December 19, 2025

Kuraray Management Briefing

Growth Opportunities of SentryGlas®

KURARAY CO., LTD.

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Today's Theme

Growth Opportunities of SentryGlas®

Hitoshi Kawahara
President and Representative Director

Tomoyuki Watanabe
Director and Managing Executive Officer
President of Vinyl Acetate Resin Company
President of Vinyl Acetate Film Company
Officer Responsible for Electronics Materials Promotion Division

Stephen Cox
Executive Officer
General Manager, Advanced Interlayer Solutions Division

Jennifer Schneider
Global Product Manager, Advanced Interlayer Solutions Division

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Introduction: Vinyl Acetate Chain

We manufacture and sell resins, films and fibers with the foundation of Vinyl Acetate Monomer (VAM)

Vinyl Acetate Chain

Vinyl Acetate Segment

Poval Resin Division

PVOH resin
KURARAY POVAL™
EXCEVAL™
ELVANOL™



Eval Division

EVOH resin and film
EVAL™

Biomass-derived gas barrier material
PLANTIC™



Poval Film Division

PVOH film
Optical-use poval film



MonoSol Division

PVOH film
Water-soluble PVOH film



Advance Interlayer Solutions Division

PVB resin
Mowital®

PVB film
Trosifol®

Ionoplast film
SentryGlas®



Fibers and Textiles Segment

Fibers and Industrial Materials Division

PVOH fiber
KURALON™
KURALON K-II™

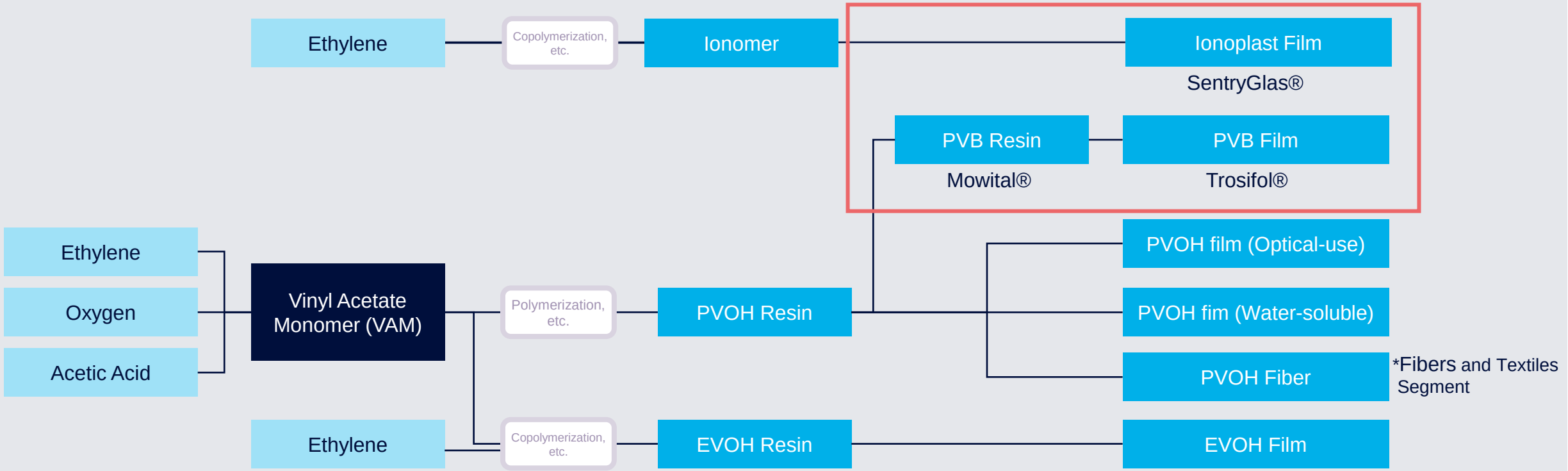


Trosifol® SentryGlas® Mowital®

Vinyl Acetate Chain and History of PVB and SentryGlas®

1998 DuPont developed SentryGlas® to meet the requirements of hurricane glazing after Hurricane Andrew*.
2001 Kuraray acquired PVOH and PVB resin business from Clariant (former Hoechst) in Germany.
2004 Kuraray acquired PVB film business from HT Troplast.
2005 SentryGlas® First Apple store application.
2014 Kuraray acquired PVB and Vinyls business, including SentryGlas® from DuPont

* A huge hurricane that hit the U.S. in 1992.



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Ginza, Tokyo

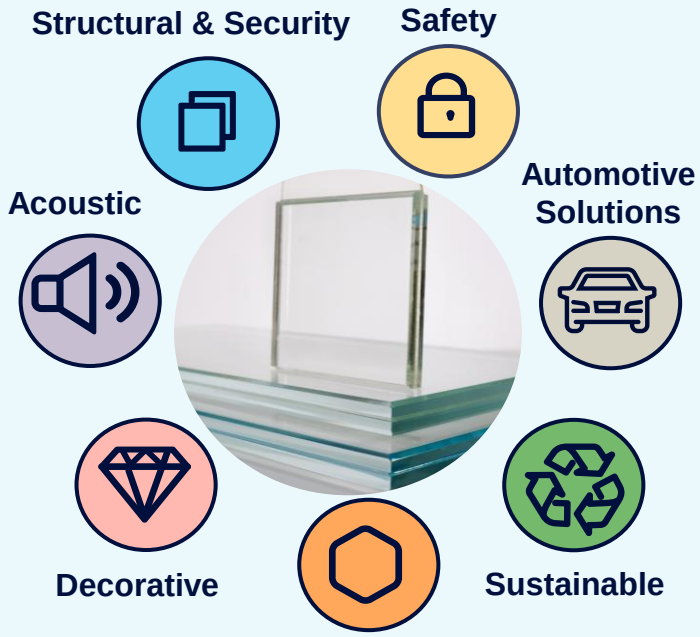
Overview of Kuraray's Advanced Interlayers Solutions Division

Growth Opportunities of SentryGlas®

Architecture, enables safer, clearer, and more resilient laminated safety glass

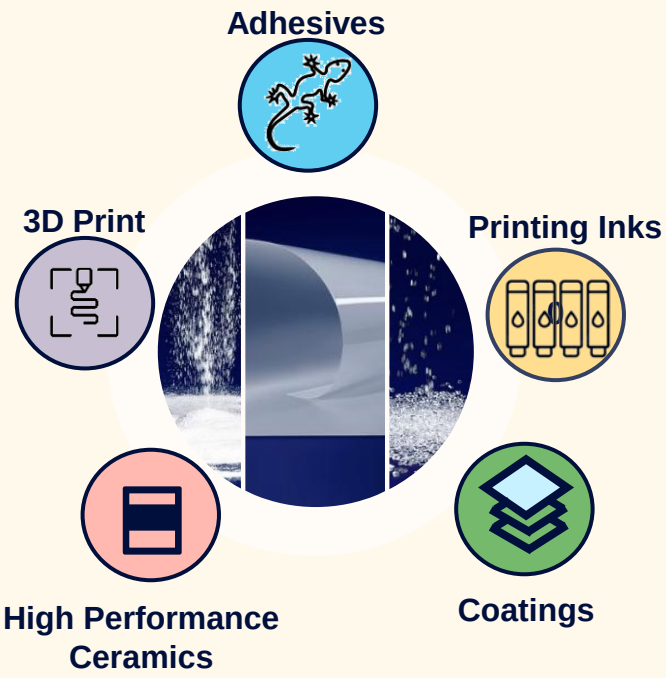
Automotive, enables laminated safety glass windshields, lightweight, panoramic, and acoustic.

Trosifol® SentryGlas® Interlayer Applications



Resins that offer adhesion and film-forming properties for coatings, printing inks, adhesives, ceramic chips, and 3D-printing.

Mowital® Resin Applications



Advanced Interlayer Solutions - Global Presence



2021 Invested in New SentryGlas® line, Strengthening our Global Supply Chain

6 Production Facilities

Sales office

2 R&D labs

Troisdorf, Germany

Holesov, Czech Republic

Frankfurt, Germany

Malaga, Spain

Seoul, Korea

Ulsan, Korea

Tokyo, Japan

Guangzhou, China

Shanghai, China

Shenzhen, China

New Delhi, India

Dubai, UAE

Mumbai, India

Bangkok,Thailand

Kuala Lumpur, Malaysia

Singapore

Parkersburg, WV

Fayetteville, NC

Houston, TX

Mexico City, Mexico

Barranquilla, Colombia

Sao Paulo, Brazil

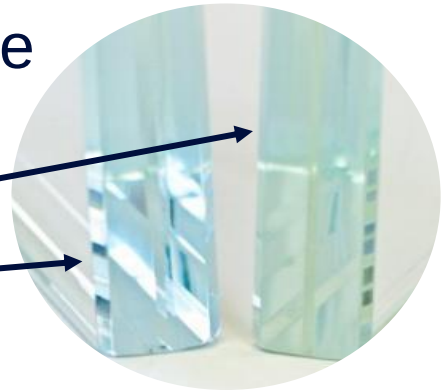
Trosifol® SentryGlas® Mowital®

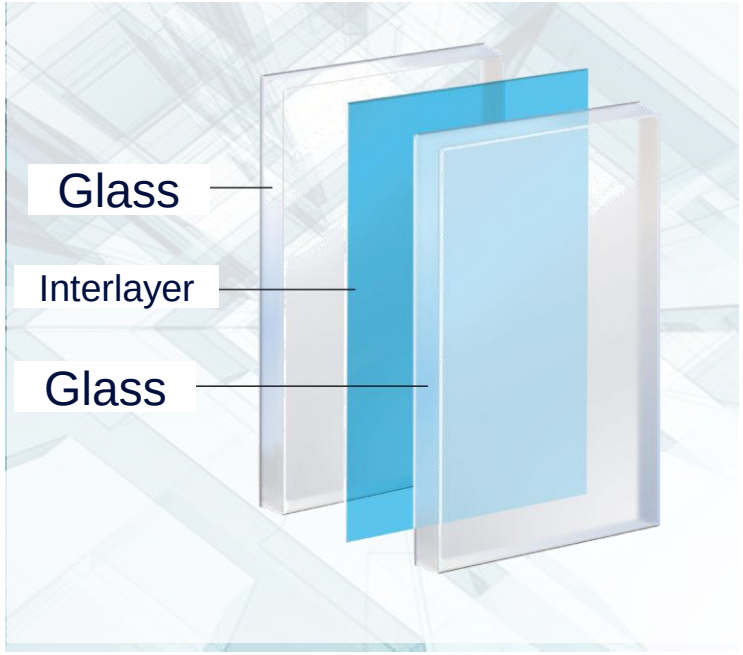
SentryGlas® Demonstration Video



Laminated Glass

- Safety glass is a “glass - interlayer – glass” sandwich
- Interlayer holds the glass after breakage
- Types of Interlayer Films:
  - Polyvinyl Butyral (Trosifol® PVB)
  - Ionomer (SentryGlas®)





Structural Glass

- An assembly where the glass is taking an element of the structural load.
- SentryGlas® is a structural interlayer.



SentryGlas® Properties

Stiffness

100x stiffer than PVB

Strength

5x more tear resistant than PVB

Design optimization

Thinner, lighter laminated glass constructions

Reduced carbon footprint

Durability

Not as moisture sensitive as other interlayers

Impact resistance

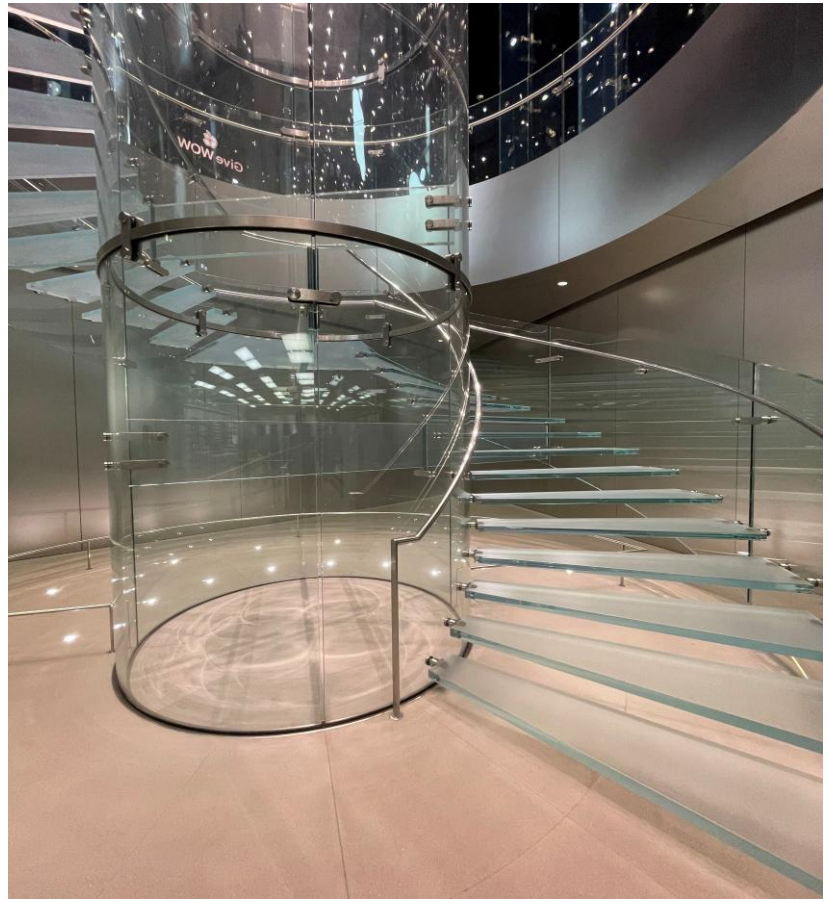
Proven in hurricane and tornado areas, as well as other types of attacks

Excellent optics

Clearest interlayer of all interlayers

Post-Glass breakage performance

More likely to remain in place after breakage than more flexible interlayers



Trosifol® SentryGlas® Mowital®

SentryGlas® Market Segments and Value in Use Proposition



Hurricane* Glazing
- Impact Strength
- Meets Large Missile Impact Requirements



Facades
- Increase Glass Stiffness up to 50 °C
- Less Deflection Under Load
- Thinner Glass, Less Metal Support, Lower Carbon Footprint



Railings and Balustrades
- Edge Clarity
- Post Breakage Strength



Overhead Glazing
- Post Breakage Strength
- Increase Glass Stiffness up to 50°C



High Security Buildings
- Improve Durability vs Polycarbonate
- Impact Performance & Toughness
- Meets Bomb Blast and Bullet Resistant Requirements



Walkways, Floors, Stairs and Observatories
- Post Breakage Strength

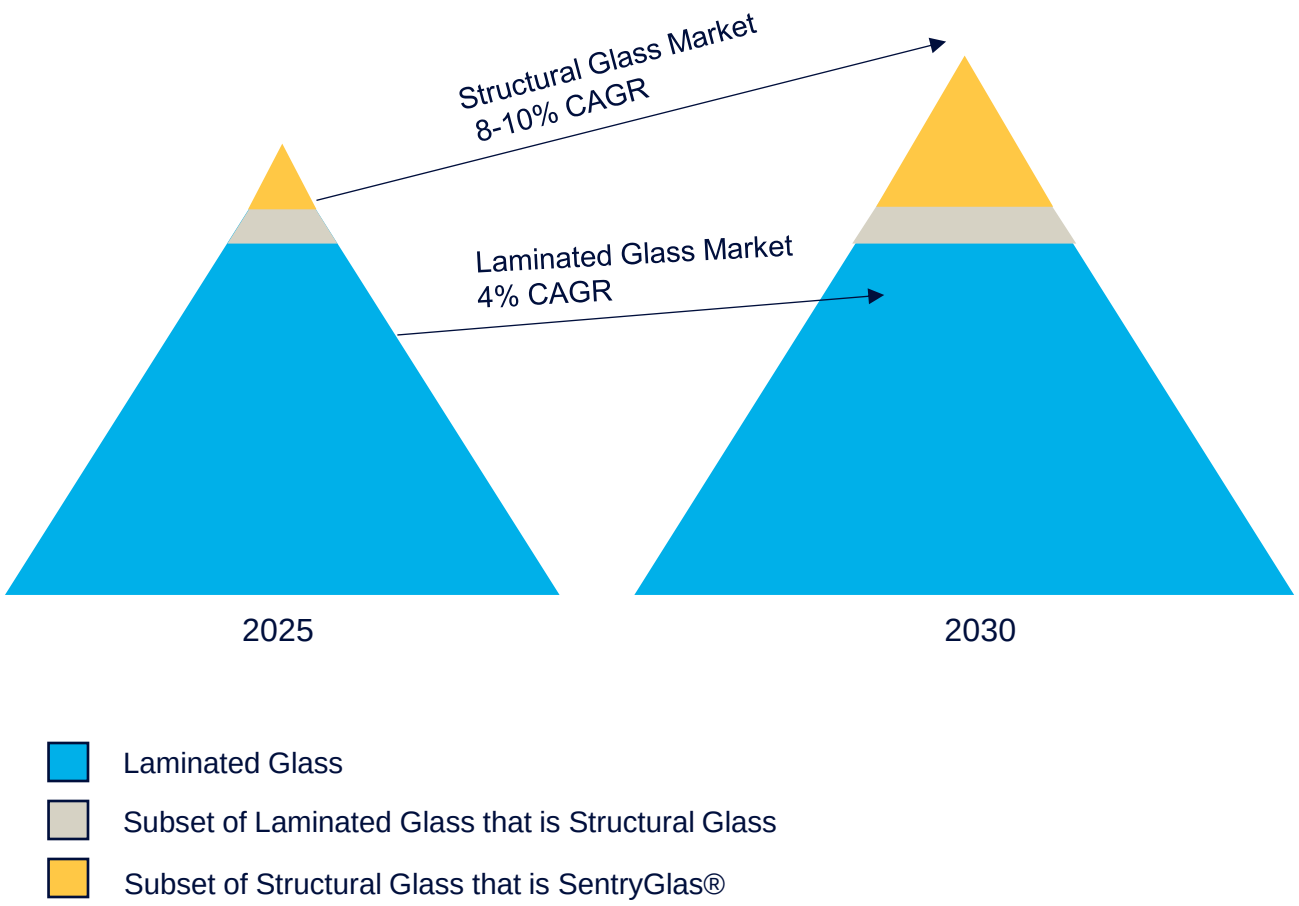


Marine Glazing
- Lightweighting
- Open Edge Durability

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*Hurricane glazing is the same as Typhoon glazing

Marketing Strategy-SentryGlas® has 70-80% of Structural Glass Market



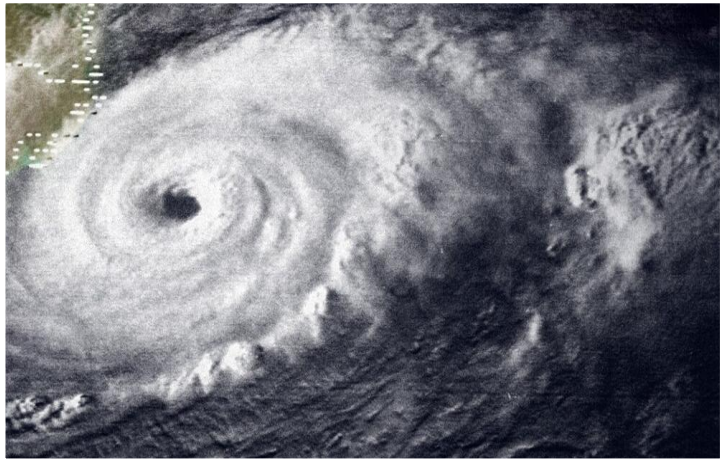
Key Strategies

- **Influence building codes and standards**
- **Downstream marketing-Specify SentryGlas®**
  - **Global team works with Architects, Engineers and System Manufacturers to get SentryGlas®**
- **Project tracking- Actively manage projects from concept to completion**
- **Direct sales to laminators**
  - **Global Technical Representatives to support laminators processing of SentryGlas®**

Global Trends

Market Trends	Opportunity for SentryGlas®	Advantage of SentryGlas®
Resiliency- Climate Change • Rising Sea Levels • More intense storms • Increase global temperatures	• Glass Flood barriers • Typhoon/Cyclone, Tornado glazing • Structural properties at higher temperatures	• Toughness and Impact Strength • Structural properties at higher temps than PVB
Safety and Security • Workplace & School safety • Urbanization • Geopolitical instability	• Building Security • Forced Entry Bullet Resistance (FEBR) • Bullet Resistant Glazing • Bomb Blast	• Superior stiffness and tear resistance
Sustainability-net zero buildings	• Coupling effect allows for thinner glass and less metal in the building = Lower carbon footprint.	• Stiffness allows thinner glass and less metal • SentryGlas® - lower CO2/KG than PVB
Daylighting and Transparency- Wellness and Wellbeing	• Large minimally supported façades and overhead glazing	• High stiffness and less deflection

SentryGlas® New Application Opportunities



Typhoon Glazing



School Security



Flood Defense



High Security Building



Behavioral Health



Electric Vehicle/Automotive


kuraray
SentryGlas®
25 years



- The performance forecasts, outlooks, and business plans described in this document are based on current assumptions and estimates regarding future business environments and economic conditions. Please be aware that actual performance may differ from these projections.