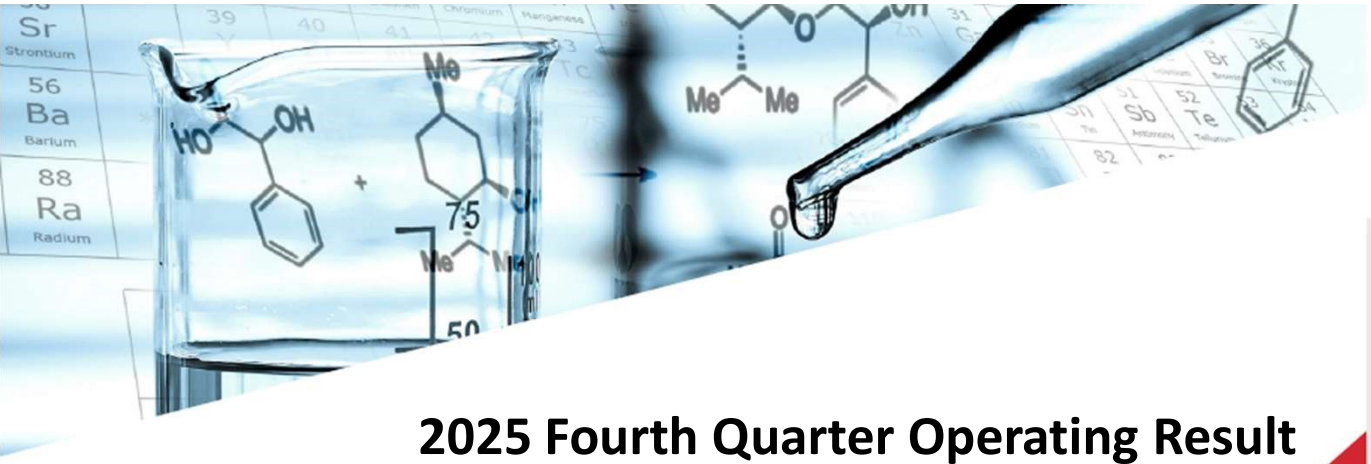
長興材料

ETERNAL MATERIALS

Elements of Infinite Possibilities

Safe Harbor Notice

- This presentation may contain forward-looking statements subject to significant risks and uncertainties. Actual results may differ materially from those contained in the forward-looking statements.
- The forward-looking statements in this release reflect the current belief of Eternal Materials Co., Ltd. (“Eternal”) as of the date of this release, we undertake no obligation to update these orwarding-looking statements for new information.



2025 Fourth Quarter Operating Result & Unsaturated Polyester Resins Division： Innovation and Cross-Domain Applications of Eternal High-Performance Thermoplastic Composites

Presenter : Director, Chuanneng Lee (Unsaturated Polyester Resins Division)

B.C.Liu (spokesperson)

Date : 2026/03/19

Agenda

1. **Profile**
2. **2025 Fourth Quarter Operating Result**
3. **Introduction to Composite Materials**
4. **Advantages and Innovative Applications of High-Performance Materials**
5. **Market Size and Trends**
6. **Eternal High-Performance Thermoplastic Composites : Product Advantages, Track Record, and Solutions**
7. **Future Outlook**

Profile

Profile

Chairman — Allen K. L. Kao

Core Business — Manufacturing, processing and sales

Founding

1964

Employees

4,924

Overall Sales Revenue

USD$ 1,305 million

Production Sites

24

- Taiwan 5
- China 13
- USA 1
- Thailand 1
- Japan 2
- Malaysia 1
- Italy 1

Headcounts of Researcher

631

R&D expenditures

For sales revenue 5%

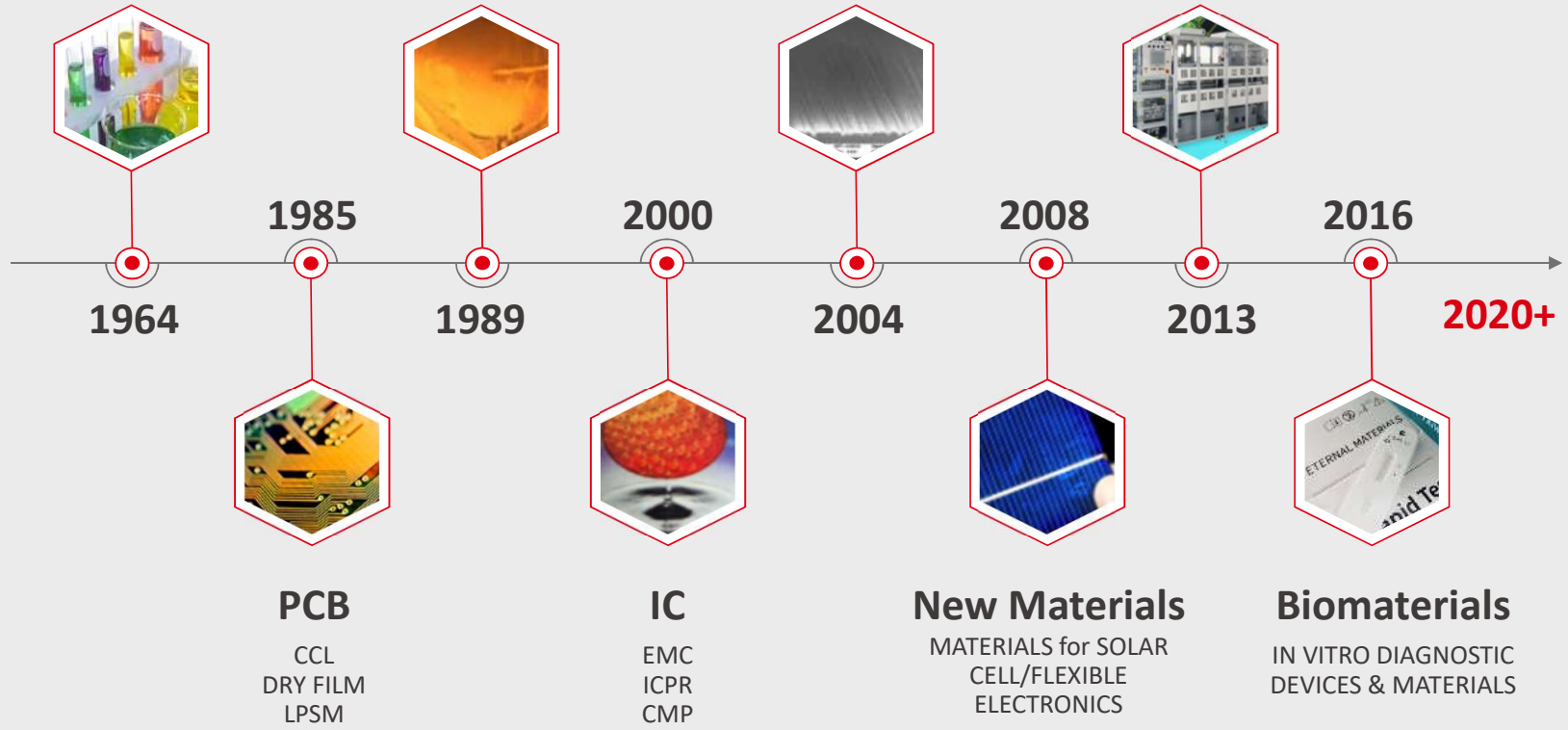
Notes 1 :

Number of Employees on Dec 31,2025

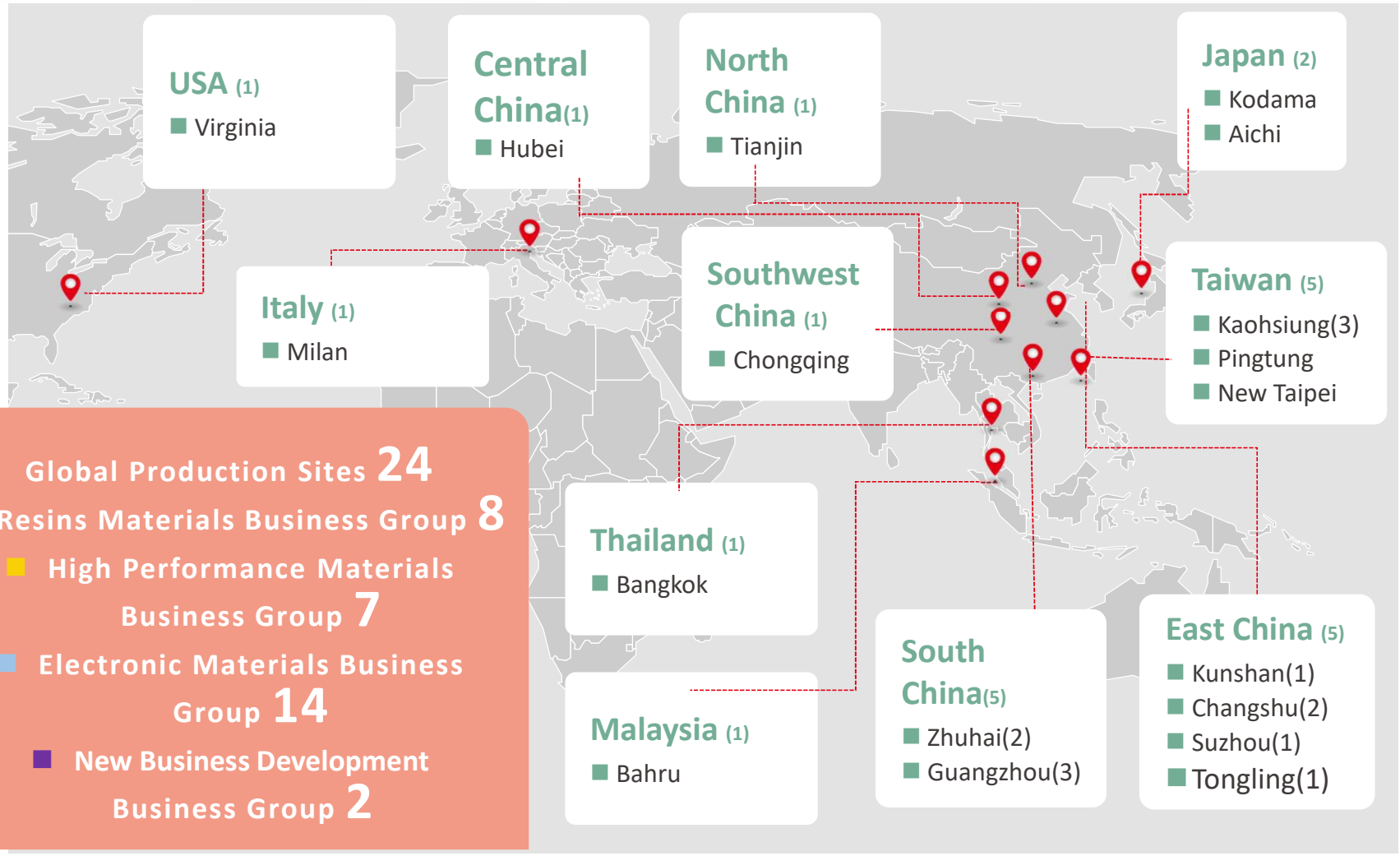
Notes 2:

refer to year 2025 Consolidated statement

Development Milestones



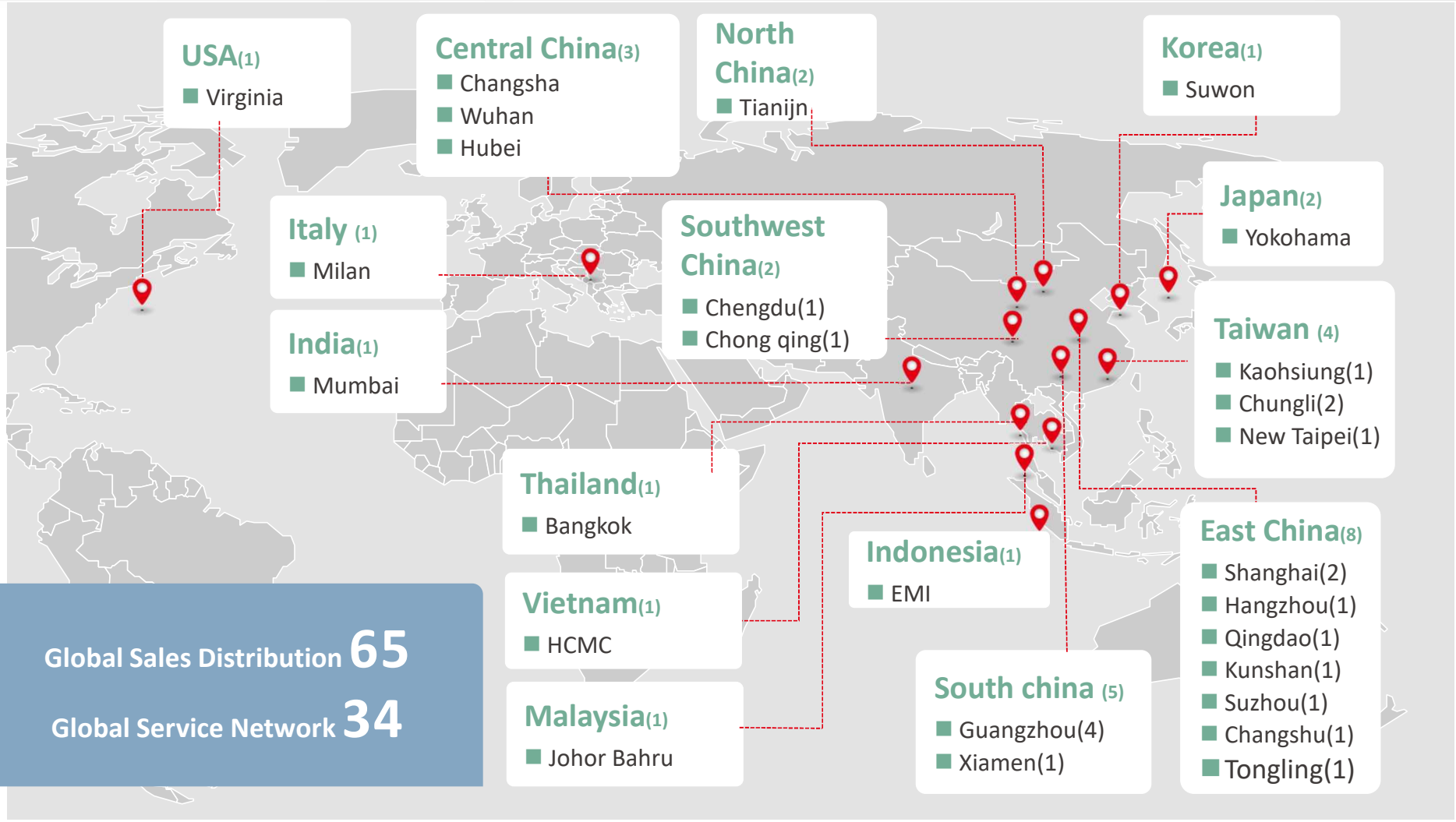
Global Production Sites



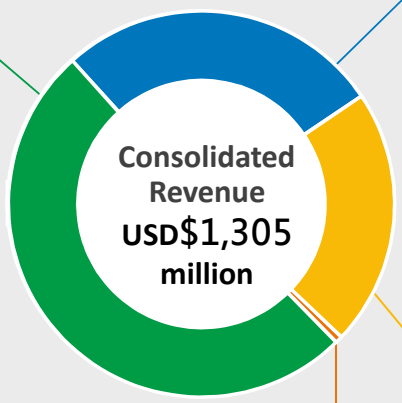
Global Production Sites **24**

- Resins Materials Business Group **8**
- High Performance Materials Business Group **7**
- Electronic Materials Business Group **14**
- New Business Development Business Group **2**

Global Service Network



2025 Product Lines Sales Ratio



Resins Materials 48.22%

- Alkyd Resin、Solvent-Based Acrylic Coating Resin
- Water-Based Acrylic Coating Resin
- Acrylic Resin For Adhesives and Overprinting
- Polyester Polyol Resin、Fluorocarbon Resin
- Polyurethane Resin、Saturated Polyester Resin
- Amino Resin、Optoelectronic Materials、 Wind power materials
- Other Coatings Resin
- Conductive polymer
- Unsaturated Polyester Resin
- Vinyl Ester Resin、Fire Retardant Resin
- Epoxy System、Structural Adhesive
- Polyester for Polyurethane Foam

Electronic Materials 25.75%

- Dry Film Photoresist
- Dry Film Solder Mask
- UV INK
- Dry Film Photosensitive Polyimide
- Liquid Polyimide Material
- Vacuum Laminator
- Toll Coating Service
- Paper Phenolic Copper Clad Laminate
- Composite Epoxy Copper Clad Laminate

High Performance Materials 25.43%

- UV Monomers
- UV Oligomers
- Special Coatings
- Pressure Sensitive Adhesive / Adhesives
- Silicone Materials
- UV Curable Molding Material

Others 0.60%

- Enzyme
- antibody for IVD
- Liquid molding compound
- Thermoplastic composite materials
- Hydrophilic film for strip
- Si/C for LIB materials
- Blood glucose test strip material
- High Frequency Materials in 5G

2025 Fourth Quarter Operating Result

Financial Information-Balance Sheets & Key Indices

Unit：TWD Millions

	2025		2024		2023	
	Amount	%	Amount	%	Amount	%
Cash and cash equivalents and current financial assets	6,900	11	8,370	13	7,624	13
Accounts receivable	14,060	23	15,447	25	15,213	26
Inventories	8,184	14	8,533	14	8,479	14
Financial assets	3,731	6	3,797	6	3,516	6
Property, plant and equipment	21,682	36	20,836	33	18,323	31
Total Assets	60,155	100	62,419	100	58,538	100
Short-term borrowings	3,295	5	5,698	9	5,557	9
Current portion of long-term borrowings	4,455	7	2,605	4	3,741	6
Long-term borrowings	12,388	21	12,257	20	11,858	20
Total Liabilities	31,929	53	33,429	54	33,322	57
Total Equity	28,226	47	28,991	46	25,216	43

Key Financial Ratios			
Average cash collection days	135	129	141
Average days required for sale	97	89	99
Current ratio (%)	180	186	182

Financial Information-Statements of Comprehensive Income

Unit：TWD Millions

	2025		2024		2023	
	Amount	%	Amount	%	Amount	%
Operating Revenue	40,685	100	44,191	100	42,452	100
Gross profit	8,368	21	8,824	20	8,147	19
Operating expenses	(6,677)	(16)	(6,655)	(15)	(6,232)	(15)
Operating Income	1,692	4	2,170	5	1,915	5
Non-operating income and expenses	697	2	574	1	268	1
Net profit attributable to owners of the company	1,656		1,835		1,504	
Key Financial Ratios						
Net profit margin (%)	4		4		4	
EPS	1.41		1.56		1.28	
ROE (%)	6		7		6	

Financial Information-Cash Flow Statements

Unit：TWD Millions

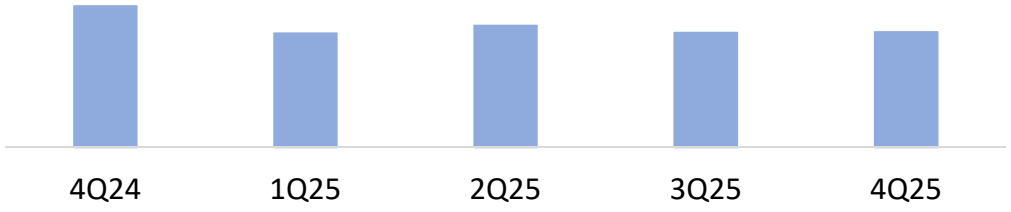
	2025	2024	2023
	Amount	Amount	Amount
Cash and cash equivalents at the beginning of the year	7,103	6,382	5,451
Cash flows from operating activities	4,265	4,612	6,514
Acquisition of property, plant and equipment	(3,110)	(3,587)	(3,149)
Increase (decrease) in borrowings	(381)	2,101	(1,107)
Dividends paid	(1,414)	(943)	(1,414)
Other items	(266)	(1,678)	250
Effects of exchange rate changes on cash and cash equivalents	(152)	214	(163)
Cash and cash equivalents at the end of the period	6,044	7,103	6,382
Free cash flow	1,155	1,025	3,365

Note: Free cash flow=
Cash flows from operating activities - Acquisition of property, plant and equipment

Sales Revenues & Gross Profits

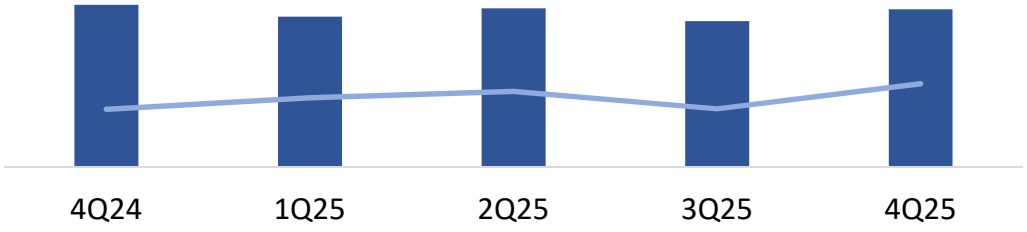
Unit：TWD Millions

Sales
營收



	4Q24	1Q25	2Q25	3Q25	4Q25
Sales	11,267	10,061	10,405	10,096	10,123

GP
毛利

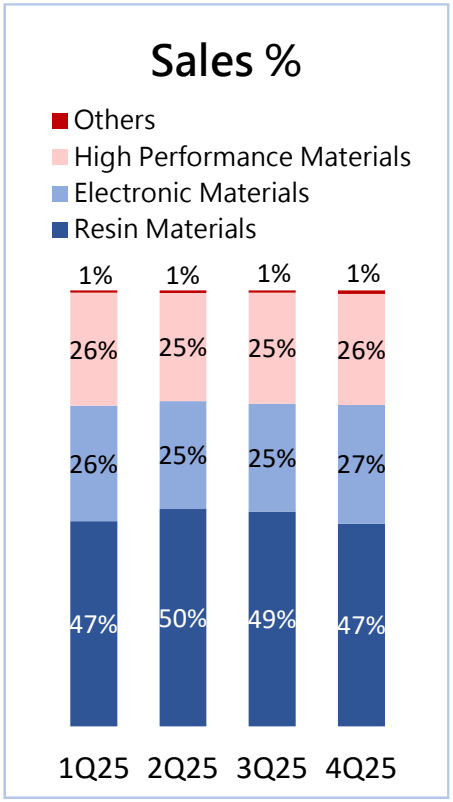


	4Q24	1Q25	2Q25	3Q25	4Q25
GP	2,216	2,054	2,168	1,991	2,155
GPM	19.7%	20.4%	20.80%	19.7%	21.3%

4Q25	y/y	q/q
Sales	-10.2%	+0.3%
Gross Profits	-2.8%	+8.2%

Performance by Segment

TWD Millions	4Q Sales			4Q Operating Profits		
		y/y	q/q		y/y	q/q
Resin Materials	4,709	-13%	-5%	143	+8%	-11%
Electronic Materials	2,754	-2%	+10%	283	+52%	+78%
High Performance Materials	2,582	-14%	+0.3%	198	-48%	-12%



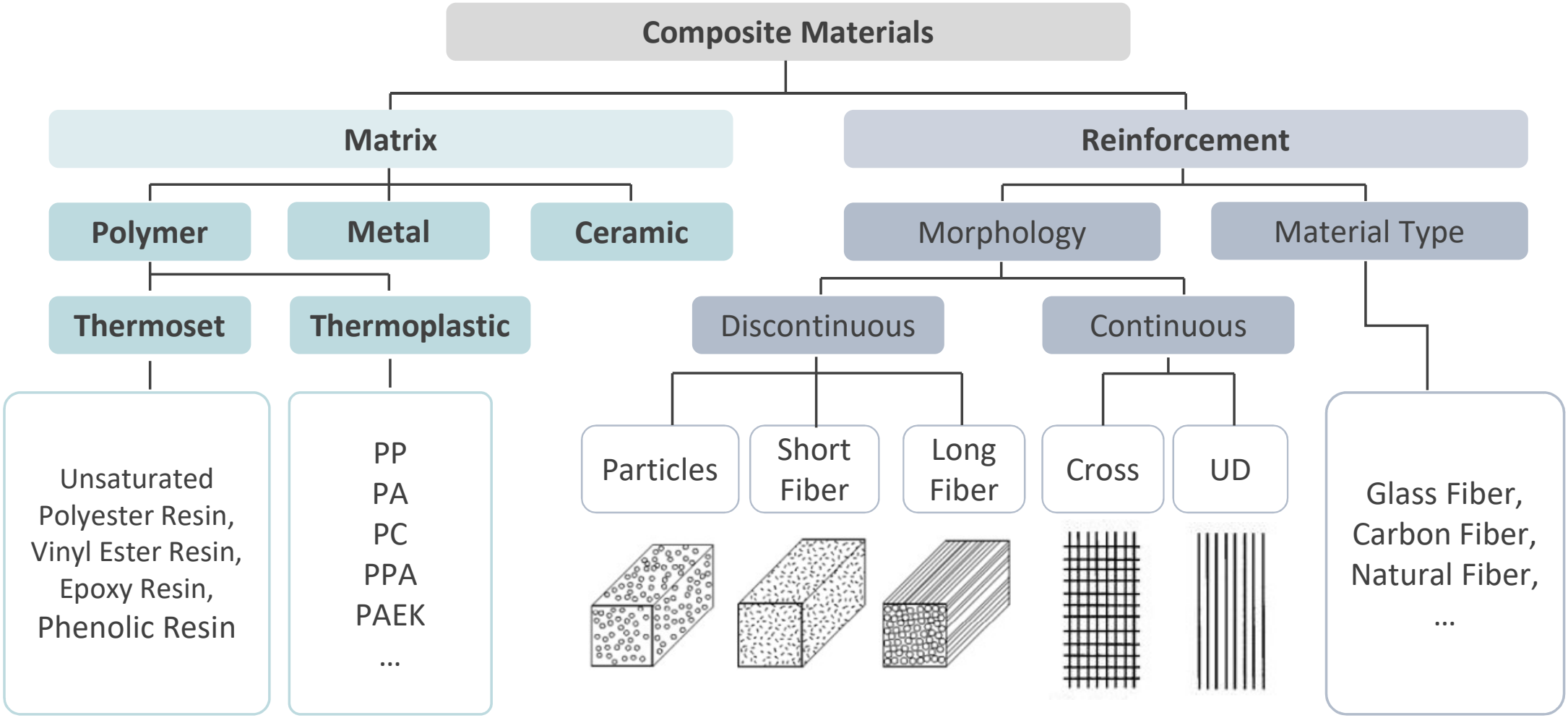
- Introduction to Composite Materials
- Advantages and Innovative Applications of High-Performance Materials
- Market Size and Trends
- Eternal High-Performance Thermoplastic Composites: Product Advantages, Track Record, and Solutions
- Future Outlook

Presenter : Director, Chuanneng Lee
(Unsaturated Polyester Resins Division)

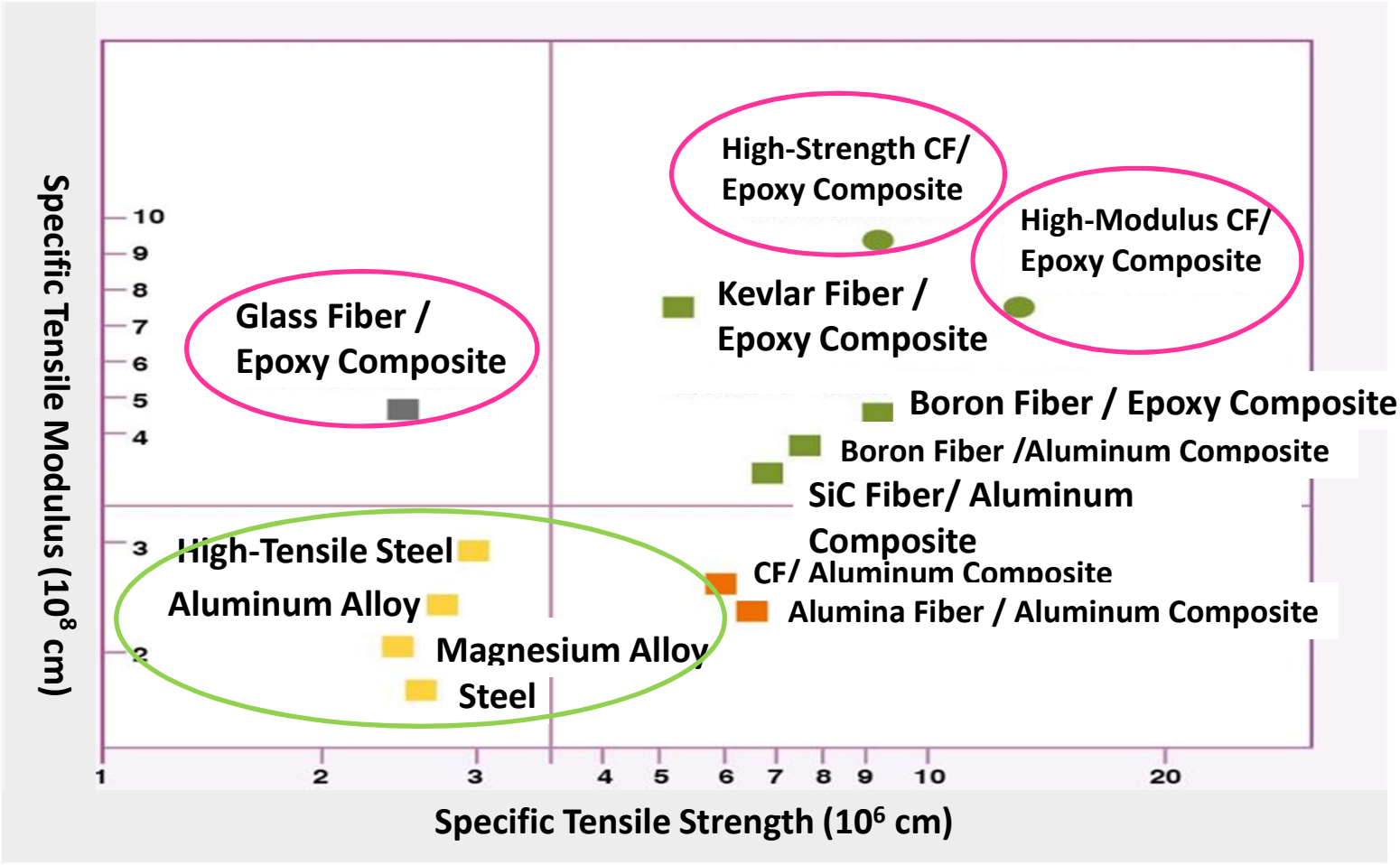
Date : 2026/03/19

Introduction to Composite Materials

Classification of Composite Materials



Comparison of Specific Tensile Strength and Modulus

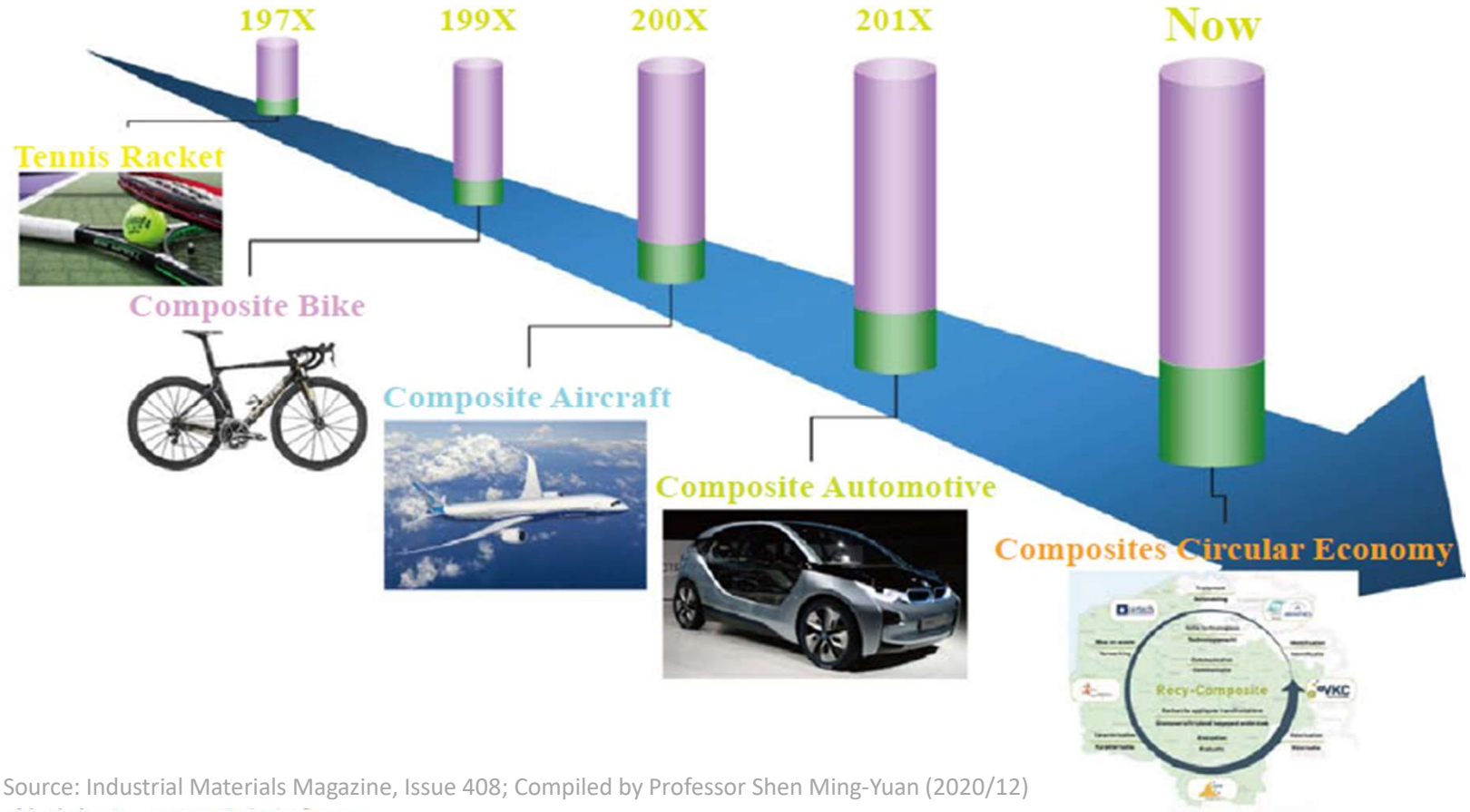


- Both thermoset and thermoplastic composites offer :
- ✓ High Strength
- ✓ High Modulus
- ✓ Metal Replacement by Plastics

Source: Shen Ming-Yuan, Development of Fiber Composite Materials, <Science Development> September 2019, Issue 561, pp. 56-61.

Development History of the Composite Materials Industry

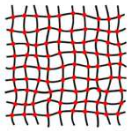
Thermoset Composites → High Strength → Lightweight → Ease of Processing → Rapid Molding → Recyclable & Reusable → **Thermoplastic Composites**



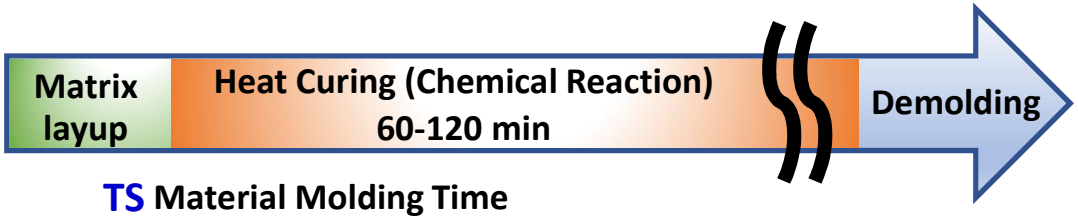
Source: Industrial Materials Magazine, Issue 408; Compiled by Professor Shen Ming-Yuan (2020/12)

Advantages and Innovative Applications of High-Performance Materials

Advantages and Characteristics of Composite Materials

TS  vs. TP 

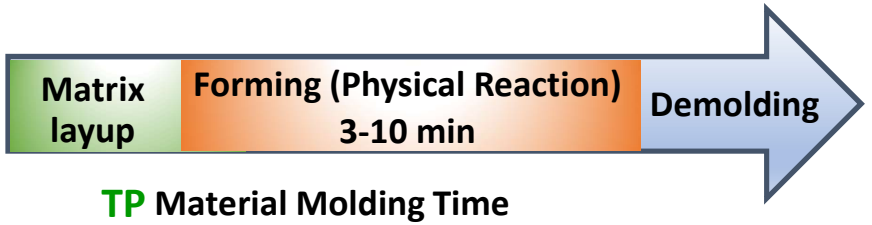
Properties	Thermosets	Thermoplastics
Viscosity	★★★	★
Chemical Resistance	★★★	★★
Toughness	★★	★★★
Age (Shelf life)	★★	★★★
Reusability	★	★★★
Material cost	★★★	★
Production Throughput	★	★★★
Low-volume customization	★★★	★
Overall Cost Savings	★★	★★★



TS Material Molding Time

Total Molding Time > 120 min (Prepreg)

Shelf Life : 3-6 months (Cold Storage)



TP Material Molding Time

Total Molding Time < 20 min (Prepreg)

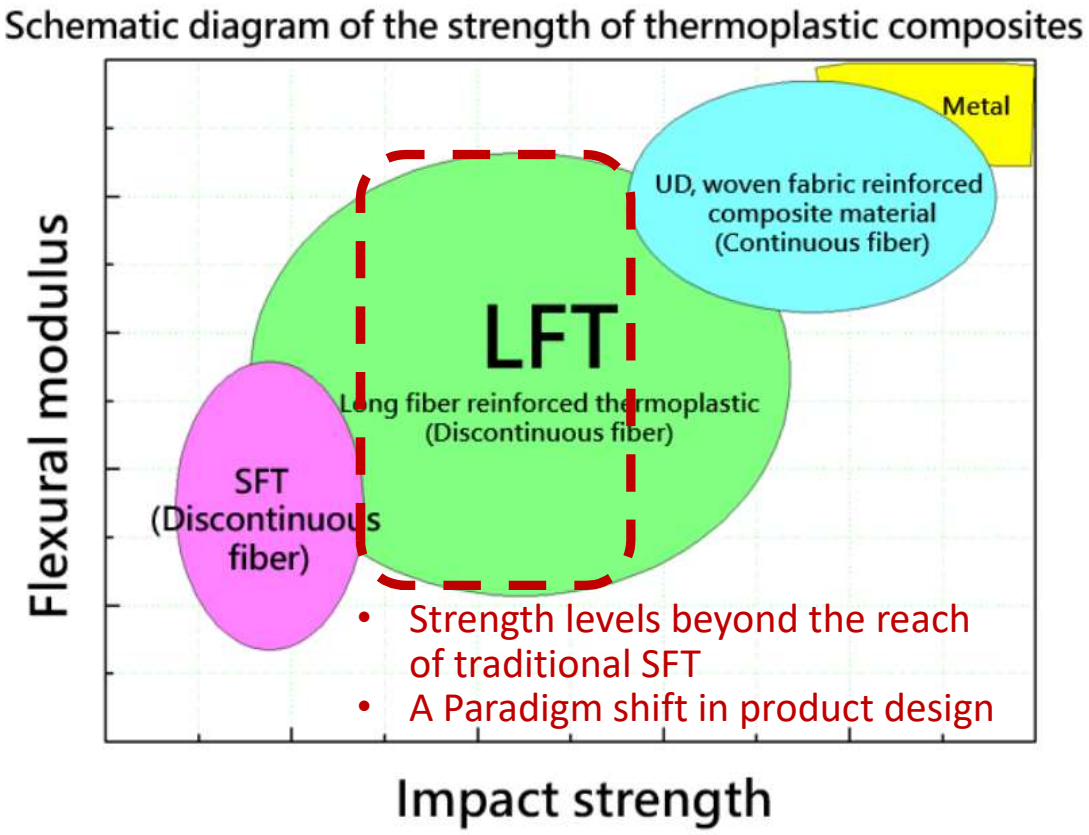
< 5 min (Injection Molding)

Shelf Life : Unlimited (Ambient Temperature/Humidity)

- **TS Molding** : One part > 120 min
- **TP LFT Injection** : One part < 2 min

Over 60x Increase in Production Efficiency

Advantages of TP Composites



- **Fiber Length Impact**
  - ✓ Length affects processability and performance
  - ✓ Optimizing performance by selecting specific composite products for varied structural and functional requirements
- **Applications by Dimension**
  - ✓ **SFT (Short Fiber)** Delicate/complex products ; functional formulations ; equipped with fundamental mechanical properties
  - ✓ **LFT (Long Fiber)** High-toughness, lightweight structures ; suitable for secondary structural components ; can replace certain metal applications
  - ✓ **UD (Continuous Fiber)** High specific strength primary structures ; best mechanical performance

Thermoplastic Composites – Industry Applications

- **Material Forms：S/LFT (Injection Pellets) | UD Tape | Reinforced Thermoplastic Laminates | 3D Printing Filaments**
- **Value Proposition：Fast (Shorter Cycles) | Light (Lower Weight) | Strong (Higher Performance) | Green (Recyclable)**

UAV **Drones / eVTOL**
- Airframe / Propellers / Landing Gear
- *Rapid thermoforming, weldable, repairable*

AIR **Aerospace Interiors**
- Seat Frames / Overhead Bins / Sidewall Panels
- *Flame-retardant, low smoke and toxicity, recyclable*

EV **Automotive / Electric Vehicles**
- Structural Parts / Underbody Shields / Battery Pack Top Covers
- *Lightweight, short cycle time, mass-production friendly*

H2 **Hydrogen Energy & Piping**
- Type IV Hydrogen Tank Shells / Pipe Fittings
- *Pressure-resistant, corrosion-resistant, integrated molding capability*

WT **Wind Power / Energy Equipment**
- Blade Reinforcements / Nacelle Covers / Brackets
- *Fatigue-resistant, weather-resistant, easy maintenance*

RB **Robotics / Automation**
- Arms / Fixtures / Lightweight Structures
- *High stiffness, reduced inertia, speed increase*

SEMI **Semiconductor Processing**
- Carriers / Fixtures / ESD Components
- *Heat-resistant, low moisture absorption, dimensional stability*

SP **Sports & Leisure**
- Bicycle Components / Rackets / Skis
- *High design freedom, recyclable*

AM **Large-Format Additive Manufacturing (LFAM)**
- Molds / Rapid Tooling / Fixtures
- *Shorter lead time, lower cost, repairable*

Innovative Applications of TP Composites in Drones

- **Market Drivers** : Scaled penetration in both defense and commercial sectors, expansion of application scenarios (aerial imaging, urban air mobility), technological advancement and cost reduction, and maturing policies and infrastructure encouraging corporate investment

Toughened Propellers /
Impact resistance, Vibration damping
CF/PPA SLFT

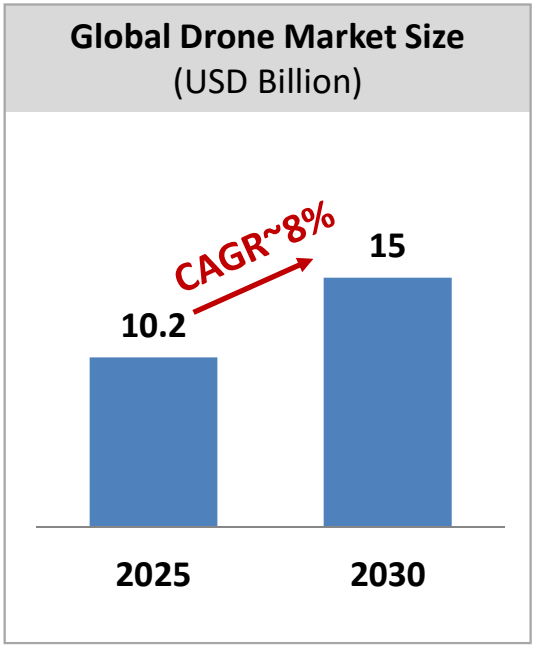
Thin-Wall Housings /
Thin-wall design,
Easy to coat
CF/PA12 SFT、TPUD

Gimbal , Camera Module /
Light weighting
CF/PPA、CF/PPS SLFT

Arms / High stiffness,
Low specific gravity
CF/PPA LFT、TPUD

Battery Housing / Flame-retardant, Light weighting
CF/PPS SFT、CF/PAEK SFT、CF/PPS TPUD

Integrated Landing Gear / Circuit modularization, Rapid production
CF/PPA、CF/PPS SLFT



Innovative Applications of Thermoplastic Composites in eVTOL

Market Drivers

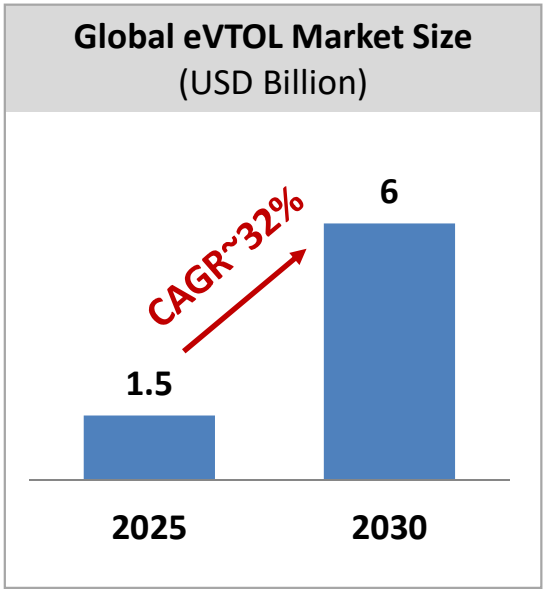
- Expanding application scenarios, including future urban air mobility, emergency medical services & transport, firefighting & rescue
- Technological advancements driving industry growth (battery and AI technologies, electric motor efficiency)
- Government policy support for the low-altitude economy

Wing / Rotor System
CF/PAEK、CF/PPS UD

Fuselage Structure
CF/PEEK、CF/PPS UD

Cabin Structural Components
CF/PEI、CF/PA SLFT

Battery / Power Compartment
CF/PP、CF/PEEK UD/SLFT



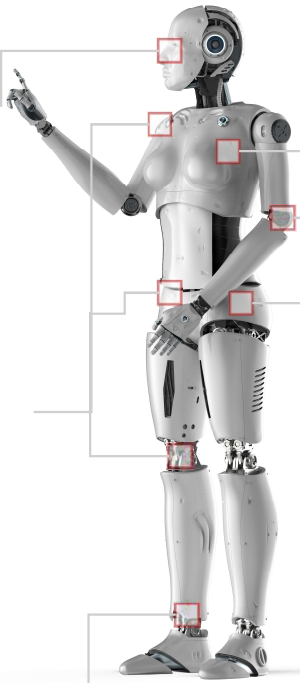
Innovative Applications of TP Composites in Humanoid Robots

- **Market Drivers** : Industrial and logistics applications to enhance workforce deployment ; Commercial service applications (human–robot interaction) ; Healthcare and nursing ; Policy support

Face Shield / Cover
CF/PA SLFT

Actuator Gears, Bearings / Lubricity, Light weighting, Wear resistant
PEEK ; GF ; CF/PA ; PPS ; MXD6 SLFT

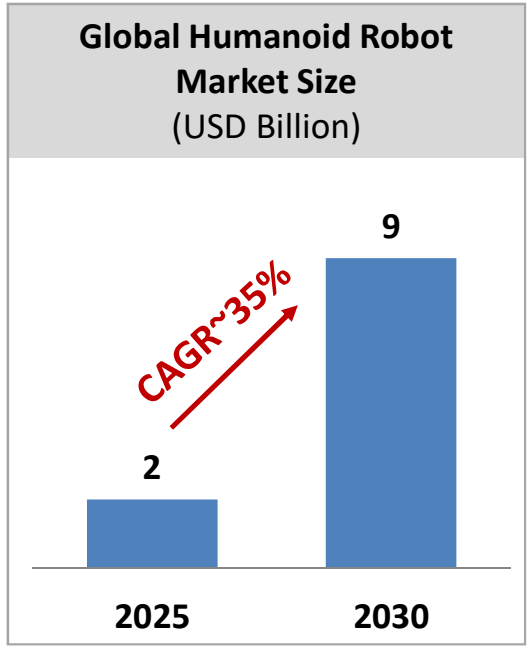
Linkages / Lightweight, High strength, Durability
CF/PPS ; PAEK LFT、UD



Chest Cavity, Internal Supports / High strength, High rigidity
CF/PA、PAEK LFT、UD

Battery Pack Housing / High toughness, Flame-retardant
CF/PPS SLFT

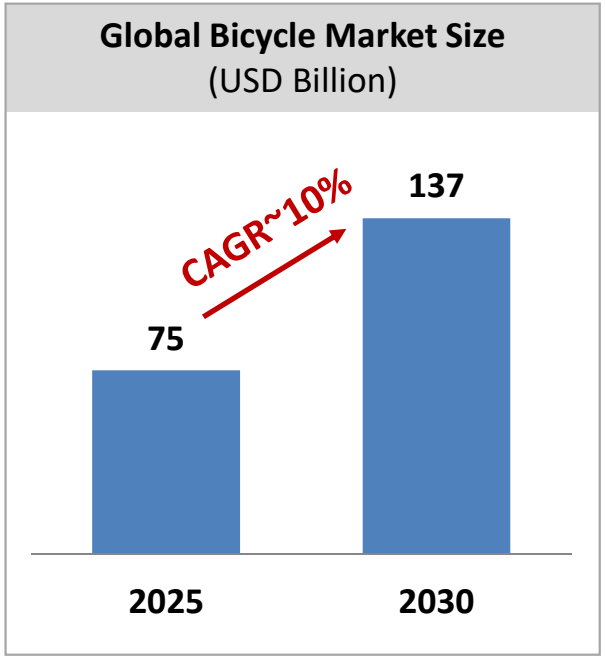
Joints , Skeletal Structural Parts / High strength, Design flexibility, High surface finish
GF ; CF/PA66 ; PPA ; PAEK LFT、UD



Innovative Applications of TP Composites in Bicycles

Market Drivers

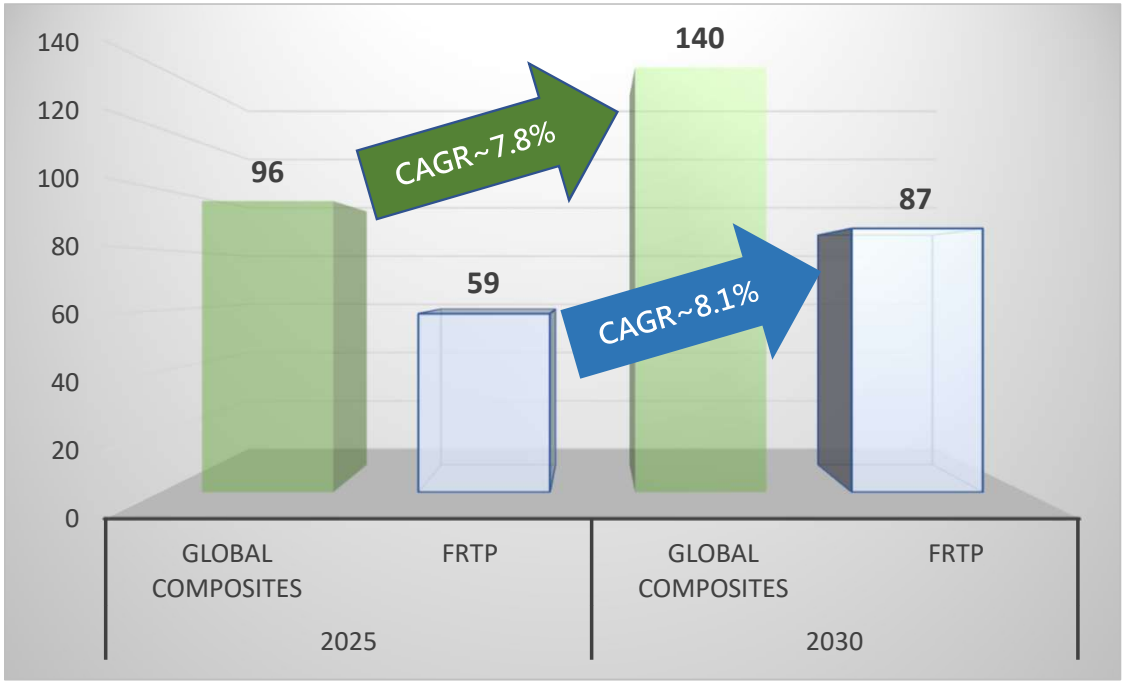
- Superior Material Physical Properties (Impact Resistance, Vibration Damping & Comfort, Lightweighting)
- Growing demand for sustainability and green recyclability
- Improved production efficiency



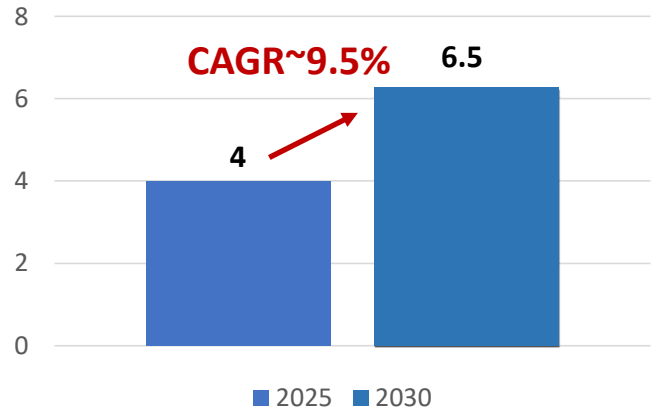
Market Size and Trends

Thermoplastic Composites Market Size & Trends (2025–2030)

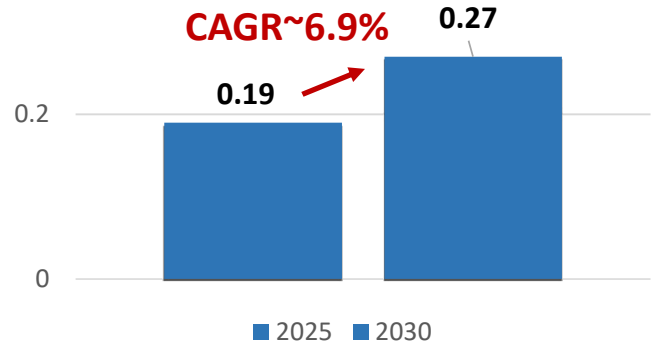
Global Composites / Thermoplastic Composites Market Size [2025-2030] (USD Billion)



Global LFT Market Share Estimates (USD Billion)



Global UD Market Share Estimates (USD Billion)



Eternal High-Performance Thermoplastic Composites : Product Advantages, Track Record, and Solutions

Thermoplastic Composites Value Chain – Eternal's Role

Eternal Materials

	Raw Material Manufacturing	Material Manufacturing	Product Manufacturing
Products	✓ Carbon Fiber / Glass Fiber ✓ Fiber Sizing / Surface Treatment Agents ✓ High-Performance Polymers	✓ Compounding / SLFT / TPUD ✓ Composite Interface Enhancement Additives	✓ Bicycle Components ✓ Aerospace Components ✓ Drone Propellers / Wings / Airframes
Technology	**Formulation / Interface / Production Efficiency** ✓ Surface Modification ✓ Thermal Stability ✓ Crystallization Control	**Functional Thermoplastic Composites** ✓ Fiber Impregnation ✓ Compound Design ✓ Interface Control	**Product Processing Technologies** ✓ 3D Printing ✓ Hybrid Injection Molding ✓ Welding & Forming

Eternal Thermoplastic Composites – ETERPLAST® Products

- ETERPLAST® thermoplastic composites are engineered materials based on TP resins reinforced with short fibers, long fibers, or continuous fibers, designed to meet diverse performance and application requirements.

- **Easy to process**
- **Recyclable**
- **Functional**

SFT

+

- **High Stiffness**
- **Complex Structures**
- **Metal Replacement**

LFT → CFRTP

+

- **High Strength**
- **Weight Reduction**

UD

- **Fast Production**
- **Scalable Mass Production**
- **Lower Total Cost**

ETERPLAST® Series Products

	90 °C	180 °C	270 °C
HDT	✓ TP epoxy ✓ Dissimilar Material Compatibility ✓ Reprocessable	✓ Low Density PA12 ✓ Low Moisture Absorption PA66 ✓ Toughened & Flame Retardant PPS	✓ High-Temperature Resistant PAEK (SFT/LFT/UD) ✓ Aromatic PA

SFT (GF/CF)	LFT (CF/CGF)	CF TPUD
		
Fiber length = 0.2 mm Particle diameter = 2-3 mm	Fiber length = 6-25 mm Particle diameter = 2-4 mm	Width = 150-300 mm Thickness = 0.12-0.14 mm

Eternal TP Composites：ETERPLAST® Product Portfolio, Product Reference and Industry-Academia Collaborative Cases

Application	Industry Status	ETERPLAST®	
Drone Propellers	• Long production lead times for TS materials • TP materials lack the strength and weight of thermosets	• PA66/PPA SLFT	• High-rigidity SLFT • Rapid production • Customizable properties (strength, rigidity, toughness) by adjusting fibers blend ratio
Bicycle Components	• Aluminum alloys and metal CNC are time-consuming and labor-intensive (under high-precision requirements) • Thermoset carbon fiber composites	• Thermoplastic Epoxy LFT • PA6 LFT • PA12 UD • PA66 SLFT • PAEK SFT	• Low-shrinkage materials with high product precision and high strength • Rapid production
Aerospace Components	• Continuous fiber thermoset composites involve costly and slow manufacturing processes	• PPA LFT/UD • PPS SLFT • PAEK SLFT/UD	• Multi-material hybrid molding • Applied in thermoplastic honeycomb panel components for Low Earth Orbit (LEO) satellites

Product Advantages of ETERPLAST®

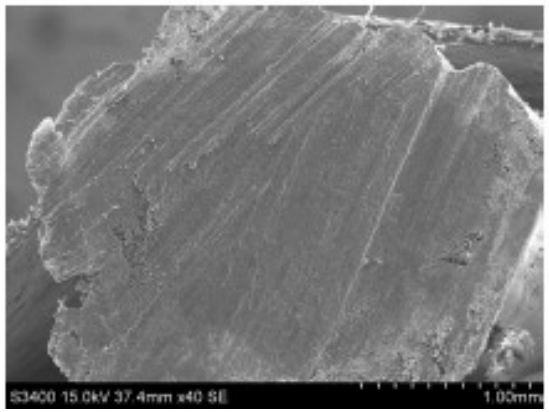
High-Impregnation Carbon Fiber LFT

- Powder Impregnation Process
- Resin Content (RC) can reach ≤ 50%, while maintaining high impregnation between resin and fibers
- LFT Length : 6~25 mm
- Capable of producing continuous rod materials

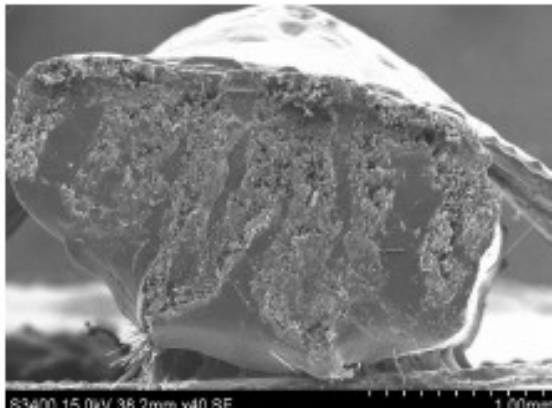
Ultra-Thin High-Impregnation UD

- Tension-assisted air spreading + powder impregnation process
- Resin Content (RC) can reach ≤ 35%
- UD Single-Layer Thickness : 0.12–0.13 mm
- FAW=100~150 g/m^2

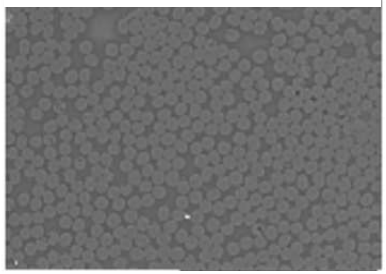
LFT Cross-section (Eternal)



LFT Cross-section (Competitor)

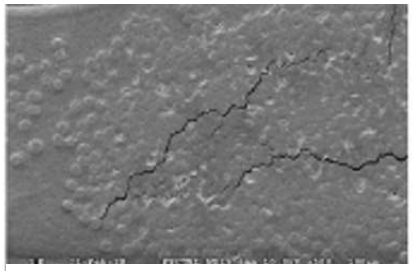


UD Cross-section (Eternal)



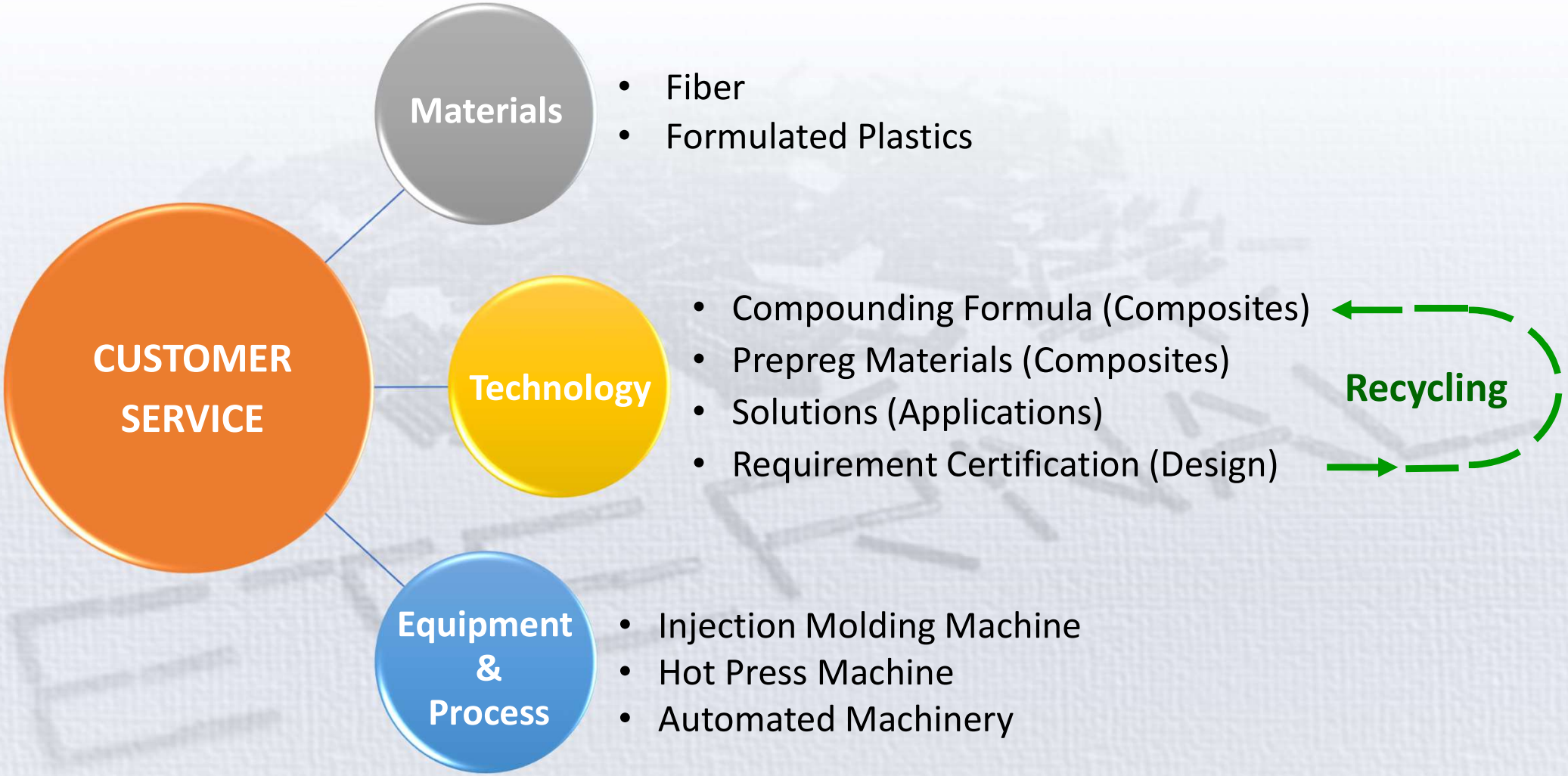
Single-layer thickness ~ 0.12 mm

UD Cross-section (Competitor)



Single-layer thickness ~ 0.2 mm

Eternal Thermoplastic Composites _ ETERPLAST® Solutions



Future Outlook

Future Outlook

Key Growth Drivers

Capacity Expansion

New R&D Units

Continuous Product Qualification

長興材料

ETERNAL MATERIALS

Elements of Infinite Possibilities