

## **Dissolution Technology: An Approach for Infinite Circularity**

Trinseo as a sustainable solutions provider believes efficient low footprint recycling is the first critical step in reducing the environmental impact of plastics by preventing landfill or incineration. Upon completion this will allow for changing polymer production from fossil-based raw materials to waste as feedstock. Trinseo has been recycling post-consumer plastics at commercial scale for more than a decade. Recently, dissolution-based physical purification process as a proprietary technology has been developed in addition to mechanical recycling to retain a broader mix of waste streams into the cycle. Such recycled polymers have now been commercialized and are being qualified in applications of electronics, consumer goods and automotive. The utilized technology relies on selective dissolution of polymers from post-consumer recycled (PCR) material followed by a series of purification steps to separate the polymer from additives and contaminants.

Hereby, we introduce Trinseo's dissolution-based recycling processes with their advantages and limitations in comparison to other leading recycling methods, such as traditional mechanical recycling and depolymerization. We also share comparisons in CO<sub>2</sub> footprint between conventional fossil-based pristine materials with those recycled by physical and mechanical processes.