**Table 1** Thermal properties of synthesized ionic liquids

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| Ionic liquids | R⊕ Cation group | Tm ºC | Tc ºC | Td (onset) |
| TBA-RA | tetra butyl ammonium | 0.9 | -8.5 | 197 |
| TPA-RA | tetra propyl ammonium | -1.8 | -11.4 | 225 |
| CTB-RA | cetyl trimethyl ammonium | 2.6 | -7.8 | 203 |
| BHI-RA | butyl hexyl imodazolium | -9.8 | -14.5 | 258 |