Supplemental Material

Probing platinum degradation in polymer electrolyte membrane fuel cells by synchrotron X-ray microscopy

Viatcheslav Berejnov^a, Zulima Martin^b, Marcia West^a, Sumit Kundu^c, Dmitri Bessarabov^d, Jürgen Stumper^c, Darija Susac^c and Adam Hitchcock^a

 ^a Brockhouse Institute for Materials Research, McMaster University, Hamilton, ON L8S 4M1, Canada
^b Environmental Energy Technology, Lawrence Berkeley National Laboratory, Berkeley, CA, 94720 USA
^c Automotive Fuel Cell Cooperation Corp., 9000 Glenlyon Parkway, Burnaby, BC V5J 5J8, Canada
^d North-West University, Private Bag X6001, Potchefstroom, HySA, Hydrogen Infrastructure Center of Competence, South Africa

Phys Chem Chem Phys File: Pt-precursor-membrane-supplement.doc Last changed: 23-Jan-2012

Figure S-1 N 1s spectra of other materials related to sample A (see also Fig 4 of the article).



All spectra are offset for clarity, no background was subtracted. The dashed lines highlight the characteristic 402 eV (amide) and 406 eV (amine) energies. Polystyrene (PS) and trimethylolpropane triglycidyl ether (TTE) -based resin are materials used for embedding to allow microtoming. The abbreviations EOL - "end-of-life", and BOL- "beginning-of-life" denote samples before any degradation (BOL) and after accelerated testing causing degradation (EOL).



Figure 2 N 1s spectra of other materials related to sample B (see also Fig 6 of the article).

All spectra are offset for clarity, no background was subtracted. The dashed line highlights the characteristic 406 eV (amine) energy. Relative to Fig. 6 this plots the N 1s spectrum of the cathode of the BOL version of sample B. The 406 eV peak characteristic of amines is present everywhere in both BOL and EOL samples of sample B.