

Supporting Information

Benzene hydroxylation and simultaneous extraction of phenol in two membrane contactors made with three-compartment cells

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16 **Table S1.** Growth rate of phenol in the organic and strip phases and phenol fluxes from feed to
 17 the organic and from organic to the strip phases vs. time during the catalytic tests with NaCl in
 18 the LMC (aqueous feed phase: pH 2.8 (0.19 mL acetic acid), 0.095 g iron(II) sulphate, NaCl 0.1
 19 M; organic phase: benzene; aqueous stripping phase: NaOH 0.1 M; T = 35°C).

Time (min)	r_{org} $\text{mmol L}^{-1} \text{ h}^{-1}$	r_{strip} $\text{mmol L}^{-1} \text{ h}^{-1}$	$J_{\text{f} \rightarrow \text{o}}$ $\text{mmol h}^{-1} \text{ m}^{-2}$	$J_{\text{o} \rightarrow \text{s}}$ $\text{mmol h}^{-1} \text{ m}^{-2}$
0	0.0	0.0	0.00	0.00
30	12.0	0.0	7.85	0.00
60	12.6	3.2	10.34	2.09
90	13.4	5.6	12.43	3.66
120	13.0	8.2	13.87	5.37
150	16.0	9.0	16.36	5.89
180	17.0	10.0	17.67	6.54
210	18.0	12.0	19.63	7.85
240	18.0	18.0	23.56	11.78

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24 **Table S2.** Growth rate of phenol in the organic and strip phases and phenol fluxes from feed to

25 the organic and from organic to the strip phases vs. time during the catalytic tests with NaCl in

26 the SMC (aqueous feed phase: pH 2.8 (0.19 mL acetic acid), 0.095 g iron(II) sulphate, NaCl 0.1

27 M; organic phase: benzene; aqueous stripping phase: NaOH 0.1 M; T = 35°C).

Time (min)	r_{org} $\text{mmol L}^{-1} \text{ h}^{-1}$	r_{strip} $\text{mmol L}^{-1} \text{ h}^{-1}$	$J_{\text{f} \rightarrow \text{o}}$ $\text{mmol h}^{-1} \text{ m}^{-2}$	$J_{\text{o} \rightarrow \text{s}}$ $\text{mmol h}^{-1} \text{ m}^{-2}$
0	0.0	0.0	0.00	0.00
30	30.0	3.8	16.48	1.83
60	40.0	8.8	23.80	4.27
90	80.0	12.5	45.16	6.10
120	110.0	20.0	63.46	9.76
150	180.0	40.0	107.40	19.53
180	210.0	70.0	136.69	34.17
210	167.5	75.0	118.38	36.61
240	32.5	60.0	45.16	29.29

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Table S3. Growth rate of phenol in the organic and strip phases and phenol fluxes from feed to the organic and from organic to the strip phases vs. time during the catalytic tests with Na₂SO₄ in the LMC (aqueous feed phase: pH 2.8 (0.19 mL acetic acid), 0.095 g iron(II) sulphate, Na₂SO₄ 0.1 M; organic phase: benzene; aqueous stripping phase: NaOH 0.1 M; T = 35°C).

Time (min)	r_{org} mmol L ⁻¹ h ⁻¹	r_{strip} mmol L ⁻¹ h ⁻¹	$J_{\text{f} \rightarrow \text{o}}$ mmol h ⁻¹ m ⁻²	$J_{\text{o} \rightarrow \text{s}}$ mmol h ⁻¹ m ⁻²
0	0.0	0.0	0.00	0.00
30	14.0	0.0	9.16	0.00
60	16.0	8.0	15.70	5.23
90	18.0	8.4	17.28	5.50
120	36.0	17.0	34.68	11.12
150	50.0	16.6	43.58	10.86
180	42.0	20.0	40.57	13.09
210	44.0	40.0	54.97	26.17
240	90.0	42.0	86.38	27.48

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40 **Table S4.** Growth rate of phenol in the organic and strip phases and phenol fluxes from feed to
 41 the organic and from organic to the strip phases vs. time during the catalytic tests with Na₂SO₄ in
 42 the SMC (aqueous feed phase: pH 2.8 (0.19 mL acetic acid), 0.095 g iron(II) sulphate, Na₂SO₄
 43 0.1 M; organic phase: benzene; aqueous stripping phase: NaOH 0.1 M; T = 35°C).

Time (min)	r_{org} mmol L ⁻¹ h ⁻¹	r_{strip} mmol L ⁻¹ h ⁻¹	$J_{\text{f} \rightarrow \text{o}}$ mmol h ⁻¹ m ⁻²	$J_{\text{o} \rightarrow \text{s}}$ mmol h ⁻¹ m ⁻²
0	0.0	0.0	0.00	0.00
30	102.5	5.0	52.48	2.44
60	420.0	60.5	234.56	29.53
90	285.0	84.5	180.38	41.25
120	142.5	195.0	164.76	95.19
150	215.0	200.0	202.59	97.63
180	35.0	255.0	141.57	124.48
210	20.0	275.0	144.01	134.25
240	20.0	277.5	145.23	135.47

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