

Electronic Supplementary Information

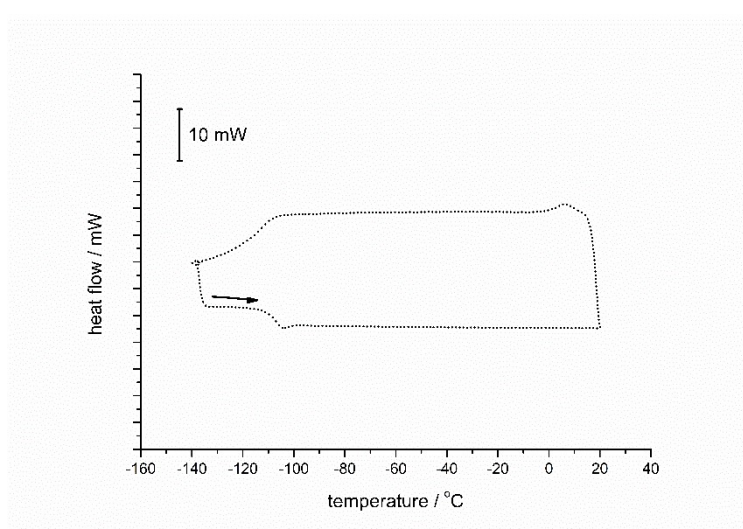
Choline chloride-formic acid mixture as a medium for the reduction of pertechnetates – electrochemical and spectroscopic studies

Damian Połomski^a, Nicole A. DiBlasi^b, Kathy Dardenne^b, Xavier Gaona^b, Kenneth Czerwinski^c, Maciej Chotkowski^{a*}

^a University of Warsaw, Faculty of Chemistry, Żwirki i Wigury 101, 02-089 Warsaw, Poland

^b Karlsruhe Institute of Technology, Institute for Nuclear Waste Disposal, Hermann-von-Helmholtz-Platz 1, Eggenstein-Leopoldshafen 76344 Germany

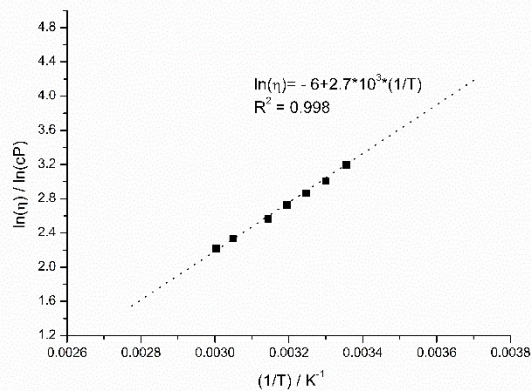
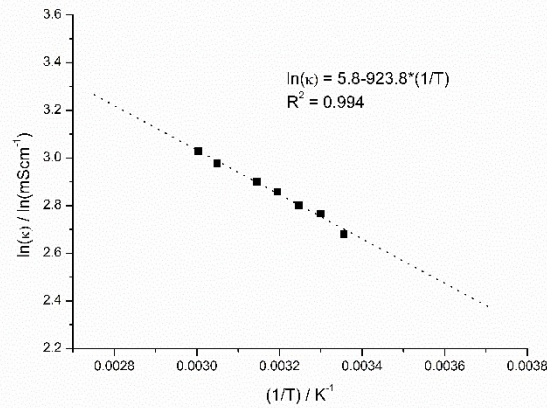
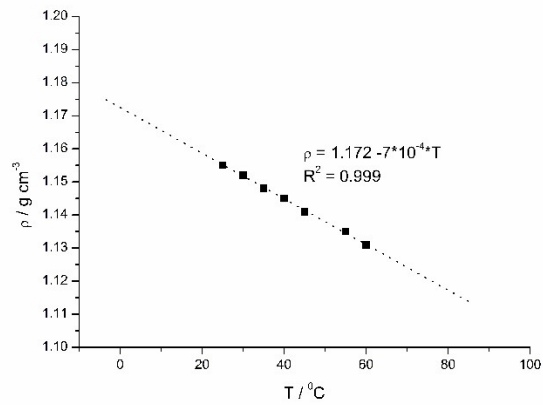
^c Radiochemistry Group, University of Nevada, Las Vegas, NV 89154, USA



DSC thermogram of 1-year aged ChCl:FA (1:2 mol. ratio, 15.500 mg) sample.

1-year aged sample ChCl:FA		freshly prepared sample ChCl:FA	
Onset	-110,83 °C	Onset	-111,57 °C
Midpoint	-108,50 °C	Midpoint	-109,16 °C
Inflect. Pt.	-106,90 °C	Inflect. Pt.	-107,69 °C
Endpoint	-106,00 °C	Endpoint	-106,72 °C
Inflect. Slp.	-0,59 mW°C ⁻¹	Inflect. Slp.	-0,30 mW°C ⁻¹
Delta Cp	0,82 Jg ⁻¹ K ⁻¹	Delta Cp	0,83 Jg ⁻¹ K ⁻¹
Left Limit	-118,71 °C	Left Limit	-124,12 °C
Right Limit	-94,21 °C	Right Limit	-90,13 °C

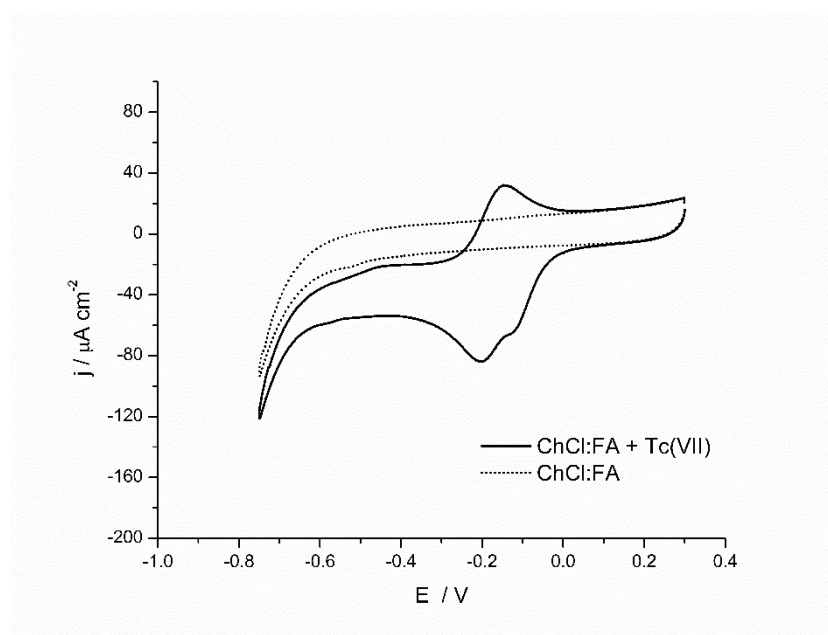
S1. Characteristics of the glass transition points observed for ChCl:FA samples.



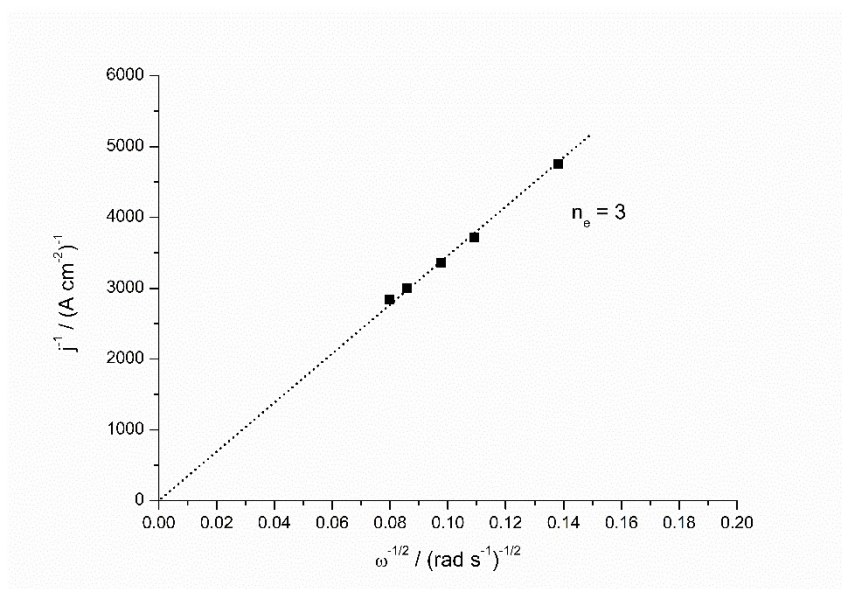
Dynamic viscosity (η) is related to the density (ρ) and kinematic viscosity (ν) of the solution according to the equation: $\eta = \nu * \rho$.

$\nu = 41 \text{ cSt}$ and $\kappa = 11 \text{ mS}\cdot\text{cm}^{-1}$ at $0 \text{ }^\circ\text{C}$

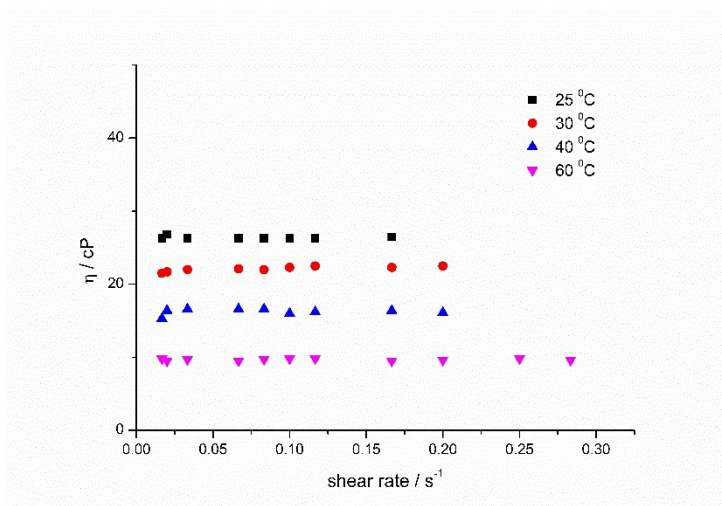
S2. A temperature impact on the density (ρ), conductivity (κ) and dynamic viscosity (η) for ChCl:FA mixture.



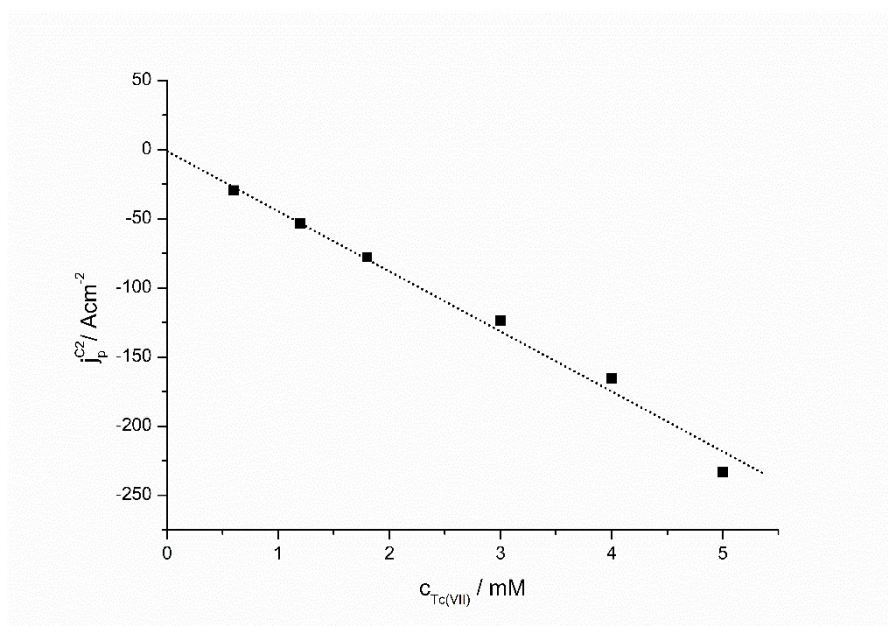
S3. Cyclic voltammogram recorded in ChCl:FA at glassy carbon disk electrode, $T = 25^\circ\text{C}$, scan rate = 50 mVs^{-1} .



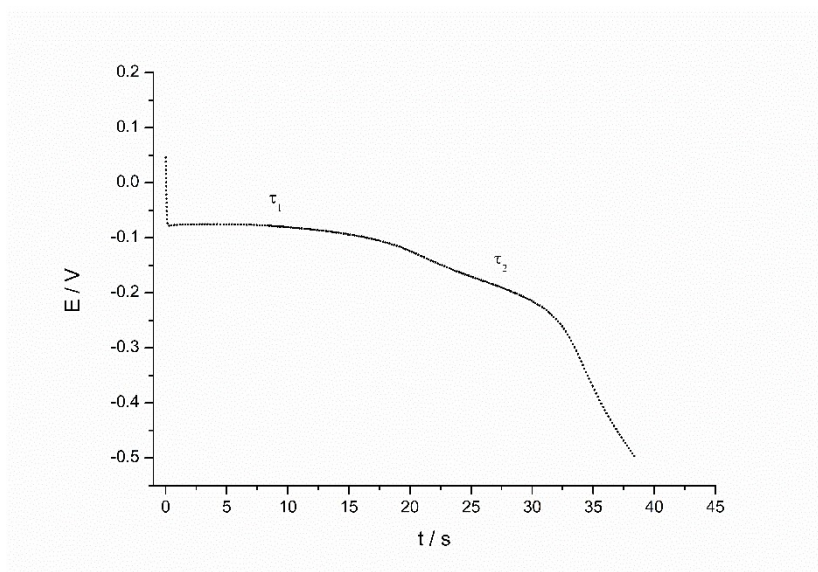
S4. Koutecky-Levich plots for the limiting current of 1.2 mM Tc reduction in ChCl:FA at glassy carbon rotating disk electrode (RDE), $T = 25^\circ\text{C}$, scan rate = 250 mVmin^{-1} .



S5. Dynamic viscosity (η) vs. shear rate of ChCl:FA mixture at various temperatures.



S6. Peak current density (calculated for peak c2 shown in Fig. 5) as a function of $Tc(VII)$ concentration, $T = 25\text{ }^{\circ}C$, scan rate = 50 mVs^{-1} .



S7. Chronopotentiometry curve recorded in ChCl:FA with addition of 1.2 mM Tc, current = 1.8 μ A, T = 25 $^{\circ}$ C.