

Publication

A comprehensive characterization of ice nucleation by three different types of cellulose particles immersed in water

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We present the laboratory results of immersion freezing efficiencies of cellulose particles at supercooled temperature (T) conditions. Three types of chemically homogeneous cellulose samples are used as surrogates that represent supermicron and submicron ice-nucleating plant structural polymers. These samples include microcrystalline cellulose (MCC), fibrous cellulose (FC) and nanocrystalline cellulose (NCC). Our immersion freezing dataset includes data from various ice nucleation measurement techniques available at 17 different institutions, including nine dry dispersion and 11 aqueous suspension techniques. With a total of 20 methods, we performed systematic accuracy and precision analysis of measurements from all 20 measurement techniques by evaluating T-binned (1 C) data over a wide T range (−36 C

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