Desulfurization and denitrogenation from gasoline and diesel fuels by means of ionic liquids

Antje R. Hansmeier, G.Wytze Meindersma and André B. de Haan.

Eindhoven University of Technology, SPS, P.O. Box 513, 5600 MB Eindhoven, The Netherlands

Additional experimental data

Table 4. Experimental results sulfur model feed at $T = 313.15$ K

Ionic Liquid	$D_{toluene}$ [g/g]	$D_{tetralin}$ [g/g]	$D_{thiophene}$ [g/g]	D_{DBT} [g/g]	S toluene/ n-heptane	S tetralin/ n-heptane	S thiophene/ n-heptane	S DBT/ n-heptane
[3-mebupy] N(CN)$_2$	0.37	0.24	0.92	1.78	30.4	19.7	75.7	146.5
[4-mebupy] N(CN)$_2$	0.34	0.23	0.89	1.69	26.8	18.1	70.1	133.1
[4-mebupy] SCN	0.30	0.20	0.80	1.60	28.2	18.8	75.3	150.6
[bmim] N(CN)$_2$	0.28	0.18	0.74	1.10	28.7	18.4	75.7	112.6
[bmim] SCN	0.23	0.18	0.47	0.73	21.8	17.1	44.6	69.3
[bmim] C(CN)$_3$	0.39	0.28	0.92	1.79	33.1	23.7	70.2	136.6
sulfolane	0.35	0.40	0.77	1.17	20.8	23.8	45.8	69.6

Table 5. Experimental results sulfur model feed at $T = 348.15$ K

Ionic Liquid	$D_{toluene}$ [g/g]	$D_{tetralin}$ [g/g]	$D_{thiophene}$ [g/g]	D_{DBT} [g/g]	S toluene/ n-heptane	S tetralin/ n-heptane	S thiophene/ n-heptane	S DBT/ n-heptane
[3-mebupy] N(CN)$_2$	0.33	0.24	0.74	1.21	26.2	19.0	58.7	96.0
[4-mebupy] N(CN)$_2$	0.32	0.23	0.73	1.10	24.6	17.7	56.2	84.6
[4-mebupy] SCN	0.27	0.20	0.72	1.05	20.3	15.0	54.1	78.9
[bmim] N(CN)$_2$	0.30	0.13	0.69	0.84	25.7	11.1	59.1	72.0
[bmim] [SCN]	0.21	0.10	0.45	0.53	15.7	7.5	33.7	39.7
[bmim] C(CN)$_3$	0.35	0.26	0.77	1.15	28.7	21.3	63.1	94.3
sulfolane	0.36	0.43	0.80	1.20	17.1	20.4	37.9	56.9

Table 6. Experimental results nitrogen model feed at $T = 313.15$ K

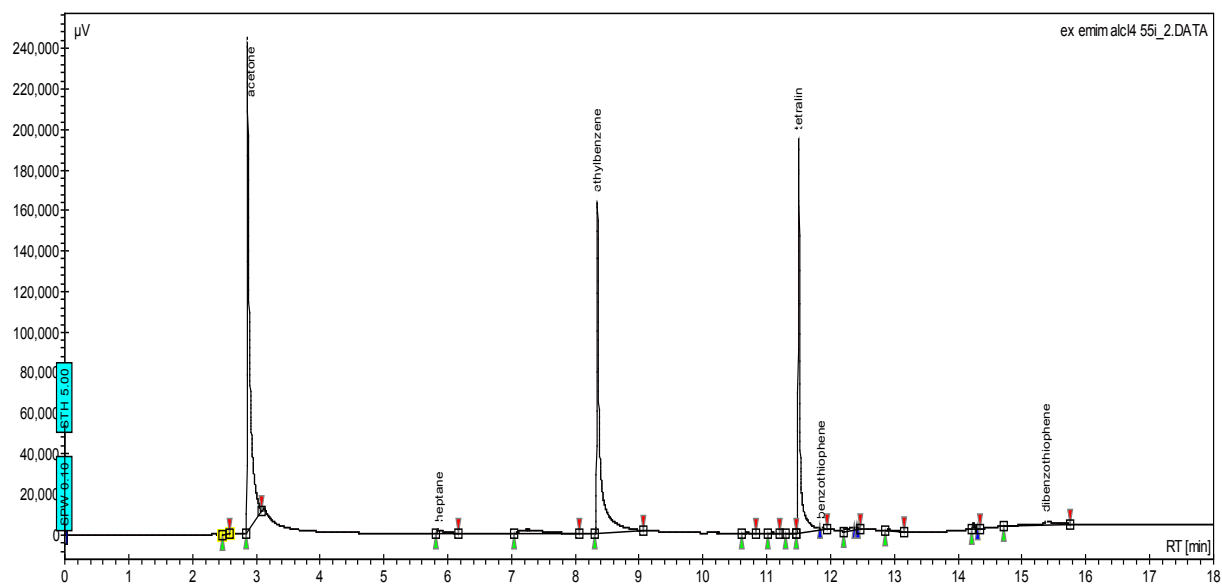| Ionic Liquid	$D_{toluene}$ [g/g]	$D_{tetralin}$ [g/g]	D_{pyrrol} [g/g]	D_{indole} [g/g]	$D_{carbazole}$ [g/g]	S toluene/ n-heptane	S tetralin/ n-heptane
[3-mebupy]N(CN)$_2$	0.27	0.16	140	180	824	26.7	16.5
[4-mebupy]N(CN)$_2$	0.24	0.16	130	168	757	24.0	16.1
[bmim]N(CN)$_2$	0.17	0.11	122	157	710	17.2	10.9
[bmim]C(CN)$_3$	0.27	0.15	136	176	795	27.0	15.0
sulfolane	0.35	0.51	144	186	839	17.5	25.5

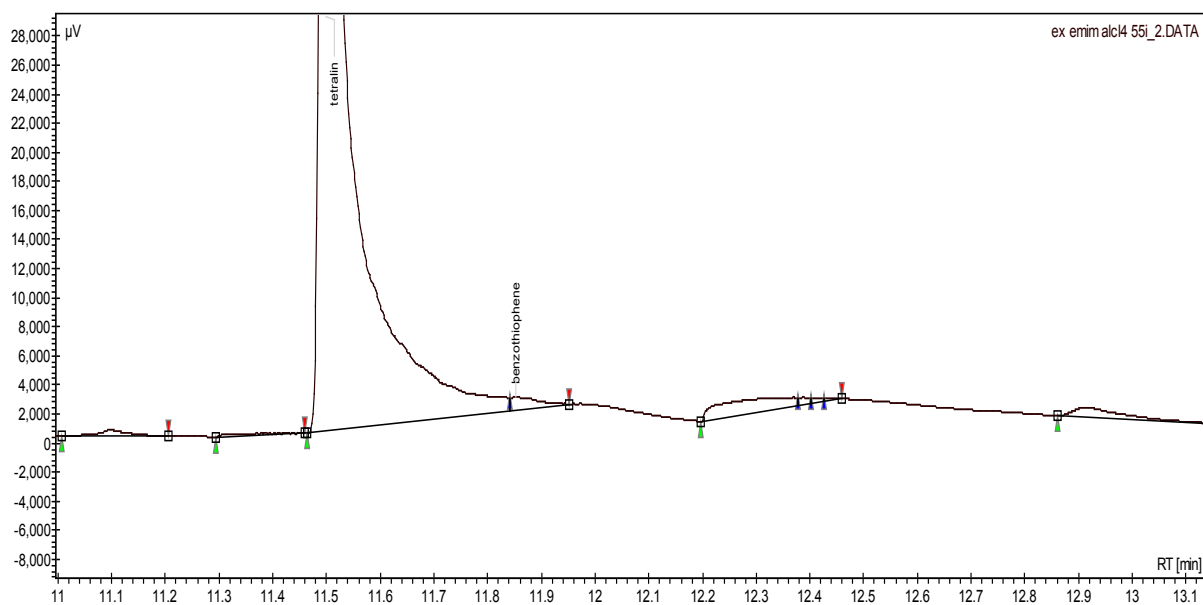**Fig. 4.** GC-chromatogram sulfur model feed

Fig. 5. GC-chromatogram sulfur model feed, detail: benzothiophene

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