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Short communication

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Joan G. Lynam, Genica I. Chow, Charles J. Coronella, Sage R. Hiibel

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1 **Ionic liquid and water separation by membrane distillation**

2 Joan G. Lynam^{a*}, Genica I. Chow^a, Charles J. Coronella^a, Sage R. Hiibel^b

3 ^a Chemical and Materials Engineering Department, 1664 N. Virginia St. MS 170, University of
4 Nevada, Reno, Reno, Nevada 89557 USA

5 ^b Civil and Environmental Engineering Department, 1664 N. Virginia St., University of Nevada,
6 Reno, Reno, NV 89557 USA

7 *Corresponding author.

8 Tel: +1-775-842-9151. email: lynam.joan@gmail.com

9 **Keywords:** PTFE; PVDF; 1-ethyl-3-methyl imidazolium acetate; 1-ethyl-3-methyl imidazolium
10 formate; conductivity; membrane distillation

11 **Abstract:**

12 An environmentally-friendly method to pretreat biomass prior to conversion to liquid fuel is
13 deconstruction by ionic liquids (ILs). Typically, water is added as an anti-solvent to the IL and
14 biomass mixture and is also used to rinse the biomass. Separation of the resulting water and IL
15 mixtures is required prior to recycling the IL. Direct contact membrane distillation, a low
16 temperature and ambient pressure process, was used to separate water from 1-ethyl-3-methyl
17 imidazolium acetate and 1-ethyl-3-methyl imidazolium formate, two ILs commonly used for
18 biomass pretreatment. IL concentrations ten times those of the original feed (5% to 50% by
19 mass) were achieved, with greater concentrations possible. Using direct contact membrane
20 distillation for ionic liquid-solvent separation has not previously been reported in the literature.

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