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beyond Circular Economy the classroom

A More Sustainable Future via Polymer Circularity

In a Circular Economy, atoms and molecules are kept inside the economy where they continue to produce value, and they are kept out of unwanted places like our environment. At a high level, this concept applied to polymers and plastics should reduce the flow of material into the environment, while improving efficiency and reducing demand for natural resources, but the reality is much more complex. When considering the full supply chain, from design and manufacture, to use and retrieval, the system is full of challenges and potential for leakage. The only way to ensure progress, is to design changes to the system with these fundamental goals in mind, and to build the measurement and data frameworks that can support difficult decision-making and confidence in the results. The talk will present some NIST activities in fundamental materials design and measurement relevant to this larger need, including polyolefin molecular design for improved recovery, and models and processes to improve compatibilization of polymer blends relevant to mechanical recycling.

About Kathryn Beers

Kate Beers, PhD, leads the Circular Economy program for NIST, where she is engaged across the Institute in activities related to plastics recycling, new materials design, and environmental impacts of plastic waste.

Kathryn Beers

National Institute of Standards and Technology (NIST)