

Table 1: Specifications and suppliers of chemicals used

Chemical Name	CAS n°	Molar Mass (g/mol)	Purity (% <sub>wt</sub> )	Suppliers
Furan	110-00-9	68.08	≥ 99.0	SIGMA ALDRICH
<i>n</i> -Pentane	109-66-0	72.15	≥ 99.0	SIGMA ALDRICH
<i>n</i> -Hexane	110-54-3	86.18	≥ 99.0	ACROS
<i>n</i> -Heptane	142-82-5	100.20	≥ 99.5	FLUKA
<i>n</i> -Octane	111-65-9	114.23	≥ 99.0	SIGMA ALDRICH
<i>n</i> -Nonane	111-84-2	128.26	≥ 99.0	SIGMA ALDRICH
<i>n</i> -Decane	124-18-5	142.29	≥ 99.0	SIGMA ALDRICH
<i>n</i> -Dodecane	112-40-3	170.34	≥ 99.0	SIGMA ALDRICH
<i>n</i> -Hexadecane	544-76-3	226.45	≥ 99.0	SIGMA ALDRICH
Ethanol	64-17-5	46.07	≥ 99.0	FLUKA
<i>l</i> -Propanol	71-23-8	60.10	≥ 99.9	SIGMA- ALDRICH
2-Propanol	67-63-0	60.10	≥ 99.99	ACROS
2-Butanol	78-92-2	74.12	≥ 99.5	FLUKA
<i>l</i> -Pentanol	71-41-0	88.15	≥ 99.0	SIGMA- ALDRICH

2-Pentanol	6032-29-7	88.15	$\geq 98.0$	ACROS
<i>l</i> -Hexanol	111-27-3	102.18	$\geq 98.0$	MERCK
<i>l</i> -Octanol	111-87-5	130.23	$\geq 99.0$	ACROS

Table 2: Definition of parameters of Equation 1

Parameter	Definition	Unit
$t$	Time	s
$S_i$	Chromatograph solute $i$ peak area	mV/s
$R$	Ideal gas constant	$\text{J}\cdot\text{mol}^{-1}\cdot\text{K}^{-1}$
$T$	Temperature in the cell	K
$N$	Total number of moles of the solvent inside the dilutor cell	mol
$D$	Carrier gas flow rate	$\text{m}^3\cdot\text{s}^{-1}$
$p_{\text{solv}}^{\text{sat}}$	Saturation pressure of the solvent	Pa
$P$	Pressure in the cell (atmospheric pressure)	Pa
$V_G$	Volume of the vapour phase in the dilutor cell	$\text{m}^3$

Table 3: Parameters for the calculation of vapour pressure in Pa (Equation 2) from the DIPPR database

<b>Chemical name</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<i>n</i> -Pentane	78.741	-5420.3	-8.8253	9.6171E-6	2
<i>n</i> -Hexane	104.65	-6995.5	-12.702	1.2381E-5	2
<i>n</i> -Heptane	87.829	-6996.4	-9.8802	7.2099E-6	2
<i>n</i> -Octane	96.084	-7900.2	-11.003	7.1802E-6	2
<i>n</i> -Nonane	109.35	-9030.4	-12.882	7.8544E-6	2
<i>n</i> -Decane	112.73	-9749.6	-13.245	7.1266E-6	2
<i>n</i> -Dodecane	137.47	-11976	-16.698	8.0906E-6	2
<i>n</i> -Hexadecane	156.06	-15015	-18.941	6.8172E-6	2
Ethanol	74.475	-7164.3	-7.327	3.134E-6	2
<i>l</i> -Propanol	88.134	-8498.6	-9.0766	8.3303E-18	6
2-Propanol	76.964	-7623.8	-7.4924	5.9436E-18	6
2-Butanol	187.79	-12955	-24.285	1.5362E-5	2
<i>l</i> -Pentanol	168.96	-12659	-21.366	1.1591E-5	2
2-Pentanol	123.14	-10534	-14.295	3.9737E-6	2
<i>l</i> -Hexanol	117.31	-11239	-13.149	9.3676E-18	6
<i>l</i> -Octanol	155.87	-14283	-18.537	1.3192E-17	6

Table 4: Apparent Henry's law constant and activity coefficient at infinite dilution at atmospheric pressure of furan in n-alkanes at temperatures from 283 to 323 K and atmospheric pressure

<b>T / K</b>	<b>H / MPa</b>	$\gamma^\infty$	$U(H_i)/H_i$	<b>T / K</b>	<b>H / MPa</b>	$\gamma^\infty$	$U(H_i)/H_i$
<b><i>n</i>-Pentane</b>				<b><i>n</i>-Hexane</b>			
283.4	0.069	1.57	1.2%	293.4	0.117	1.76	1.3%
288.3	0.078	1.45	1.3%	298.2	0.142	1.76	1.3%
293.2	0.086	1.29	1.2%	303.2	0.166	1.70	1.2%
298.1	0.084	1.05	1.2%	308.2	0.199	1.68	1.2%
302.1	0.068	0.74	1.4%	313.0	0.218	1.62	1.2%
				318.0	0.241	1.47	1.3%
				323.1	0.254	1.32	2.5%
<b><i>n</i>-Heptane</b>				<b><i>n</i>-Octane</b>			
293.3	0.104	1.57	2.1%	293.4	0.104	1.57	1.3%
298.2	0.135	1.67	1.2%	298.3	0.126	1.56	1.2%
303.1	0.154	1.59	1.2%	303.4	0.179	1.53	1.2%
308.3	0.183	1.57	1.5%	308.3	0.208	1.50	1.2%
313.2	0.212	1.53	1.2%	323.1	0.241	1.47	1.2%
318.1	0.248	1.52	1.2%				
323.1	0.286	1.49	1.2%				
<b><i>n</i>-Nonane</b>				<b><i>n</i>-Decane</b>			
293.4	0.107	1.61	1.6%	293.2	0.104	1.58	1.2%
298.3	0.124	1.54	1.5%	298.1	0.120	1.49	1.2%
303.2	0.149	1.53	1.2%	303.2	0.142	1.47	1.2%
308.2	0.169	1.45	1.2%	308.2	0.164	1.41	1.2%
313.2	0.198	1.43	1.3%	313.2	0.191	1.38	1.2%
318.2	0.230	1.40	1.2%	318.1	0.214	1.31	1.2%
323.1	0.260	1.35	1.2%	323.2	0.244	1.27	1.2%
<b><i>n</i>-Dodecane</b>				<b><i>n</i>-Hexadecane</b>			
293.2	0.094	1.43	1.5%	293.2	0.086	1.30	1.2%
298.1	0.112	1.40	1.2%	298.2	0.102	1.27	1.4%
303.2	0.130	1.34	1.2%	303.3	0.118	1.21	1.2%
308.2	0.152	1.30	1.2%	308.2	0.139	1.19	1.2%

313.1	0.172	1.24	1.2%	313.1	0.162	1.17	1.2%
318.0	0.201	1.23	1.2%	318.1	0.190	1.16	1.2%
323.1	0.231	1.20	1.2%	323.1	0.225	1.17	1.2%

$U(T) = u(T, K=2) = 0.1 \text{ K}$ .

Table 5: Apparent Henry's law constant and activity coefficient at infinite dilution at atmospheric pressure of furan in alcohols at temperatures from 293 to 323 K and atmospheric pressure

T / K	H / MPa	$\gamma^\infty$	$U(H_i)/H_i$	T / K	H / MPa	$\gamma^\infty$	$U(H_i)/H_i$
<b>Ethanol</b>				<b>1-Propanol</b>			
293.2	0.208	3.16	1.3%	293.2	0.198	3.00	1.2%
298.1	0.255	3.00	2.0%	298.1	0.239	2.99	1.2%
303.1	0.313	3.24	1.2%	303.1	0.281	2.91	1.2%
308.2	0.367	3.17	1.2%	308.0	0.332	2.88	1.2%
313.2	0.442	3.21	1.3%	313.0	0.383	2.79	1.2%
318.1	0.523	3.21	1.3%	318.0	0.450	2.78	1.2%
323.0	0.617	3.24	1.8%	323.0	0.514	2.70	1.2%
<b>2-Propanol</b>				<b>2-Butanol</b>			
292.8	0.208	3.20	1.3%	293.3	0.204	3.08	1.2%
297.8	0.251	3.19	1.3%	298.3	0.244	3.04	1.2%
302.7	0.296	3.12	1.2%	303.2	0.275	2.84	1.2%
308.2	0.355	3.06	1.2%	308.1	0.317	2.74	1.4%
313.1	0.409	2.97	1.2%	313.1	0.360	2.62	1.2%
318.1	0.465	2.87	1.2%	318.1	0.400	2.46	1.2%
323.0	0.513	2.70	1.2%	323.1	0.452	2.37	1.2%
<b>1-Pentanol</b>				<b>2-Pentanol</b>			
293.1	0.162	2.46	1.8%	293.2	0.180	2.73	1.2%
298.1	0.184	2.30	1.3%	298.1	0.212	2.65	2.1%
303.1	0.223	2.32	1.2%	303.0	0.243	2.53	1.2%
308.2	0.260	2.24	1.2%	308.0	0.280	2.42	1.2%
313.1	0.299	2.18	1.2%	313.1	0.325	2.36	1.2%
318.1	0.353	2.17	1.2%	318.1	0.369	2.27	1.2%

323.0	0.400	2.10	1.2%	323.1	0.417	2.19	1.2%
<b><i>1</i>-Hexanol</b>				<b><i>1</i>-Octanol</b>			
293.1	0.156	2.37	1.3%	293.2	0.131	1.99	1.2%
298.1	0.180	2.25	1.4%	298.1	0.155	1.94	1.2%
303.1	0.211	2.19	1.2%	303.2	0.185	1.91	1.2%
308.1	0.248	2.15	1.4%	308.1	0.212	1.83	1.2%
313.1	0.287	2.09	1.2%	313.9	0.244	1.77	1.6%
318.0	0.337	2.08	1.2%	318.1	0.281	1.73	1.2%
323.0	0.387	2.03	1.2%	323.1	0.322	1.69	1.2%

$U(T) = u(T, K=2) = 0.1 \text{ K}$ .