IUPAC 2002-005-1-100: **Title**: Thermodynamics of ionic liquids, ionic liquid mixtures, and the development of standardized systems.

Progress May 2005.doc

Carlos Nieto de Castro May 2005 Progress

Laboratory	**Reported progress**
Carlos A. Nieto de Castro Departamento de Quimica e Bioquimica Universidade de Lisboa	Viscosity measurements with a capillary viscometer will begin soon, to be followed by measurements with an oscillating disk viscometer. Dielectric constant measurements will begin as soon as a new cell constructed (probably late summer). Thermal conductivity measurements are tentatively planned, but without a firm schedule.

Gennady Kabo May 2005 progress

Laboratory	**Reported progress**
Gennady J. Kabo Chemistry Department Belarusian State University	Heat capacities of crystalline, glassy, and liquid hmimNTf2 have been measured in a (5 to 370) K range. Temperature and enthalpy of fusion, purity of the sample, and temperature of the glass transition have been determined. Thermal stability in vaccum have been studied at temperatures up to 500 K.

NIST May 2005 progress

Laboratory	**Reported progress**
Joseph Magee, Jason Widegren, Richard Perkins, Donald Archer NIST Boulder / Gaithersburg, USA	Electrolytic conductivities have been measured at (288.15, 293.15, 298.15, 308.15, and 323.15) K. Viscosity was measured with an Ubbelohde capillary viscometer at 298.15 K. Viscosity was also measured with a Stabinger viscodensimeter (Anton Paar) from (258.15 to 373.15) K. Density was measured with a Stabinger viscodensimeter from (238.15 to 373.15) K. A small-volume hotwire cell for thermal conductivity measurements is under construction. Heat capacity measurements by DSC are tentatively planned for this summer.

Gerd Maurer May 2005 report

Laboratory	Reported progress (May, 17, 2005)
Gerd Maurer Department of Applied Thermodynamics University of Kaiserslautern	We have completed the experimental work on the solubility of CO_2 in HMIM[Tf_2N] at 20 ^oC (at pressures up to about 3.5 MPa), at 60 ^oC (at pressures up to about 10 MPa) and we have started the work at 100 ^oC. .

Margarida Costa Gomes May 2005 progress

Laboratory	Reported progress
Margarida Costa Gomes Laboratoire de Thermodynamique des Solutions et des Polymères Univ. Blaise Pascal	CO_2 solubility from 15 ^oC to 70 ^oC at 5 K intervals at 0.1 MPa complete. Ethane measurements at same conditions will be completed 10 June. Hydrogen measurements by end of June

Luis Rebelo May 2005 report

Laboratory	Reported progress
Luis Paulo N. Rebelo Instituto de Tecnologia Química e Biológica Universidade Nova de Lisboa	LLE measurements with *n*-alkanols from $n = 4$ to 8 at 1 bar have been completed. Variation of the LLE with pressure (up to $p = 55$ MPa) near the UCST with pressure for *n*-alkanols from $n = 4$ to 6 have been measured The density of the pure compounds has been measured at $p = (0.1$ to 65.0) MPa t temperatures $T = (293.15$ to 338.15) K at 5 K intervals have been measured. Excess volume measurements have been completed but some values are being checked. Speed of sound measurements are underway.

Laboratory	Reported progress
Kenneth Seddon / Gordon Driver QUILL Queen's University Belfast	Density and viscosity measurements are planned for the first week of March.

Laboratory	Reported progress
Trevor Letcher School of Pure and Applied Chemistry University of Kwa_Zulu Natal	Activity coefficients at infinite dilution

Laboratory	Reported progress
Cor J. Peters Delft University of Technology	Gas solubility measurements are scheduled for the period of March to May.

Laboratory	Reported progress
Kenneth N. Marsh Department of Chemical and Process Engineering, University of Canterbury	Viscosity measurements will be made with a vibrating wire instrument, the performance of which is currently being checked with reference fluids. Density measurements will be made with a vibrating tube instrument that is attached to the viscometer. Dielectric constants will be made with a reentrant cavity apparatus that is currently being checked with octane and cyclohexane. Measurements will start in early July

Laboratory	Reported progress
Andreas Heintz Department of Physical Chemistry University of Rostock	Gamma infinity measurements with [hmim][Tf_2N] + hexanol (and butanol) at (25, 40 and 60) °C are in progress. This will be finished ca. the end of March. Heats of dilution measurements for [hmim][Tf_2N] in hexanol and butanol will begin in a few weeks and be finished by end of June. LLE measurements with the same systems have begun and hopefully will be finished in April.