Supplementary date

(**A**) (**B**)

Figure S1. Number of hydrogen bonds between amino acids of PETase and solvents. (**A**); pure water in black, in red 20% of solvent Water-[C4MIM][Ac], in green 30% of solvent Water-[C4MIM][Ac] and in blue 40% of solvent Water-[C4MIM][Ac]. (**B**); pure water in black, in red 20% of solvent Water-[C2MIM][Ac], in green 30% of solvent Water-[C2MIM][Ac] and in blue 40% of solvent Water-[C2MIM][Ac].

(**A**) (**B**)

Figure S2. The interaction of [C4MIM] (**A**) and [C2MIM] (**B**) cations with hydrophobic surface of PETase. The hydrophobic surface is colored in red and the hydrophilic surface is colored in blue.

(**A**)

(**B**)

(**C**)

Figure S3. Radia distribution functions (RDFs) for atoms with (**A**) side chain of amino acids A123 (in black), A11 (in red), F232 (in green), P9 (in blue) and F162 (in yellow) of hydrophobic surface of PETase and ring of [C4MIM] in 40% of [C4MIM][Ac]. (**B**); side chain of amino acids A123, A11, F232, P9 and F162 of hydrophobic surface of PETase and ring of [C4MIM] in 30% of [C4MIM][Ac]. (**C**); side chain of amino acids A123, A11, F232, P9 and F162 of hydrophobic surface of PETase and ring of [C4MIM] in 20% of [C4MIM][Ac].

(**A**)

(**B**)

(**C**)

Figure S4. Radia distribution functions (RDFs) for atoms with (**A**) side chain of amino acids A123 (in black), A11 (in red), F232 (in green), P9 (in blue) and F162 (in yellow) of hydrophobic surface of PETase and ring of [C2MIM] in 40% of [C2MIM][Ac]. (**B**); side chain of amino acids A123, A11, F232, P9 and F162 of hydrophobic surface of PETase and ring of [C2MIM] in 30% of [C2MIM][Ac]. (**C**); side chain of amino acids A123, A11, F232, P9 and F162 of hydrophobic surface of PETase and ring of [C2MIM] in 20% of [C2MIM][Ac].