Comptes Rendus
Chimie
Supplementary material to the article available at:
https://doi.org/10.5802/crchim.151

Supplementary material: Are molecular solvents, aqueous biphasic systems and deep eutectic solvents meaningful categories for liquid–liquid extraction?

Document complémentaire : Les catégories solvants moléculaires, systèmes biphasiques aqueux et solvants eutectiques profonds ont-elles un sens pour l'extraction liquide–liquide ?

Isabelle Billard [a]

[a] Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, 38000 Grenoble, France
E-mail: isabelle.billard@lepmi.grenoble-inp.fr

Supplementary Table S1. Values (in wt%) used for Figure 2. The water amount is calculated as the complement to 100 wt%

Pure HNO_3 (wt%)	TBP (wt%)
42.53	0.01
48.02	0.01
52.13	0.01
60.17	0.02
70.95	0.08
0.33	93.26
0.41	92.97
1.28	92.13
2.33	91.25
2.40	91.24
3.10	90.58
3.00	90.63
4.10	89.63
4.16	89.64
4.17	90.27
4.61	89.30
4.66	89.25
5.88	88.20
6.02	88.11
6.28	87.85
8.13	86.56
8.44	86.31
10.14	85.70
10.49	8.01
10.79	84.74
10.83	84.69
11.98	83.94
14.05	82.37
14.46	82.25
14.42	82.25
14.31	82.33
15.24	82.01
16.48	80.72
17.05	80.67
17.65	79.92
17.49	80.02
17.47	80.05

(continued)

Supplementary Table S1. (continued)

Pure HNO_3 (wt%)	TBP (wt%)
18.27	79.44
18.24	79.76
18.74	79.00
19.14	78.72
19.59	78.28
19.83	78.03
19.67	78.49
19.76	78.12
20.66	77.67
21.96	75.91
21.84	76.11
22.30	75.53
21.98	75.92
23.88	73.93
24.16	73.84
25.20	72.36
26.27	71.63
28.55	68.86
30.72	6.52
33.64	62.99
33.68	62.99
0.00	93.67
9.43	85.59
18.00	79.71
27.60	70.00
33.10	63.50
67.27	0.00
32.31	0.00
9.77	0.00
9.77	47.24
44.71	40.59

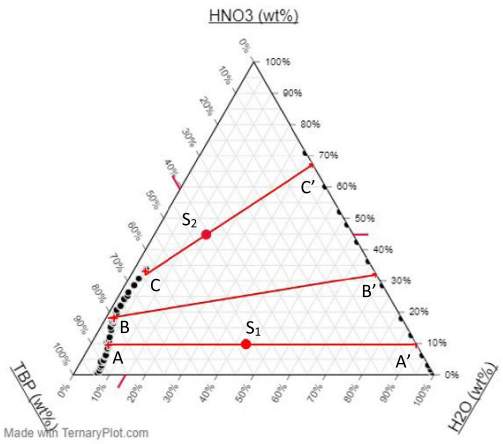
Supplementary Table S2. Data (in wt%) used for Figure 4. The water amount is calculated as the complement to 100 wt%

Dec (wt%)	$N_{4444}Cl$ (wt%) solid	$N_{4444}Cl$ (wt%) monophasic	$N_{4444}Cl$ (wt%) biphasic
73.13		26.87	
86.17	13.83		
55.27		44.73	
36.74		63.26	
44.03		55.97	
44.57		55.43	
28.77		71.23	
28.82		71.18	
63.64		36.36	
9.98	90.02		
21.26	78.74		
49.72		50.28	
79.37		20.63	
65.80			24.18
49.89		40.39	
33.19		57.14	
39.55		50.28	
25.50		63.14	
57.48		32.84	
44.87		45.37	
71.57			18.61
60.07			22.08
45.50			36.83
30.17		51.94	
35.89		45.62	
22.99		56.93	
55.03			20.22
41.72			33.77
26.48		45.58	
31.86			40.51
49.66			28.38
49.44			18.17
37.49			30.35
23.53			40.50
28.16			35.80
18.32			45.35

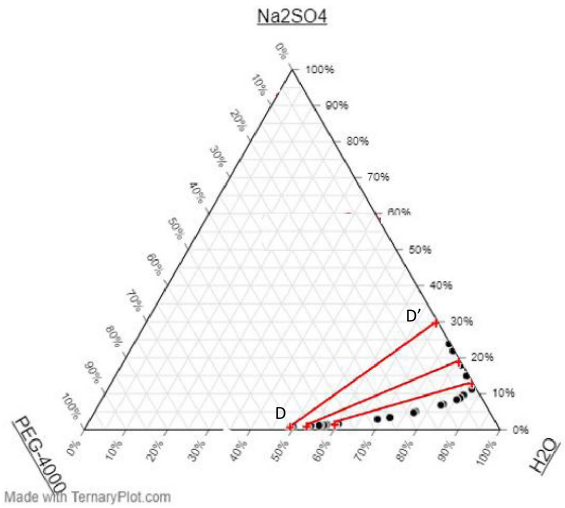
(continued)

Supplementary Table S2. (continued)

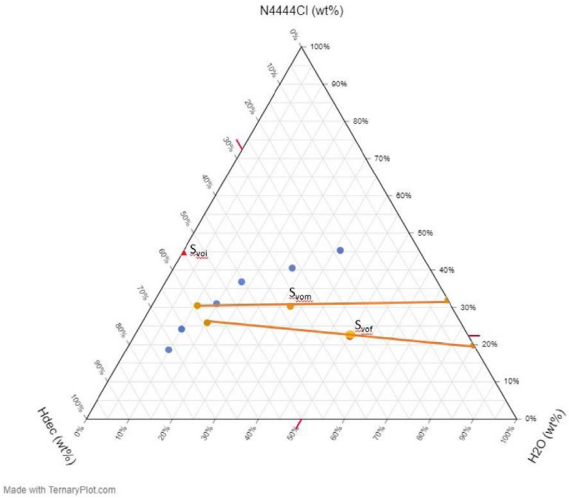
Dec (wt%)	$N_{4444}Cl$ (wt%) solid	$N_{4444}Cl$ (wt%) monophasic	$N_{4444}Cl$ (wt%) biphasic
45.81			26.17
44.19			16.24
33.63			27.22
21.16			36.43
24.45			31.09
40.59			23.19
39.48			14.51
30.06			24.33
18.79			32.35
34.72			12.76
45.33			36.69
49.66			28.24
59.87			21.96
27.64			22.38



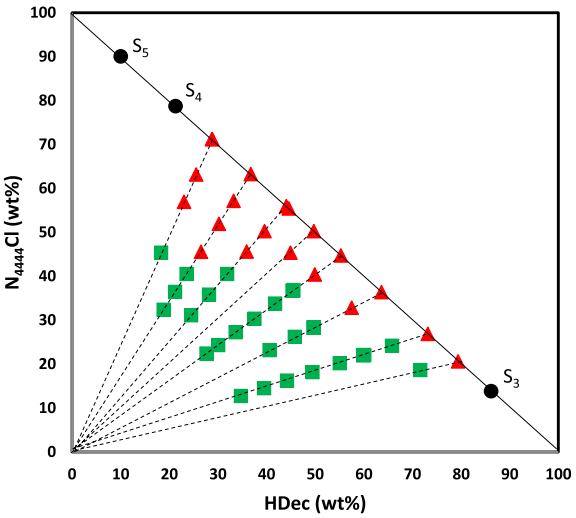
Supplementary Figure S1. Triangular representation of the data of Figure 1.



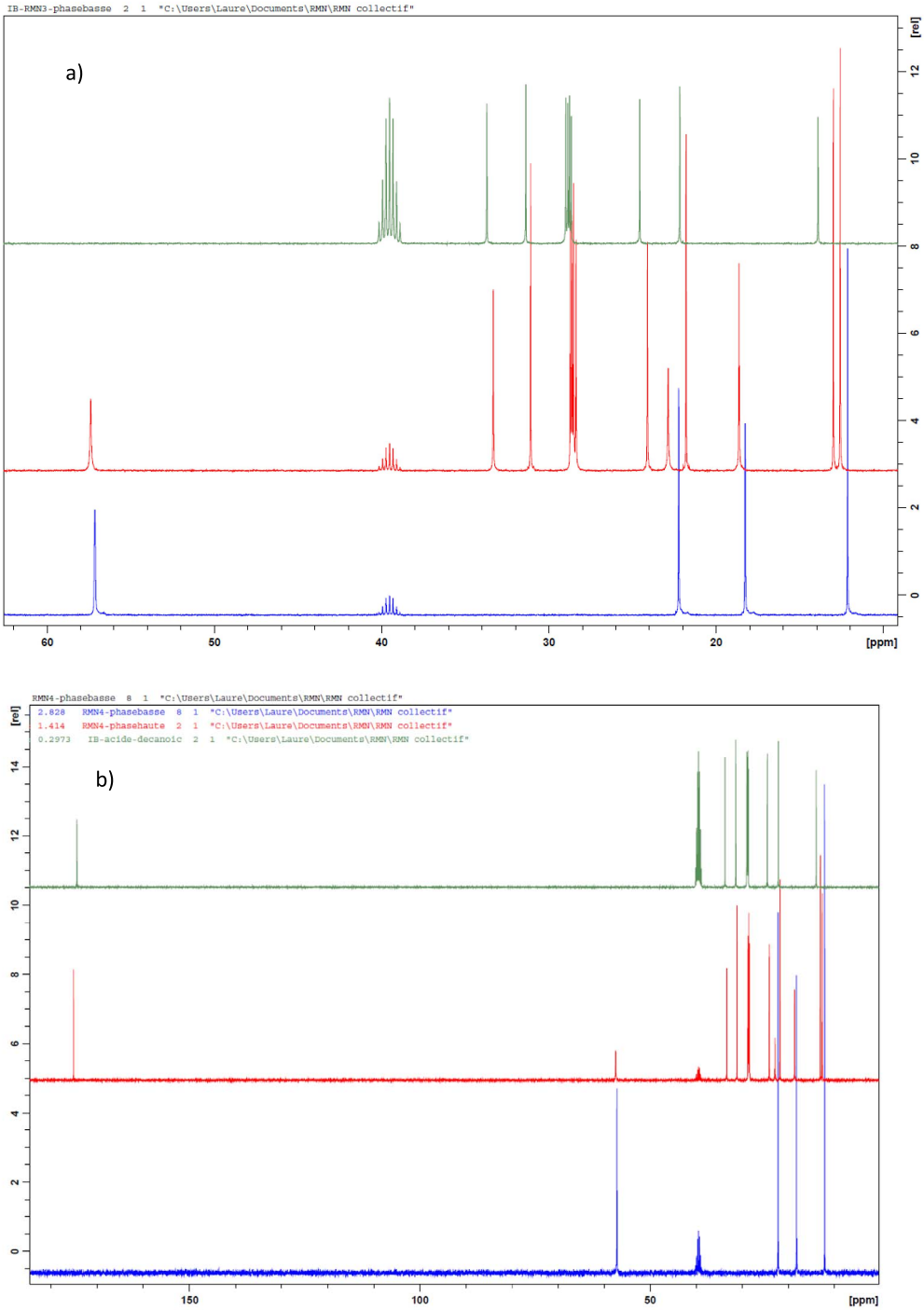
Supplementary Figure S2. Triangular representation of the data of Figure 2.



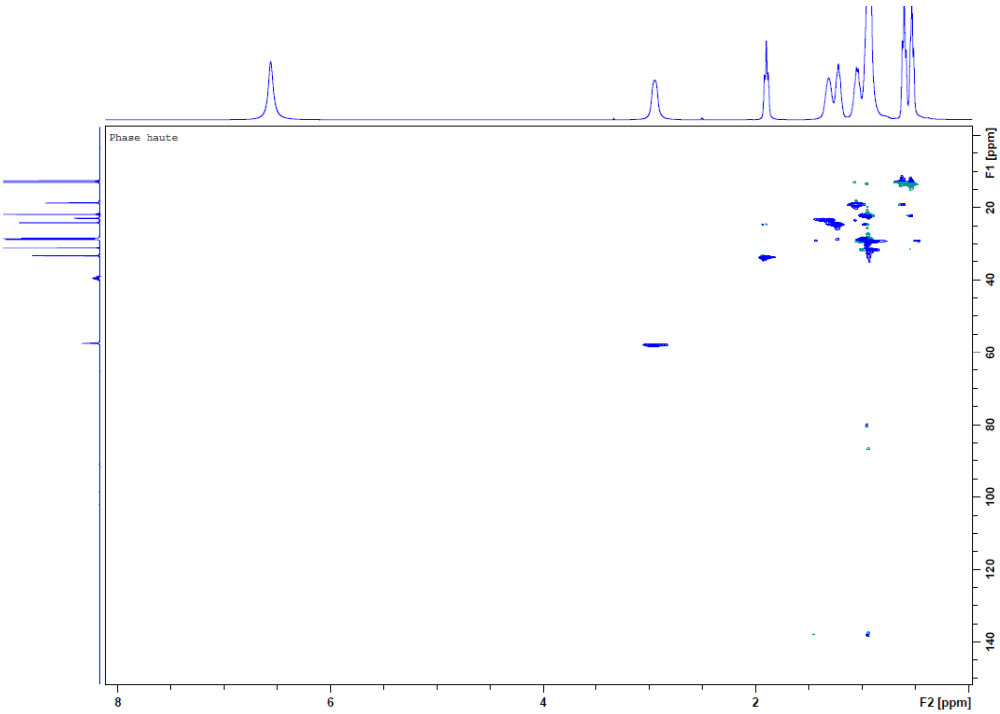
Supplementary Figure S3. Triangular representation for data of Figure 4.



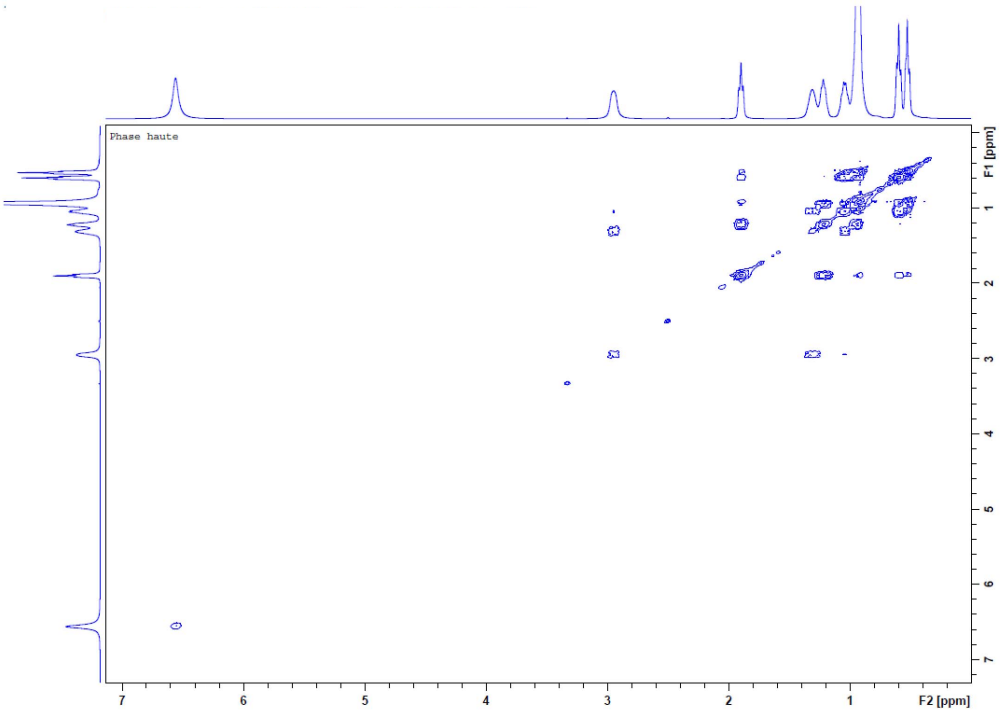
Supplementary Figure S4. Data for the system H_2O/HDec/$N_{4444}Cl$ as obtained with the experimental protocol of Section 2. Black circles: solid; red triangles: liquid, monophasic; green squares: liquid, biphasic.



Supplementary Figure S5. (a) NMR spectra of the sample S_{vom}, lower phase (blue), upper phase (red) and of decanoic acid (green). (b) NMR spectra of the sample S_{vof}, lower phase (blue), upper phase (red) and of decanoic acid (green).



Supplementary Figure S6. 2D-NMR data, HSQC C-H correlation. Sample S_{vof}, upper phase.



Supplementary Figure S7. 2D-NMR data. COSY correlation H-H. Sample S_{vof}, upper phase.