Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting information: Low-melting mixtures based on choline Ionic Liquids

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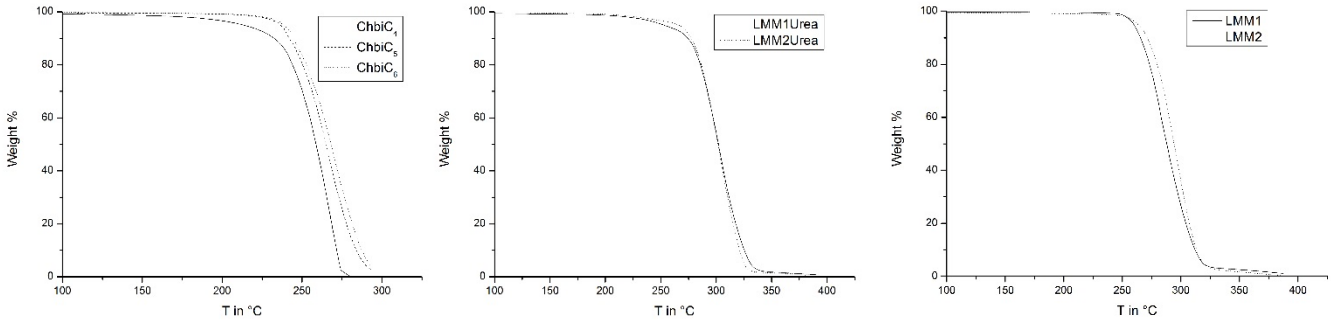
Water content

The water content was determined with a coulometric Karl-Fischer titration using an Abimed MCI analyser (Model CA-02).

Substance	Water content in ppm
$ChdiC_4$	2221±100
$ChdiC_5$	1521 ± 100
$ChdiC_6$	3197±100
LMM1	71 ± 100
LMM1Urea	930 ± 80
LMM2	519 ± 100
LMM2Urea	714 ± 100

Thermogravimetric analysis



Differential Scanning Calorimetry

Melting and crystallization enthalpies and entropies of choline succinate ($ChdiC_4$), choline glutarate ($ChdiC_5$) and choline adipate ($ChdiC_6$) were obtained from DSC measurements in the temperature range from -80°C to 95°C. The numbers 1, 2 mark the transitions with increasing temperature (heating cycle) and the respective values at the cooling cycle.

	$ChdiC_4$				$ChdiC_5$		$ChdiC_6$	
	ΔH_1 / kJ mol^{-1}	ΔS_1 / J mol^{-1} K^{-1}	ΔH_2 / kJ mol^{-1}	ΔS_2 / J mol^{-1} K^{-1}	ΔH_1 / kJ mol^{-1}	ΔS_1 / J mol^{-1} K^{-1}	ΔH_1 / kJ mol^{-1}	ΔS_1 / J mol^{-1} K^{-1}
1. heat			25.2	75.1	24.0	76.7	36.5	102.0
1. cool			-	-	-	-	-30.9	-109.3
2. heat	-22.0	-74.5	23.3	69.7	-	-	35.6	99.1
2. cool	-	-	-	-	-	-	-30.2	-105.4
3. heat	-21.7	-73.1	23.2	69.5	-	-	36.5	99.1
3. cool	-	-	-21.7	-73.1	-	-	-29.9	-106.3

Conductivity activation energies

Determination of activation energies of conductivitiy according to the Arrhenius (E_Λ) and Vogel-Fulcher-Tammann model ($E_{\Lambda VFT}$), respectively.

	Arrhenius model		Vogel-Fulcher-Tammann model		
	$\ln(\kappa_0$ / mS cm^{-1})	E_Λ /kJ mol^{-1}	κ_0 /10^3 mS cm^{-1}	E_ΛVFT /kJ mol^{-1} (eV)	$T_{0\kappa}$ /K
LMM1	18.4 ± 0.4	56.0 ± 1.1	5 ± 1	15.4 ± 0.8 (0.16 ± 0.01)	154 ± 5
LMM1Urea	18.7 ± 0.4	56.5 ± 1.2	4 ± 1	14.1 ± 0.7 (0.15 ± 0.01)	157 ± 13
LMM2	18.2 ± 1.0	55.6 ± 2.8	3 ± 3	15 ± 2 (0.15 ± 0.02)	162 ± 4
LMM2Urea	18.6 ± 0.4	56.6 ± 1.2	5 ± 1	15.0 ± 0.7 (0.16 ± 0.01)	157 ± 5