

Microwave-Based Chemical Recycling for Polyamide 66

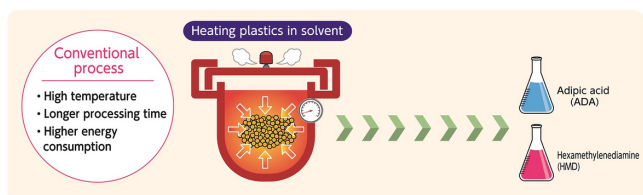
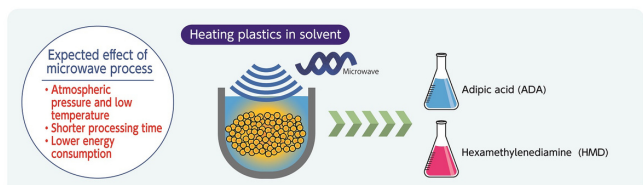
Expected to Reduce CFP by 50-60%

Novel Chemical Recycling Process for PA66

utilizing *PlaWave* by Microwave Chemical

Together with partner Microwave Chemical, Asahi Kasei is currently working on a microwave-based chemical recycling process for PA66. The laboratory-scale chemical recycling studies initiated in 2021 have verified the successful depolymerization of post-industrial and post-consumer parts made from PA66, yielding high quantities of HMD and ADA.

Chemical decomposition of polyamide 66 using microwave technology

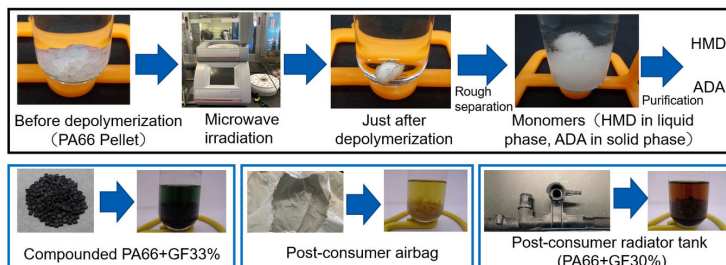


No Material Deterioration

The handling of PCR materials can be challenging if they contain mixed materials or impurities. Through the novel process, Asahi Kasei can produce high-quality HMD and ADA from these PCR materials. This implies that PA66 can be produced from these monomers without any material deterioration.

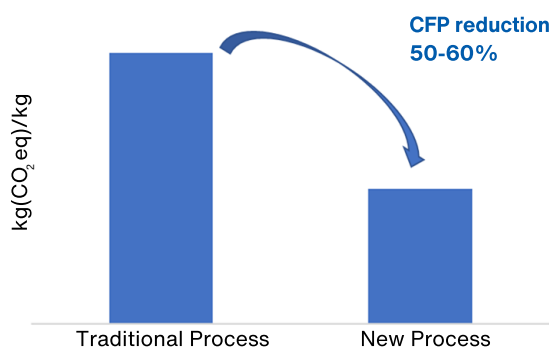
Depolymerization of PA66

Laboratory-scale studies for depolymerization of PA66 are conducted by using microwaves. Further CFP reduction may be achieved by the use of renewable energy. Our studies show that any type of product mainly made from PA66, specifically compounds with GF, airbags, or radiator tanks can be depolymerized to HMD and ADA by high qualities.



Sustainability

The manufacturing process for PA66 utilizing recycled HMD and ADA is expected to reduce the CFP by 50-60 % in comparison to the conventional manufacturing process for fossil-based virgin PA66.



※ CFP of new process is roughly estimated through laboratory-scale studies.