



Mid-Term Plan MG20R

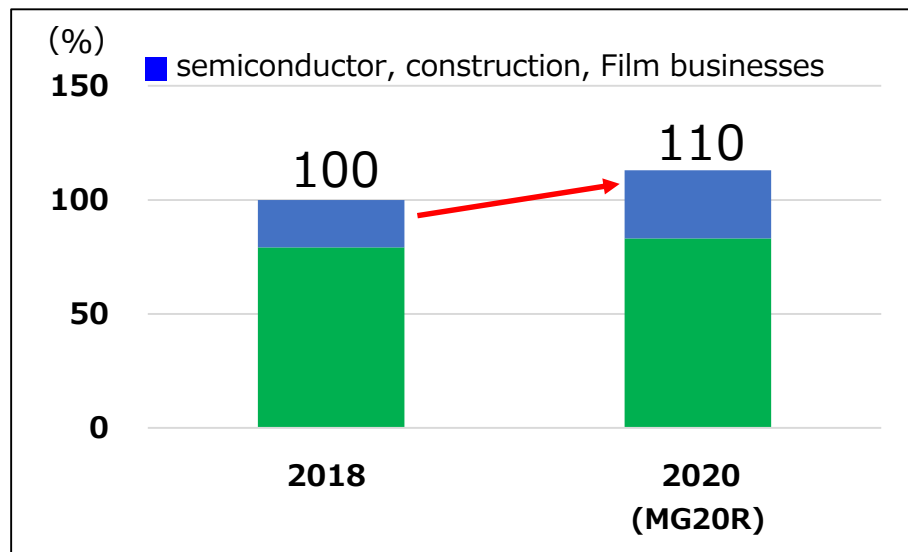
Sliontec Division

1. MG20R Mid-term Management Plan

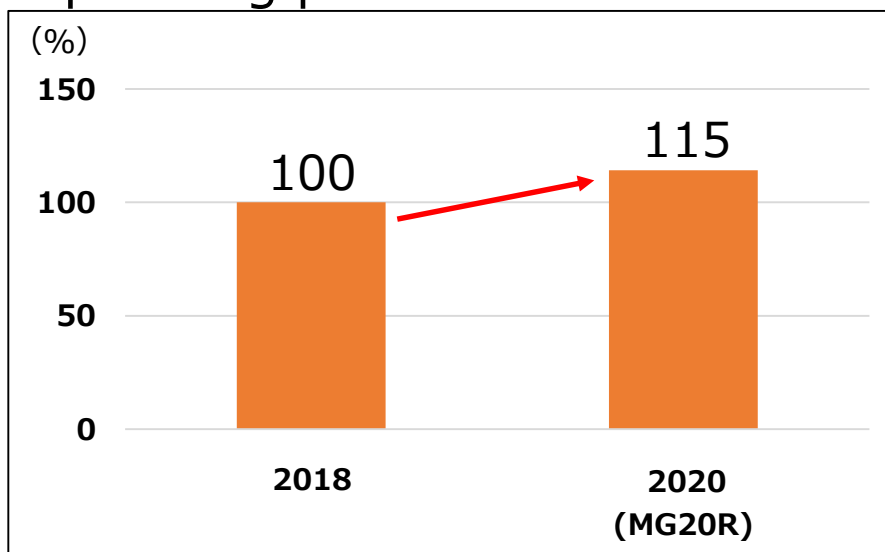
MG20R Plan

- Sales amount 110%(over 2018)
- Operating profit 115%(over 2018)

Sales amount



Operating profit



Annotation: Kureha Elastomer has been consolidated since Jan. 2019; however, sales figure as shown in 2018 graph is converted to annual basis.

■ Basic policy

1. Focusing on overseas market of semiconductor and construction. Overseas sales ratio to be from 25%(2017) to over 35%(2020)
2. Expansion to new market by ink and film businesses
3. Creation of synergy effect with Kureha Elastomer (Business scale to be described on next mid-term plan)

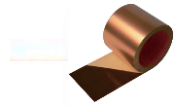
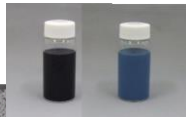
The figures on the above are target of the division, and do not match the data released by Maxell Holdings, Ltd.

2. Business Summary

Maxell's adhesive tape, functional ink and film play an active part in various scenes in everyday life.

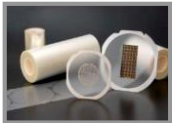
Electronics • Industrials

- Film tape
- D/C tape
- Shielding tape
- Transparent conductive ink & film



Semiconductor

- Dicing tape
- BG tape



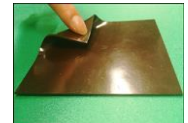
Construction • Civil engineering, etc.

- Butyl tape
- Aluminum tape
- Butyl tape for construction
- Thermal barrier heat insulation film



Industrial

- Harnessing tape for automotive
- Electromagnetic wave absorption sheet
- D/C tapes for processing



- Ecosol ink
- UV ink (including 3D)



Supporting various fields by utilizing Maxell's core (mixing and dispersing) technologies

Packaging • Fixing

- Cloth tape
- Film tape
- Filament tape



3. Strength of our businesses

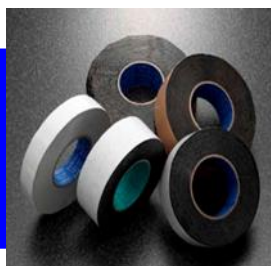
Distinguishing features:

Solid business bearing closely on livelihood
+ have highly technological demand in megatrends.

○Categories bearing closely on livelihood...Stable demands



Cloth tape
Packaging, masking



Butyl tape
Waterproofing,
vibration absorption



Aluminum tape
Refrigerator, duct fixing



Filament/film tape
Temporary fixing of
home appliances

•Maintaining firm business through rationalization investment and PIPJ

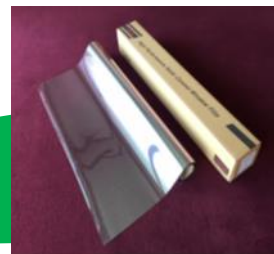
○Categories having highly technological demand...Demand-growing product in overseas market



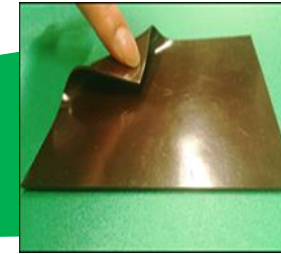
Dicing tape
Manufacturing
semiconductor



Back-grinding tape
Wafer grinding



**Thermal barrier
heat insulation film**
Heat shielding, thermal
insulation for window



**Electromagnetic wave
absorption sheet**
Automatic driving,
For 5G market

•Adopting new materials/technologies proactively to enter the growing market

4. Growth strategy to achieve MG20R

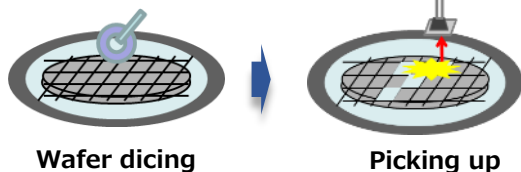
Overseas expansion in semiconductor and construction businesses

1.Semiconductor

- Development and expansion of wafer DC tape for NAND flash memory market



**Focusing on
China and Taiwan**

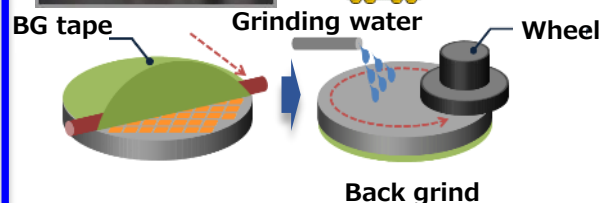


Wafer dicing

Picking up



- Bringing DC and BG tapes to Chinese and Taiwanese markets

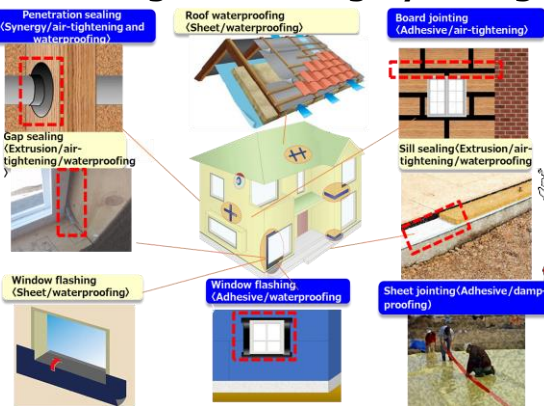


**Focusing on
China and Taiwan**



2.Construction

- Entering into NA highly air-tight housing market



**Focusing on
Northeast and
Western USA**

Materials for highly air-tight houses

- Proposal of new waterproofing method to Southeast Asia



Butyl tape



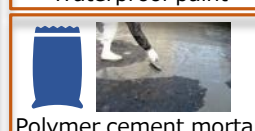
Rubber sheet

※Patent pending

[Conventional material]



Waterproof paint



Polymer cement mortar

[Sheeting method]



**Focusing on
Indonesia, Vietnam,
Thailand, Malaysia,
Philippines**



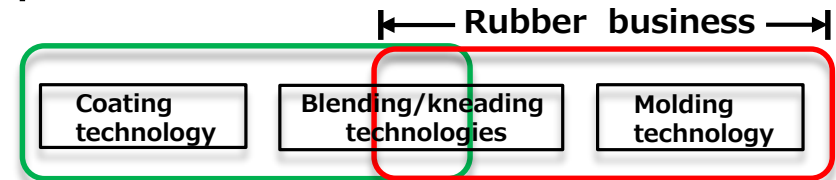
4. Growth strategy to achieve MG20R

Creating synergy with Kureha Elastomer

Effect from MBP

- Growing out of adhesive tape reliance
- Strengthening technologies of blending and kneading rubber material
- Fusion of adhesion processing technology and extrusion processing technology
- Expanding market object for functional materials

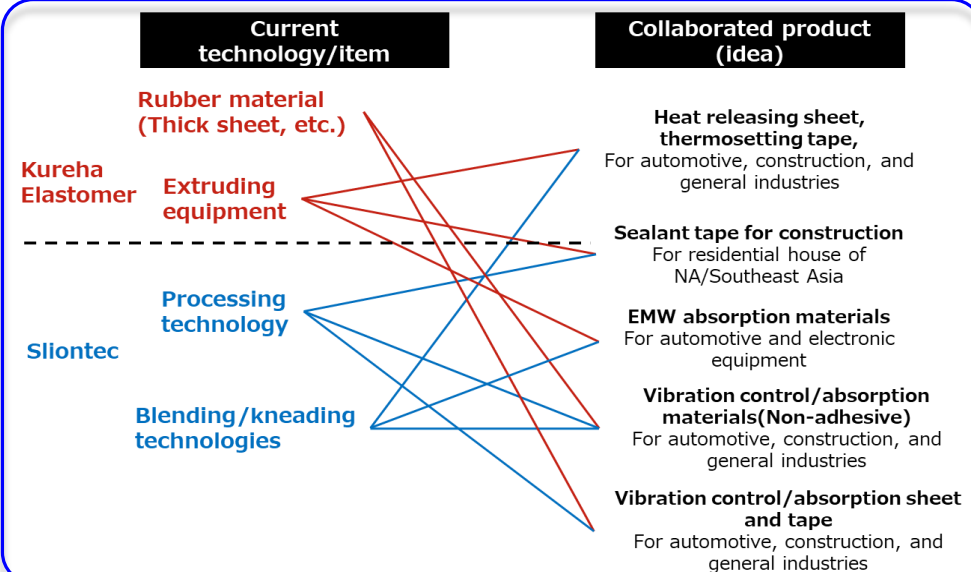
← Adhesive tape business →



← Adhesive products business →



Business expansion



Product categories of Maxell(Adhesive tapes)



Product categories of Kureha Elastomer(Rubber sheets)



5. Growing products

Core products

Market situation and key strategies

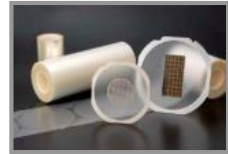
Sales

Profit
rate

Adhesive products



Dicing tapes



- ❑ Strengthening development of wafer DC tape for NAND flash memory market.
- ❑ Strengthening expansion of general DC tapes for Chinese/Taiwanese market.



Air-tightening/
waterproofing tapes



- ❑ Specializes in the area where population increase and economic growth are expected.
- ❑ Breaking into NA market with highly air-tightening materials.
- ❑ Introducing sheet-waterproofing method as a new construction method to SE Asia.



Film products



Thermal barrier/
insulation film



- ❑ Window film contributing to conserve energy
- ❑ Expanding sales at home and abroad



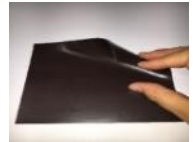
From 2021
onward



From 2021
onward



EMW absorption
materials



- ❑ Materials contributing to 5G market/automatic driving(millimeter wave radar)
- ❑ Business expansion (Collaborating with Kureha Elastomer)



From 2021
onward



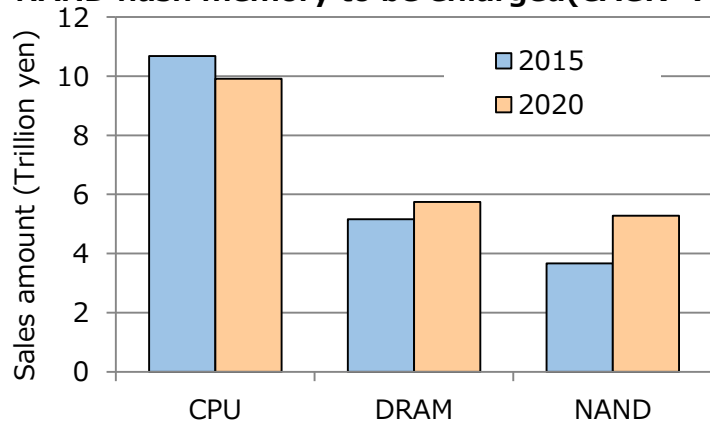
From 2021
onward



6-1. Major products : Tape for manufacturing semiconductor

Market size and growth rate

- Estimated growth of sales volume by product category in 2020 is 7% in total.
NAND flash memory to be enlarged(CAGR=7.5%)



Sales estimate by semiconductor major product

Quote) 2017 Present situation and future prospects of front edge/notable semiconductor related market
Fuji Chimera Research Institute

Major market share / Positioning

- Approx. 7% share in worldwide market of dicing tape
- More than 25% share in Chinese market (Tape for package dicing)

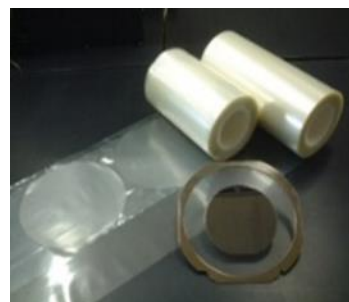
Medium-term Management Plan (MG20R) Target

- Operating profit ratio 10% or more

Product features (Strength)

■ Features

- Product line-up suiting various processes
- Customer reliability in Chinese market
- Product design suiting users' customized production equipment



Dicing tape



Back grinding tape

Focusing point in future

■ Strategies of NAND flash memory market and general DCT market

- Continue development of DCT for NAND.
- Accelerate development of DCT for new process.
- Responds to transfer of wafer process to Chinese market.

6-2. Major products : Air-tightening tape for residential house

Market size, Growth rate

■ **Maintains more than 1M new housing units started per year. Highly air-tight houses will continue to grow (CAGR=32%)**

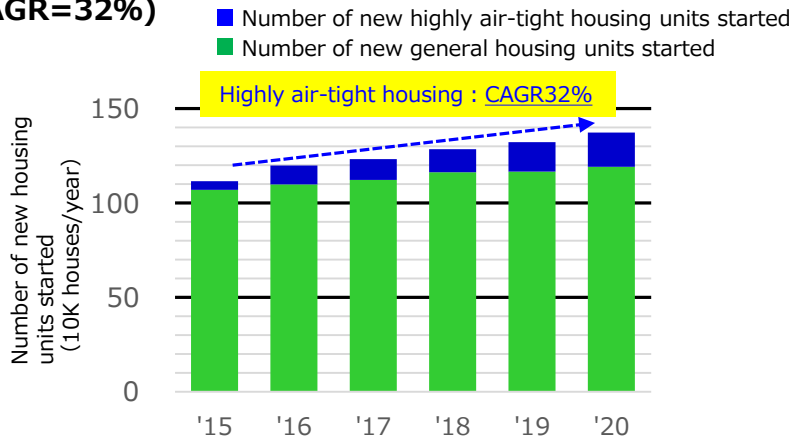


Figure Number of new housing units started in the US

Quote) Result : US Census Bureau(2018) Estimate : Calculated by Maxell based on building standards of each state

Product features (Strength)

■ Features

- Easy operation and good air-tightening performance (Preventing variation of application result by skill level of installers)
- Time-proven butyl rubber adhesive is used.



Conventional technology



Wrinkles on tape at application

Our technology



No wrinkles on tape at application

Major market share / Positioning

- Domestic market share : 35% (2nd largest)
- Aiming 7% in NA market share in 2020

Focusing point in future

■ Selection of local partner and enhancement of recognition

- Proposing market entry of air-tightening tape to our existing customers
- Collaborating with Japanese companies operating in the US
- Expanding air-tightening product line-up (Collaborate with Kreha Elastomer)

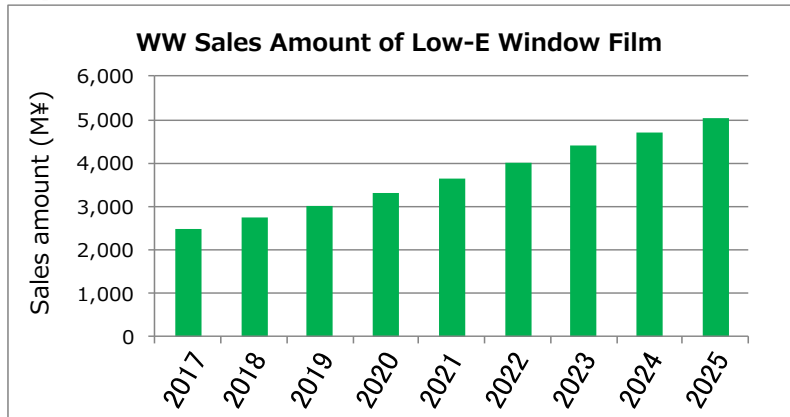
Medium-term Management Plan (MG20R) Target

• Operating profit ratio 20% or more

6-3. Major Products : Heat Shield & Insulation Window Film

Market Size, Growth Ratio

- Heat shield & insulation film (CAGR=9%)
Watching for tendency of energy saving
(Law, legislation)



Resource referred: "Survey on environment and energy saving related window materials market 2015" by Yano Economic Research Institute

Product Feature (Strong Points)

- Feature
 - Industry-leading performance of heat shield and insulation (**Cho-Monodukuri Buhin Award 2018**)
 - New lineup as value-added screen function (Launch in 2019)
- Patent
 - Basic patents applied in global



Film product (Roll)



Screen projected by Maxell Projector

Market Share, Positioning

- Less product to have such high performance of transparency, heat shielding and insulation
(**No competitor to the performance at present**)
- 1% share at present
- Targeting to 10% share in 2021

Next Focus

- Sales Expansion to Global Market
 - Conservative to volume expansion in domestic market
 - Many inquiries from overseas customers
 - Product efficiency (Film width line-up)

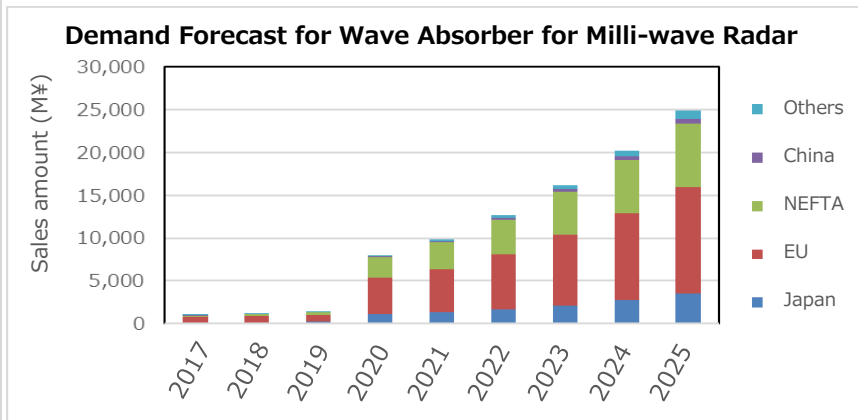
Medium-term Management Plan (MG20R) Target

- Operating profit ratio 10% or more (FY2021)

6-4. Major Products : Milli-wave Absorber

Market Size, Growth Ratio

- Same market growth as milli-wave radar (CAGR=27%) Watching for tendency of "Made-in-China 2025"



Source referred: "General survey of automotive electrical devices & components 2018" by Fuji Chimera Research Institute, Inc.

Market Share, Positioning

- Practical growth from FY2020
- Targeting to 10% share in 2020 and then 40% share in 2021

Product Feature (Strong Points)

- Feature (Differentiation)
 - Permeable wave absorption (less competitors)
 - Applied to various wave band (Automotive: 76~81GHz)(Mobile communication: 28~GHz)
 - **Wide incident angle for stable wave absorption**
 - **Applied to molding parts**
- Patent
 - Patent network covering with wide range (Japan: 19, Overseas PCT: 11 (US, EU, China, Taiwan))



Next Focus

- Productization for Domestic Automotive Applications and Extension to Global Market
 - Started shipment for overseas automotive in FY18
 - Many projects for global automotive applications
 - Building mass-production system (with Kureha)

Medium-term Management Plan (MG20R) Target

- Operating profit ratio 10% or more (FY2021)

6.5 Wave Absorber

Kind of Wave	Low Freq. LF	Medium Freq. MF	High Freq. HF	Very High Freq. VHF	Ultra High Freq. UHF	Super High Freq. SHF	Extra High Freq. (Milli-wave) EHF	Sub-milli-wave THz-wave	IR VIS UV
Frequency	30kHz	300kHz	3MHz	30MHz	300MHz	3GHz	30GHz	300GHz	3THz
Wavelength	10km	1km	100m	10m	1m	10cm	1cm	1mm	0.1mm
Major Applications	Standard freq. & time signal Wireless charging	Maritime radio communications AM broadcasting Aeronautical radio beacon	Aircraft radio Amateur radio Short-wave broadcasting	Pubric services Aircraft control communications FM broadcasting	Cellular phone Wireless LAN GPS Access system Digital terrestrial broadcasting	Wireless LAN BS broadcasting ETC	Vehicle radar (24, 76, 79GHz) Next-generation mobile communications 5G (24~86GHz) Satellite communications High-speed mobile backhaul (90GHz) High resolution radar (140GHz) Environmental measurments (sensing) Medical equipment		
Wave Absorber	Fe-Si-B-Cu-Nb		Ni-Cu-Zn Ferrite		Fe-Si-Al-Ni		Magnetic Iron Oxide		Conductive Materials (Interference sheet)

Structure of Milli-wave absorption sheet

Key factor: High dispersion and high packing of magnetic particles

Sheet type

Permeable type

Incident wave

Absorber

Structure of THz-wave absorption sheet

Key factor: Precision of coating thickness

Normal type

Transparent type

Interference type

Incident wave

Reflected wave

Dielectric layer

Reflector (Metal)

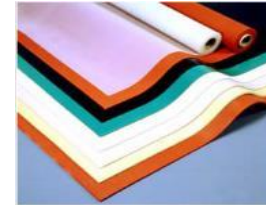
7. Synergy with Kureha Elastomer

Kureha Elastomer Co., Ltd.

Brief summary

Representative	President Kazuhiro Kaizaki
Line of business	Production and distribution of elastomeric products
Capital	100M¥
Establishment	July 28 th , 1943
Employee	Approx. 300

Major product categories



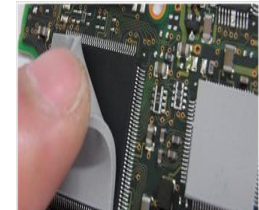
Various rubber sheets



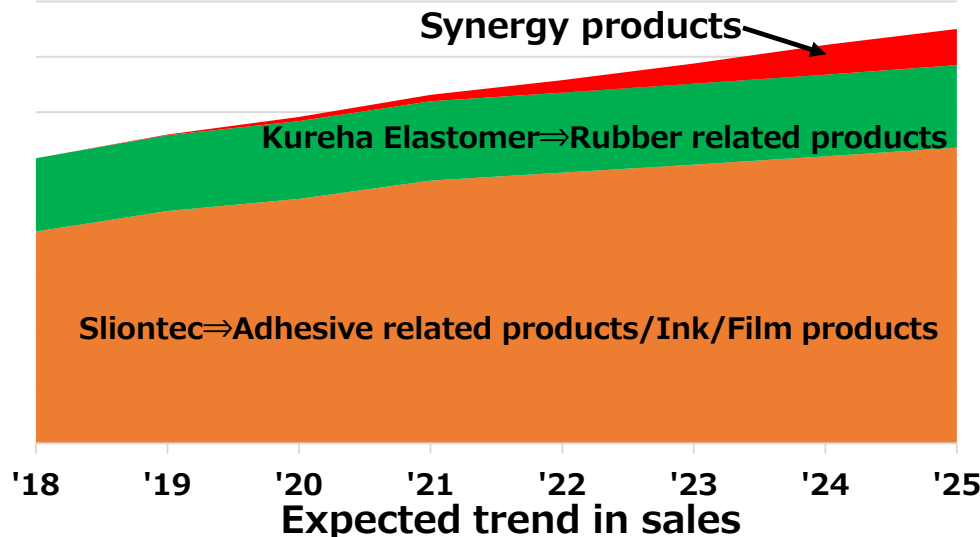
Moldings



High functional sheets



Heat releasing materials



Time of contribution of synergy effect

- Cross selling ; 2019~
- Adhesive related new products ; 2020~
- EMW absorption materials ; 2021~

Annotation: Kureha Elastomer has been consolidated since Jan. 2019; however, sales figure as shown in 2018 graph is converted to annual basis.

maxell
Within, the Future

Parts of this document contain predictions about the future that are based on our current expectations and beliefs.

These statements are provided as background material for investors.

We cannot ensure or guarantee that any such statement will prove to be correct.

Please keep in mind that actual outcomes might differ from anticipated results.