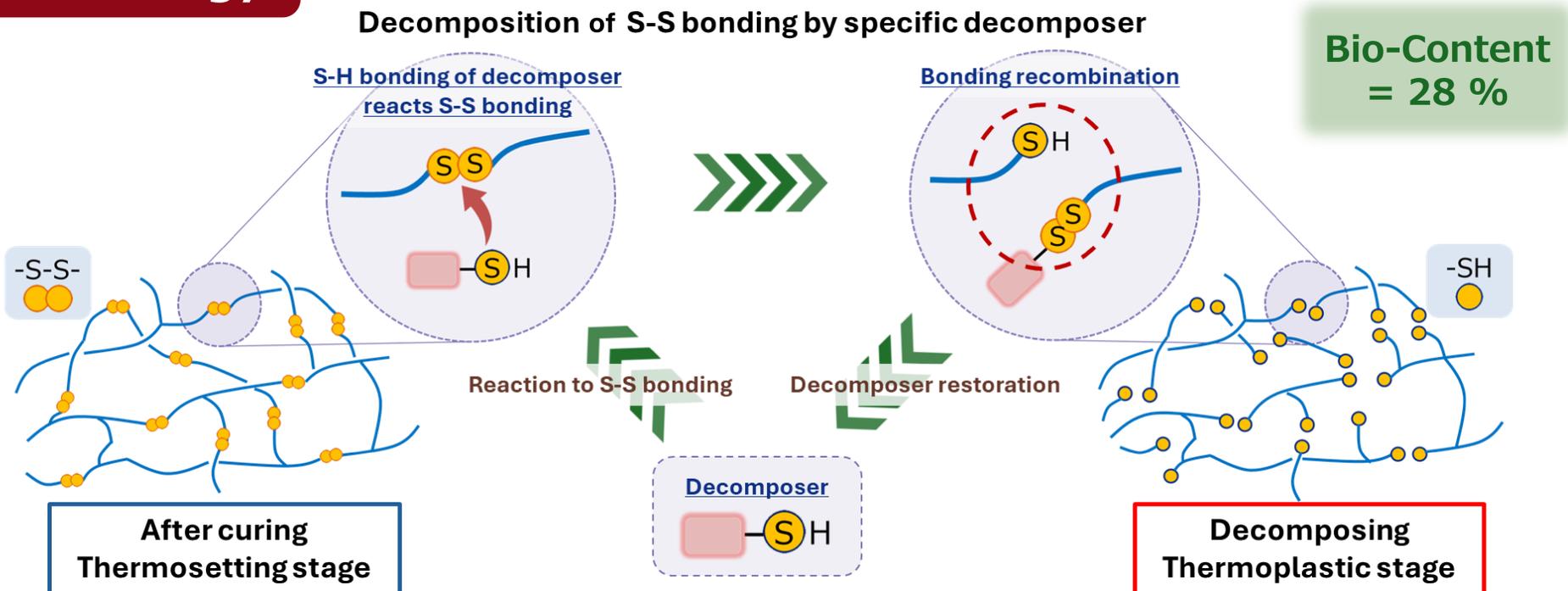


Composite Recycling Solutions with Easy-to-Decompose Biobased Epoxy Resins

Technology

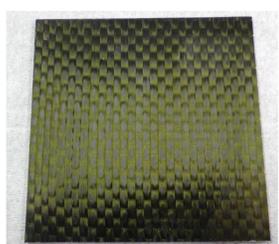


- ✓ Epoxy resin with a specific structure that has good adhesion and strength under normal operating conditions.
- ✓ Can be decomposed by soaking in a specific decomposer.
- ✓ Can be decomposed in relatively mild condition (at 60°C, pH≐7)

Features

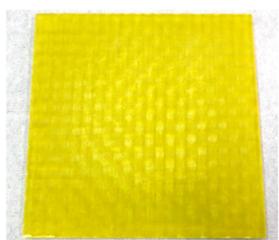
- ✓ Decompose by soaking, heating, and stirring a specific biobased epoxy resin (matrix resin) in a specific solvent.
- ✓ Mild decompose conditions (60°C × 10 hours) soaking → low energy consumption and low environmental impact.
- ✓ After decomposition, the fibers are collected and reused.
- ✓ Future consideration of the recovery and reuse of biobased epoxy resins.

Decomposition of CF / GF composites → Collection and recycling of fibers



Carbon fiber composite

Decomposer soaking
60°C / 10hr.



Glass fiber composite

Decomposer soaking
60°C / 10hr.



Items	Condition	Unit	ET-071/ R-004 and H-001
System			Formulated Epoxy
Bio content		%	28
Mixture viscosity	25°C	mPa·s	3,500
Gelation time	80°C	min	1.5
Curing condition			100°C × 1 hr.
Tg		°C	87
Lap shear strength	Al/Al 25°C	MPa	7
Tensile strength	JIS K 7161 25°C	MPa	50
Tensile modulus		GPa	3.4
Elongation at break		%	1.9
Flexural strength	JIS K 7171 25°C	MPa	105
Flexural modulus		GPa	2.9
Flexural strain		%	7.5
Decomposition time of CF composite (Decomposer WO-003, WW-003)	60°C / 300 rpm	hr.	10 ([0/+45/-45/90],4-ply, t=1mm)