe ratios in %:

226.15	161.15	201.15	251.15	181.15	221.15	172.35	183.33
1.128	1.137	1.147	1.171	1.185	1.186	1.111	1.13
220.712	259.187	235.816	219.724	255.351	234.118	263.877	256.087
195.667	227.957	205.594	187.638	215.486	197.401	237.513	226.626

Context Menu:

- Copy input table
- Copy marked cells
- Paste cells here
- Delete marked rows
- Delete marked columns
- Insert empty row
- Insert empty column
- Append empty column
- Clear marked cells
- Round values to two decimal places

Preparing Confirmation Trial

- Right mouse click for pull down menu
- Left Mouse click: highlight cells turning blue for change values
- Select: "Round values to two decimal places"

GrafCompounder 5.0 – Confirmation trail

Software interface for GrafCompounder 5.0.1 - tutorial GC 5 File.gc

File Edit Diagram Help

Input data:

50AL513	50AL514	50AL515	50AL516	50AL517	50AL518	50AL542	Mixture5
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
50.00	25.00	45.00	75.00	45.00	65.00	50.00	53.38
20.00	20.00	20.00	20.00	20.00	20.00		4.50
45.00	5.00	25.00	45.00	5.00	25.00	10.00	13.38
5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
1.50	1.50	1.50	1.50	1.50	1.50	0.25	0.53
						1.00	0.78
0.65	0.65	0.65	0.65	0.65	0.65	2.10	1.77
31.00	34.00	30.00	42.00	60.00	39.00	41.00	40.55
32.00	28.00	32.00	22.00	20.00	25.00	11.00	14.15
1.16	1.13	1.16	1.19	1.19	1.20	1.11	1.13
40.00	48.00	48.00	52.00	61.00	61.00	59.00	59.45
3.00	4.40	4.60	5.30	8.00	7.60	9.40	9.00
15.00	25.00	20.00	15.30	23.00	18.00	23.00	21.88
690.00	715.00	705.00	615.00	560.00	590.00	540.00	551.25
30.00	17.00	19.00	35.00	29.00	27.00	77.00	65.75
14.00	8.00	12.00	16.00	13.00	12.00	16.00	15.10
14.00	9.00	13.00	16.00	10.00	17.00	18.00	17.78
61.00	44.00	50.00	54.00	44.00	50.00	17.00	24.43

Criteria:

Name	Min	Max	From	To	Weight	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4)	30	60				
Mooney I5 /	11	32				
Density [g/ccm]	1.08	1.2				
Hardness	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C	17	77		20	50	
C-Set 0°C /24h	8	16		10		
C-Set 23°C	8	18		10		
C-Set 70°C	17	61		20	10	10

Output:

Mixture1	Mixture2	Mixture3	Mixture4	Mixture5
100	100	100	100	100
35.75	44.5	36.6	38.6	53.375
20	2.75	6.7	6.7	4.5
5	9.3125	8.325	8.325	13.375
5	5	5	5	5
2	2	2	2	2
2	2	2	2	2
1.5	0.421875	0.66875	0.66875	0.53125
0	0.8625	0.665	0.665	0.775
0.65	1.900625	1.61425	1.61425	1.77375
47.975	39.7625	37.985	37.985	40.55
23.7	13.3375	16.695	16.695	14.15
1.16225	1.105875	1.09995	1.09995	1.13025
54.9875	56.6625	53.305	53.305	59.45
6.335	8.355	6.854	6.854	8.995
23.925	23.275	23.67	23.67	21.875
631.6875	573.6875	622.075	622.075	551.25
23.45	69.4375	58.575	58.575	65.75
10.6875	15.175	13.99	13.99	15.1
9.5375	16.625	14.65	14.65	17.775
44	20.025	24.37	24.37	24.425

Recipe ratios in %:

22.5	77.5
------	------

Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Preparing Confirmation Trial

- Review ingredient values: Round up / down values / even eliminate ingredients with small amount according your experience

GrafCompounder 5.0 – Confirmation trail

GrafCompounder version 5.0.1 - tutorial GC 5 File.gc

File Edit Diagram Help

Input data:

50AL513	50AL514	50AL515	50AL516	50AL517	50AL518	50AL542	Mixture6
							gc-unconfirm
							Mixture5
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
50.00	25.00	45.00	75.00	45.00	65.00	50.00	54.00
20.00	20.00	20.00	20.00	20.00	20.00		4.50
45.00	5.00	25.00	45.00	5.00	25.00	10.00	13.00
5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
1.50	1.50	1.50	1.50	1.50	1.50	0.25	0.50
						1.00	0.80
0.65	0.65	0.65	0.65	0.65	0.65	2.10	1.80
31.00	34.00	30.00	42.00	60.00	39.00	41.00	40.55
32.00	28.00	32.00	22.00	20.00	25.00	11.00	14.15
1.16	1.13	1.18	1.19	1.19	1.20	1.11	1.13
40.00	48.00	48.00	52.00	61.00	61.00	59.00	59.45
3.00	4.40	4.60	5.30	8.00	7.60	9.40	9.00
15.00	25.00	20.00	15.30	23.00	18.00	23.00	21.88
690.00	715.00	705.00	615.00	560.00	590.00	540.00	551.25
30.00	17.00	19.00	35.00	29.00	27.00	77.00	65.75
14.00	8.00	12.00	16.00	13.00	12.00	16.00	15.10
14.00	9.00	13.00	16.00	10.00	17.00	18.00	17.78
61.00	44.00	50.00	54.00	44.00	50.00	17.00	24.43

Criteria:

Name	Min	Max	From	To	Weight	Trdoff
NR (SMR - 10)	100	100				
N330	10	75				
CaCO3	0	20				
Naphtenic Oil	5	45				
ZnO	5	5				
Stearic Acid	2	2				
IPPD	2	2				
S	0.25	1.5				
TMTD - 80	0	1				
CBS - 80	0.65	2.1				
MooneyML(1+4)	30	60				
Mooney t5/	11	32				
Density [g/ccm]	1.08	1.2				
Hardness	40	61	55	60		
M300 [Mpa]	1.8	9.4				
TS [Mpa]	15	25	25			
EB [%]	540	785		600		
C-Set -26°C	17	77		20	50	
C-Set 0°C/24h	8	16		10		
C-Set 23°C	8	18		10		
C-Set 70°C	17	61		20	10	10

Output:

Mixture1	Mixture2	Mixture3	Mixture4	Mixture5	Mixture6
100	100	100	100	100	100
35.75	44.5	36.6	36.6	53.375	
20	2.75	6.7	6.7	4.5	
5	9.3125	8.325	8.325	13.375	
5	5	5	5	5	
2	2	2	2	2	
2	2	2	2	2	
1.5	0.421875	0.66875	0.66875	0.53125	
0	0.8625	0.665	0.665	0.775	
0.65	1.900625	1.61425	1.61425	1.77375	
47.975	39.7625	37.985	37.985	40.55	
23.7	13.3375	16.695	16.695	14.15	
1.16225	1.105875	1.09995	1.09995	1.13025	
54.9875	56.6625	53.305	53.305	59.45	
6.335	8.355	6.854	6.854	8.995	
23.925	23.275	23.67	23.67	21.875	
631.6875	573.6875	622.075	622.075	551.25	
23.45	69.4375	58.575	58.575	65.75	
10.6875	15.175	13.99	13.99	15.1	
9.5375	16.625	14.65	14.65	17.775	
44	20.025	24.37	24.37	24.425	

Recipe ratios in %:

226.15	161.15	201.15	251.15	181.15	221.15	172.35	183.6
1.128	1.137	1.147	1.171	1.185	1.111	1.132	
220.712	259.187	235.616	219.724	255.351	234.118	263.877	256.483
195.667	227.957	205.594	187.638	215.486	197.401	237.513	226.575

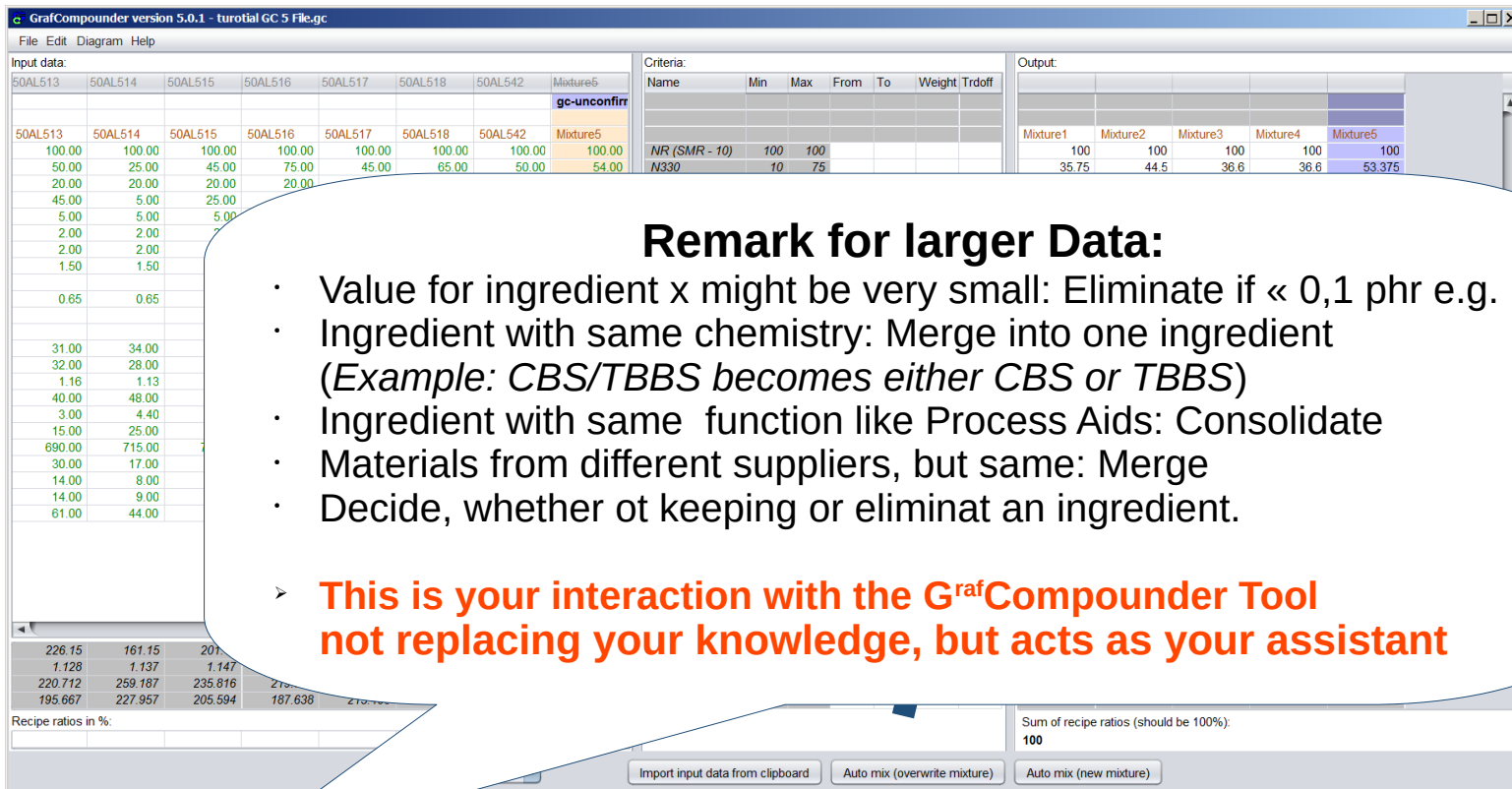
Number format: 12345.67

Import input data from clipboard Auto mix (overwrite mixture) Auto mix (new mixture)

Preparing Confirmation Trial

- After operation is done:
- “Total Ingredients” corrected automatically

G^{raf}Compounder 5.0 – Confirmation trail



The screenshot shows the GrafCompounder 5.0.1 interface. The 'Input data' table lists ingredients 50AL513 through 50AL518 and Mixture5. The 'Criteria' table shows parameters for 'NR (SMR - 10)' and 'N330'. The 'Output' table shows the resulting mixture composition for Mixture1 through Mixture5. A callout box highlights a remark for larger data sets.

Remark for larger Data:

- Value for ingredient x might be very small: Eliminate if $\ll 0,1$ phr e.g.
- Ingredient with same chemistry: Merge into one ingredient
(Example: CBS/TBBS becomes either CBS or TBBS)
- Ingredient with same function like Process Aids: Consolidate
- Materials from different suppliers, but same: Merge
- Decide, whether ot keeping or eliminat an ingredient.

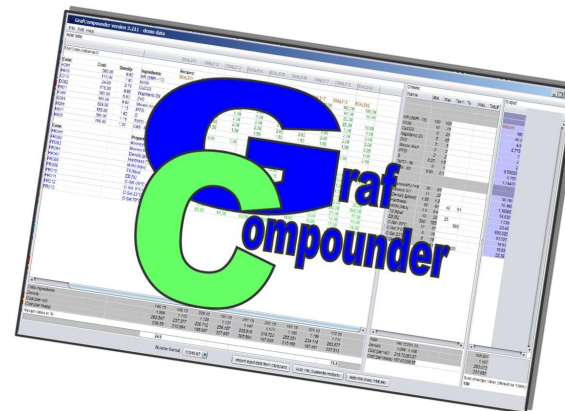
➤ **This is your interaction with the G^{raf}Compounder Tool not replacing your knowledge, but acts as your assistant**

Preparing Confirmation Trial

- Review ingredient values: Round up / down values according your experience
- “Total Ingredients” corrected automatically

G^{raf}Compounder 5.0 – What is learned

- **Prediction Calculation of a Compound**
 - Starting G^{raf}Compounder
 - Open / Input Compound data
 - Auto mix (overwrite / new)
 - Targets, Criteria
 - Fine Tune Criteria
 - Wheight
 - Trdoff
 - Cost target
- Compound Preparation for
 - **Confirmation Experiment**





- ➔ **Release „G^{raf}Compounder“ Version 5.0
July 2023**
- ➔ **Upgrades from earlier versions upon request**

**Send us your:
Questions, Remarks, Doubts?**

www.grafcompounder.com