Supporting Information

Kinetics and thermodynamic studies of HMF-esters synthesis using Brønsted-Lewis acidic ionic liquid catalyst

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Table S1. Comparison of the thermodynamic properties of 5-HMF obtained by the different group contribution methods.

Compound	Parameters	Experimental	Estimated by methods			
			JOBACK	GANI	AMBROSE	LYDERSON
5-HMF	$T_c\,(k)$	794.90	761.61	712.35	833.89	758.47
	Error		4.18	10.38	4.90	4.58
	$P_c(bar)$	4.95×10^6	5.23×10^6	4.30×10^6	5.29×10^6	4.45×10^6
	Error		5.77	13.05	7.00	9.93
	$V_c(m^3kmol^{-1})$	0.33	0.34	0.39	0.32	0.34
	Error		2.54	15.90	3.26	1.80

Table S2. Calculated value of ideal gas heat capacity $C_p\,(Jmol^{-1}K^{-1})$ for 5-HMF at constant pressure using JOBACK method.

Property	100	200	300	400	500	600	700	800	900	1000

CP^0	161.77	198.71	228.68	251.88	270.189	285.413	298.81	311.12	322.72	333.73
CP	155.88	183.62	204.98	223.49	238.65	250.97	260.97	269.16	276.06	282.17
% error	3.64	7.59	10.36	11.26	11.67	12.07	12.66	13.49	14.46	15.45

Table S3. Calculated value of ideal gas heat capacity $C_p\,(Jmol^{-1}K^{-1})$ for 5-HMF at constant pressure using BENSON method.

Property	**100**	**200**	**300**	**400**	**500**	**600**	**700**	**800**	**900**	**1000**
CP^0	161.77	198.70	228.68	251.88	270.19	285.41	260.97	269.16	276.06	282.17
CP	163.027	191.70	215.28	234.53	250.21	263.06	273.85	283.34	292.26	301.40
% error	0.778	3.52	5.86	6.88	7.39	7.83	8.35	8.93	9.44	9.51