

Full recycle technology for FRP materials

Introduction

Facing the dilemma of the composite waste removal (12 million tons/year), ITRI has developed the comprehensive recycling technology for composite materials, which can handle the large-size CF/GF composite wastes and help industries reduce CO₂ emission for 5.3/25.6 kg by applying the recycled GF/CF back to the products producing process per kg. The performance of recycled fibers remains basically unchanged and the chemicals can be recycled and reused.

Background information

- ▶ Global target for net zero and ESG
- ▶ Sustainable composite circulation solution needed
- ▶ 70% process energy saved compared with traditional pyro method
- ▶ 32000 kilotons/y of Low carbon footprint fiber required

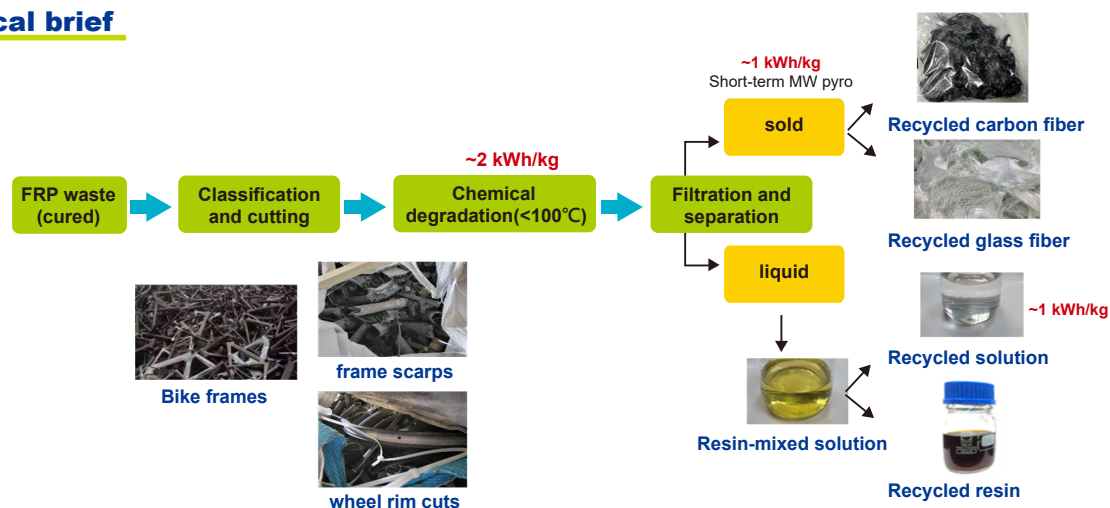
Technical features and benefits

- ▶ Large waste acceptable
- ▶ Fiber and resin are recyclable
- ▶ Energy consumption <3 kWh/kg
- ▶ Recovery rate >95%
- ▶ Fiber strength maintained >95%

Mechanical properties of the recycled composite

FAW(g/m ²)	thickness(mm)	Bending strength(MPa)	Bending modulus(GPa)
1400	2.60	412.75±38.89	30.0±2.35
2000	3.09	416.00±8.60	23.4±1.20
		329.00±7.13	23.0±1.55

Technical brief



Products and applications

