

Fujifilm's Growth Strategy through the Acquisition of Semiconductor High Purity Process Chemicals

May 10, 2023

FUJIFILM Holdings Corporation

Teiichi Goto

President, Representative Director & Chief Executive Officer

**NEVER
STOP**

FUJIFILM
Value from Innovation

Toward Further Growth

Towards the Realization of
a Sustainable Society

Promoting Medium-Term
Management Plan, VISION2023



*Medium-term management plan that
stipulates specific actions for achieving
SVP2030 targets*

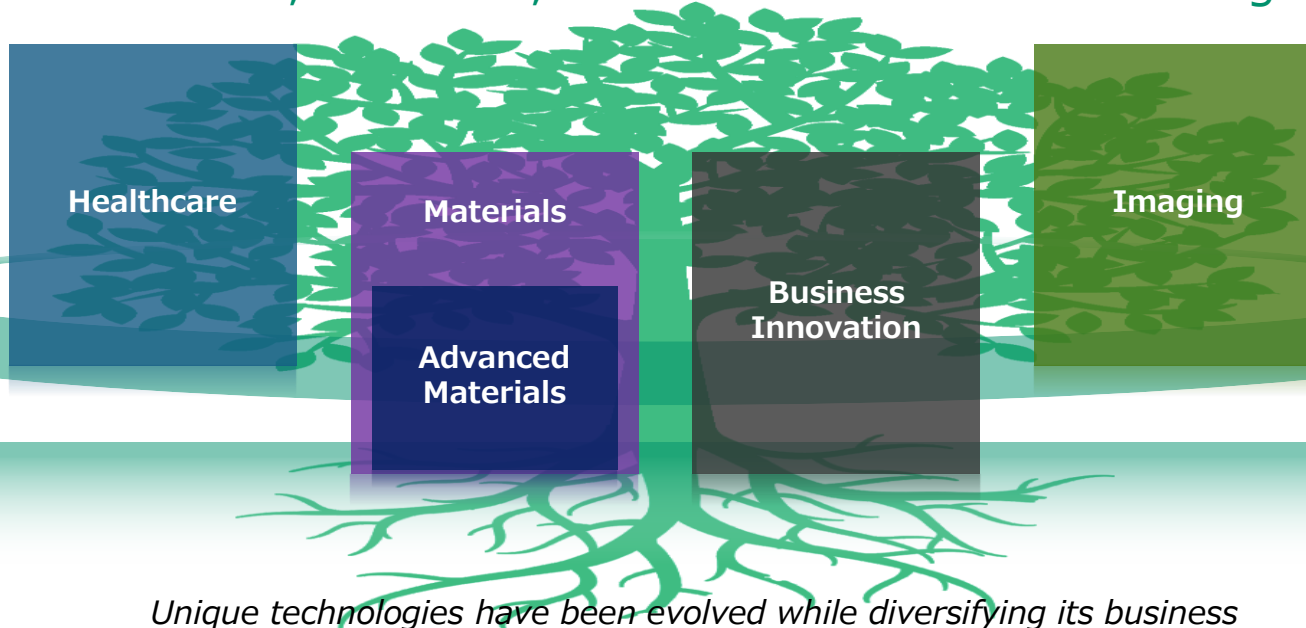
Sustainable
Value Plan
2030
(SVP2030)

**Achieved record-high revenue and profit in FY2022 and
the target for the final year one year ahead of the original schedule**

FY2030 Sales Target: ¥3.5 trillion+

Implementation of Portfolio Management Plan

Implementing portfolio management with 4 segments of Healthcare, Materials, Business Innovation and Imaging



Unique technologies have been evolved while diversifying its business based on the technologies cultivated through photographic business

Achieves balanced profitability from each segment

Positioning of Electronic Materials Business

Healthcare

Materials

Business Innovation

Imaging

Advanced Materials

■ Electronic Materials

Materials used during the process of manufacturing semiconductors, including photoresists, etc.

■ Display Materials

■ Other Advanced Materials

(Industrial Products, Recording Media, Fine Chemical, etc.)



Graphic Communication

Other Advanced Materials

Display Materials

FY2022
Advanced Materials
Revenue

¥350.7^{bn}

**Electronic
Materials
¥180.6 bn
(51% of total)**

Aggressive Investments in the Electronic Materials Business



Belgium (Zwijndrecht)

Polyimide/Photolithography-related materials
Will be operational in 2025



South Korea (Pyeongtaek-si)

Color filter materials for image sensors
Will be operational in 2024



US (Arizona)

CMP slurry/high purity solvent
Operated from 2021/2022



Japan (Kumamoto)

CMP slurry
Will be operational in Jan 2024



US (Rhode Island)

NTI*² developing solution
Operated from 2021/2022



2018-2021

Capex of approx. ¥10 bn
in US facilities

VISION2023 (FY2021-23)
Growth Investment (R&D/capex)
Approx. ¥110 billion*¹

**Rapid decision-making and investment
will be continued going forward**

*1 Cumulative amount for FY2021-23

*2 Negative Tone Imaging

Acquired US-based Entegris' HPPC Business for \$700 million

<What can be achieved by the acquisition>

***Enhancing the
product lineup***



*Broader solution for
customer issues related to
manufacturing processes*

***Establish a more solid
global manufacturing
and supply framework***



*Contribution to stronger
semiconductor
supply chain*

***Develop new
products applying
resources of both
companies***



*Higher semiconductor
performance*

**Further growth acceleration in the
Electronic Materials Business**



Acquisition of Entegris' HPPC Business and Fujifilm's Electronic Materials Business Strategy

May 10, 2023

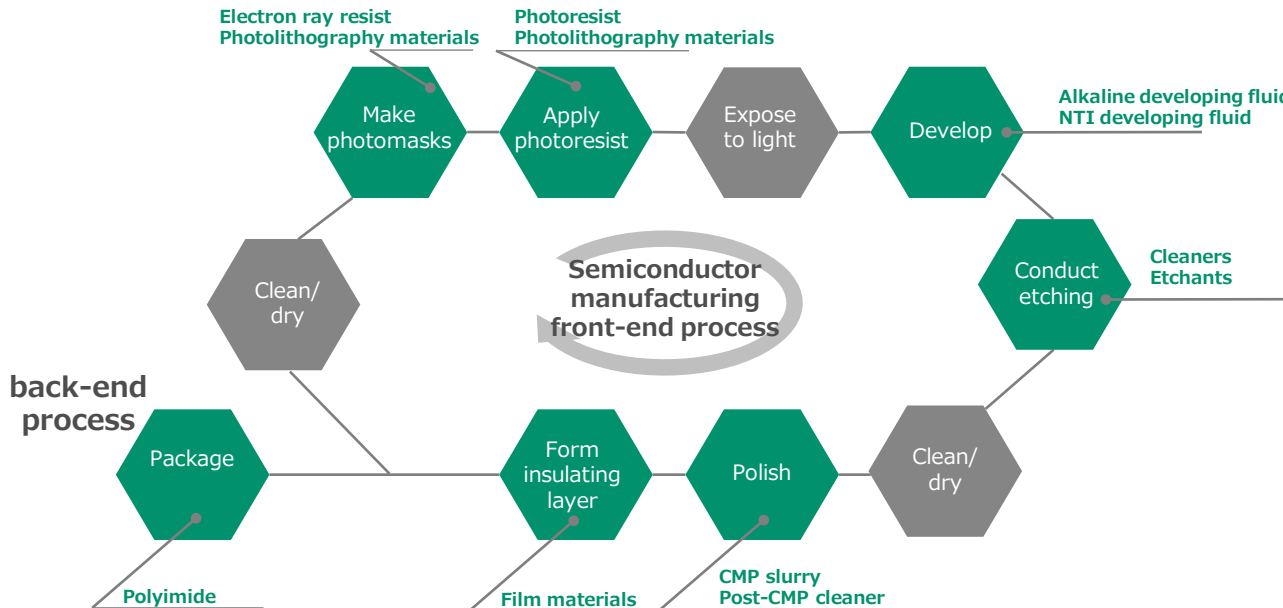
Tetsuya Iwasaki
Corporate Vice President, FUJIFILM Corporation
General Manager of Electronic Materials Business Div.

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STOP**

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Value from Innovation

Strengths of Fujifilm's Electronic Materials Business

Supplying materials used in the semiconductor manufacturing process through a broad product lineup



1. Broad product lineup

2. Stable global supply system

3. R&D capabilities and relationships with customers

Strategy to Drive Further Growth of Fujifilm's Electronic Materials Business

Be a semiconductor materials company offering one-stop-solutions

Strategy

①

Offer solutions with broad lineup of products and core technologies

- ▶ Broad product lineup and Core technologies solves complex customer issues that cannot be solved with a single product or conventional insight.
- ▶ Bolster product lineup through new product development within Fujifilm's technologies.

Strategy

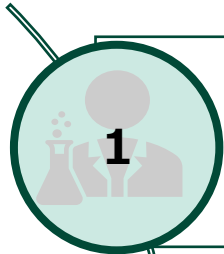
②

Enhance supply chain capability through aggressive capital investments

- ▶ Spending a total of ¥110 billion* in growth-oriented investments over 3 years from FY2021 to FY2023 to enhance production infrastructures, facilities and quality.

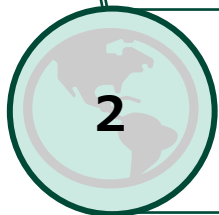
Strengths of Entegris' HPPC Business

CMC Materials KMG Corporation, Entegris' HPPC Business



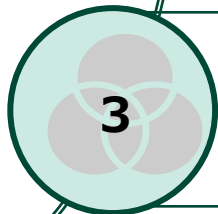
■ Advanced Technology and Abundant Experience/Track Record

- Advanced purification technology and quality control know-how that allows for development and manufacturing of high-purity semiconductor processing chemicals at the ppt level
- Abundant experience/track record with major semiconductor manufacturer clients



■ Global Manufacturing/Sales Network

- Supplies products globally to major semiconductor manufacturers from 7 plants in US, France, Italy, and Singapore
- Further position Fujifilm's global manufacturing and customer support presence in additional locations close to our semiconductor customers.

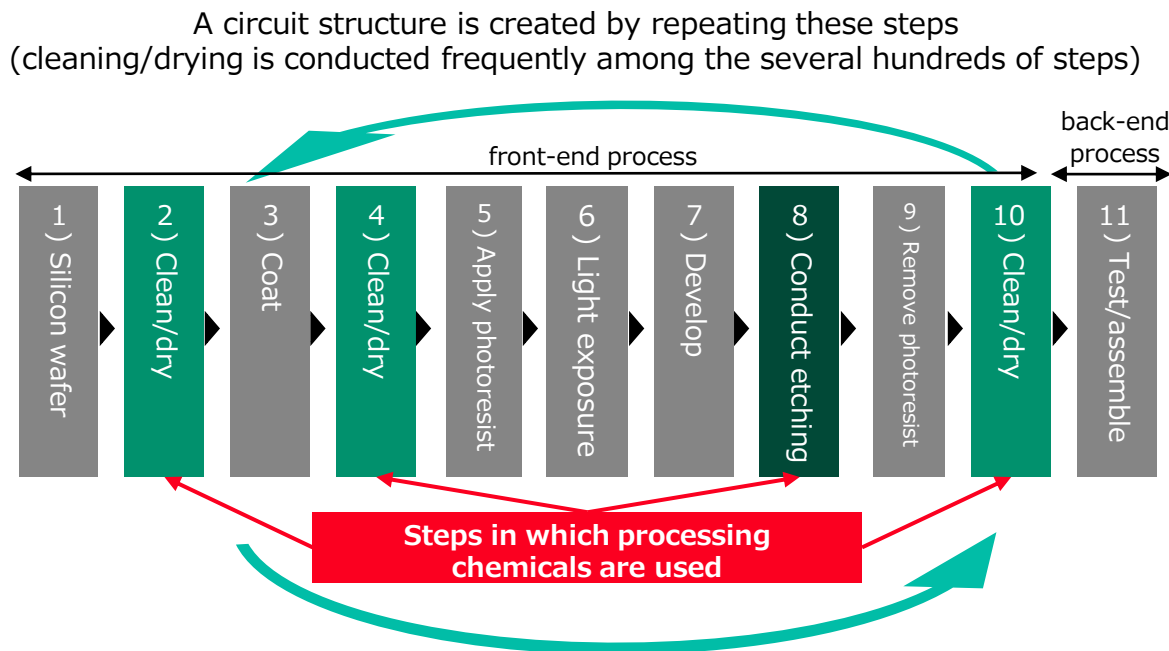


■ Broad Product Lineup

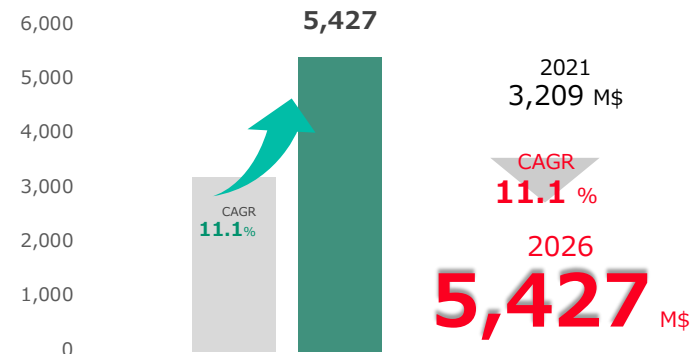
- Owns a broad lineup of semiconductor processing chemicals for the manufacturing of state-of-the-art semiconductors (core products: sulfuric acid, hydrogen peroxide, ammonium hydroxide, IPA, hydrofluoric acid, etc.)

What are Semiconductor Processing Chemicals

Chemical agents that are used in the semiconductor manufacturing process, used to remove impurities in cleaning/drying processes and to remove metals and oils in the etching process



Market Size of Processing Chemicals



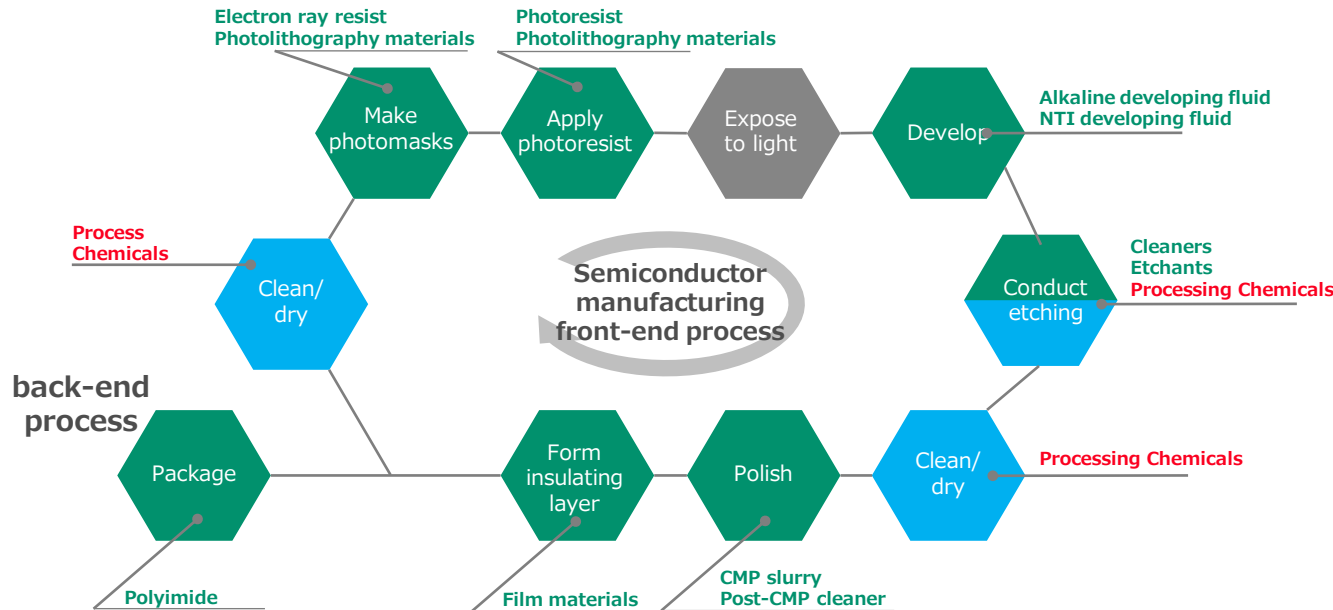
[Main Products of Processing Chemicals]

H ₂ SO ₄ Sulfuric Acid	H ₂ O ₂ Hydrogen Peroxide	NH ₄ OH Ammonium Hydroxide	HCl Hydrochloric Acid
HNO ₃ Nitric Acid	H ₃ PO ₄ Phosphoric Acid	HF Hydrofluoric Acid	IPA Isopropyl Alcohol

Quoted from a semiconductor materials report by the US research company "Linx."

Strategic Importance of This Acquisition ①

Expansion of the product lineup allows for coverage of a broad scope of semiconductor manufacturing processes



This acquisition enhances Fujifilm's ability to make integrated proposals to customers, leading to rapid resolution of customer challenges

Strategic Importance of This Acquisition ②

Expansion of manufacturing sites in Europe and US
Acquisition of manufacturing site in Southeast Asia

Europe

Expansion of manufacturing sites for semiconductor materials

US

Expansion of manufacturing sites for semiconductor materials

Asia

Acquisition of first manufacturing site for Electronic Materials Business in Southeast Asia

- Fujifilm's manufacturing sites (electronic materials)
- *includes the sites which will be operational in the future)
- KMG's manufacturing sites

Establishes an even stronger global manufacturing framework and will strengthen the supply chain resiliency

Strategic Importance of This Acquisition ③

Utilizing the comprehensive strengths of both companies, it will be possible to develop/provide semiconductor materials that meet cutting-edge needs, such as highly purified process chemicals

Fujifilm

1. R&D capabilities for a wide variety of semiconductor materials
2. Ability to guarantee quality using advanced analytical technology, in response to client needs



KMG

1. Advanced purification technology
2. Experience and track record of responding to demands of major clients

The acquisition contributes to further performance enhancement of semiconductors

1. Acquisition Price: \$700 million

2. Timing:

May 10th Sign share purchase agreement

End of 2023 Completion of acquisition of all shares of KMG

The impact on FY2023 consolidated performance will be announced once details are confirmed.

***Subject to the satisfaction of customary closing conditions**



Appendix

Appendix1 Overview of CMC Materials KMG Corporation

Name	CMC Materials KMG Corporation
Headquarters	Forth Worth, Texas, US
Plants	US: Colorado (1), California (1) Europe: France (2), Italy (1), UK (1) Southeast Asia: Singapore (1)* ¹
Established	1992
Employees	Approx.560 (as of December 31, 2022)
Business Description	R&D, manufacturing and sales of semiconductor processing chemicals, etc. Providing Total Chemical Management System* ²
Sales Coverage	US, Europe, Southeast Asia
Revenues	\$360 million (FY2022)

*1 () represents the number of plants

*2 Services that support chemical logistics and plant operations

Appendix2 Fujifilm's Products Used in the SC Manufacturing Process (current)

Process of Manufacturing Semiconductors (1/3)

(in red : Fujifilm's product)

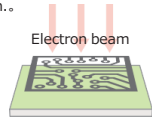
1 Make Photomasks

Coat a glass photomask substrate with **resists for photomask fabrication**.

Resists for Photomask Fabrication



Project the circuit pattern onto the substrate with an electron beam.



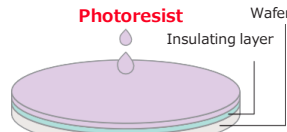
Strip the unneeded portion of the **resists for photomask**.



Completed photomask

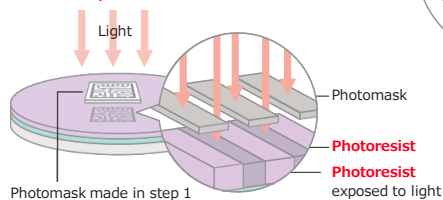
2 Apply Photoresist to the Wafer

Apply an insulating layer to the wafer, the base of the semiconductor, and then apply **photoresist**.



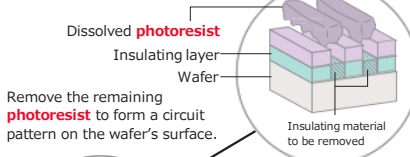
3 Expose the Photomask to Light

Place the photomask made in step 1 on top of the wafer made in step 2 and expose it to light. Circuit patterns are created on the **photoresist**.

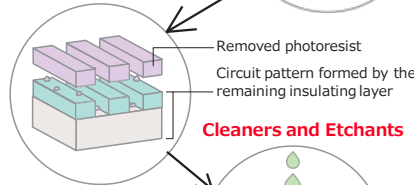


4 Conduct Etching

Dissolve the portion exposed to light in step 3 using a **developer**, and remove the insulating material lying underneath.

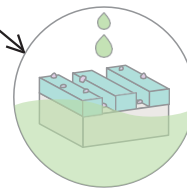


Remove the remaining **photoresist** to form a circuit pattern on the wafer's surface.



Cleaners and Etchants

Use **cleaners and etchants** to remove the **photoresist** residues.



Fujifilm's Products

Resists for Photomask

Materials for making photomasks, a "die" circuit pattern

Photoresists

Photosensitive polymer material used in the process of making circuit patterns

Photolithography-related materials

Developer

Materials for developing photoresist

Cleaners and Etchants

Various cleaners to remove etch residues, etc.

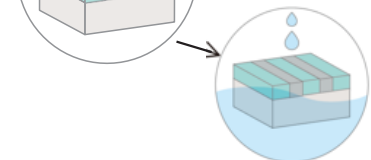
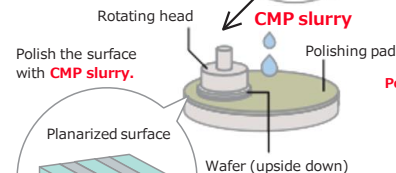
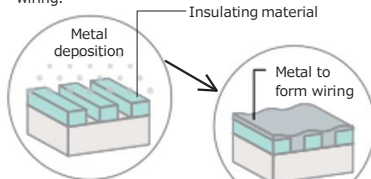
Before (left) and after (right) cleaning

Appendix2 Fujifilm's Products Used in the SC Manufacturing Process (current)

Process of Manufacturing Semiconductors (2/3)

5 Form Wiring and Planarize the Surface

Deposite metal onto the circuit pattern to form wiring.

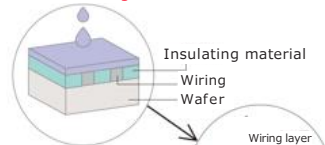


6 Insulate the Surface

Apply **thin film forming materials** to prevent deterioration of semiconductor performance.

(in red : Fujifilm's product)

Thin Film Forming Materials



Create a new circuit pattern on top. Repeat the process from 1 to 6, forming layers of wiring.

Polyimide for protective film



Make protective film by applying polyimide for protective film to the completed wafer.

After making protective film, cut the wafer to chip size.

Fujifilm's Products

CMP Slurries

An abrasive to evenly planarize, on a micron scale, the surface of semiconductors where wires and insulating materials with different stiffness are mixed

Post-CMP Cleaner

Cleaner used to remove residues after polishing

Thin Film Forming Materials

A low dielectric constant insulation material used to prevent loss of speed in semiconductor performance arising from the narrowing insulation between wires

Polyimide (protective film)

A compound with high thermal durability and insulating capacity, used as a protective film in semiconductors.

Appendix2 Fujifilm's Products Used in the SC Manufacturing Process (current)

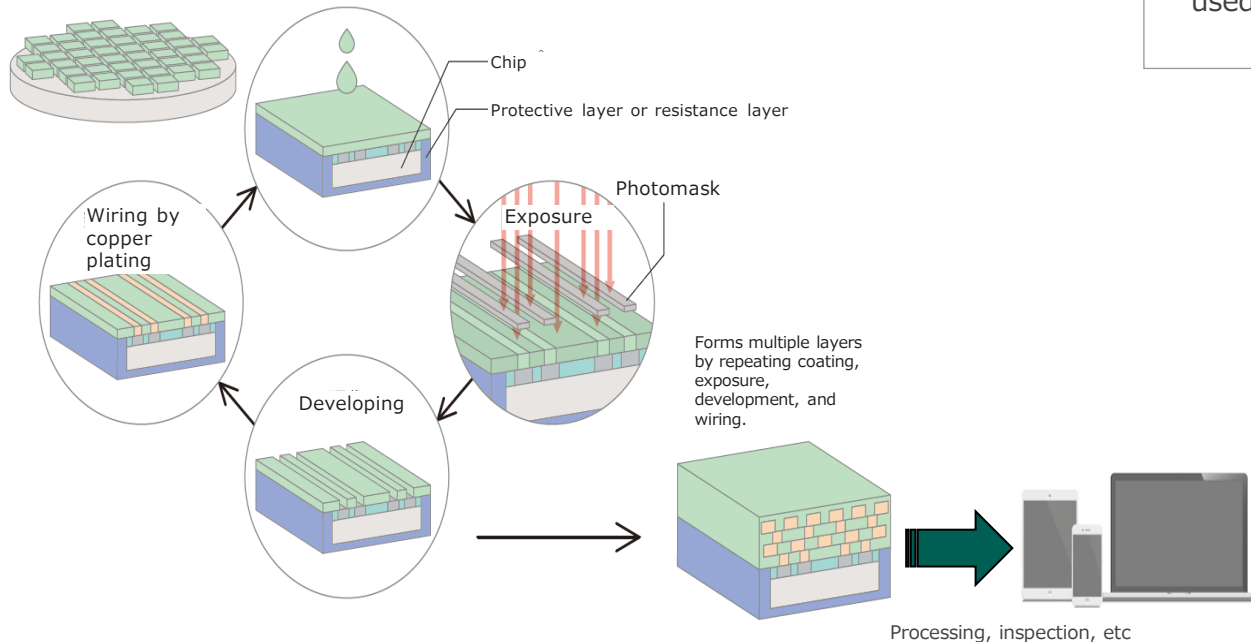
Process of Manufacturing Semiconductors (3/3)

(in red : Fujifilm's product)

7 Re-wiring semiconductor circuits

Reposition the chip on the wafer for post-process and apply polyimide for re-wiring on the top of the chip

Polyimide for re-wiring



Fujifilm's Products

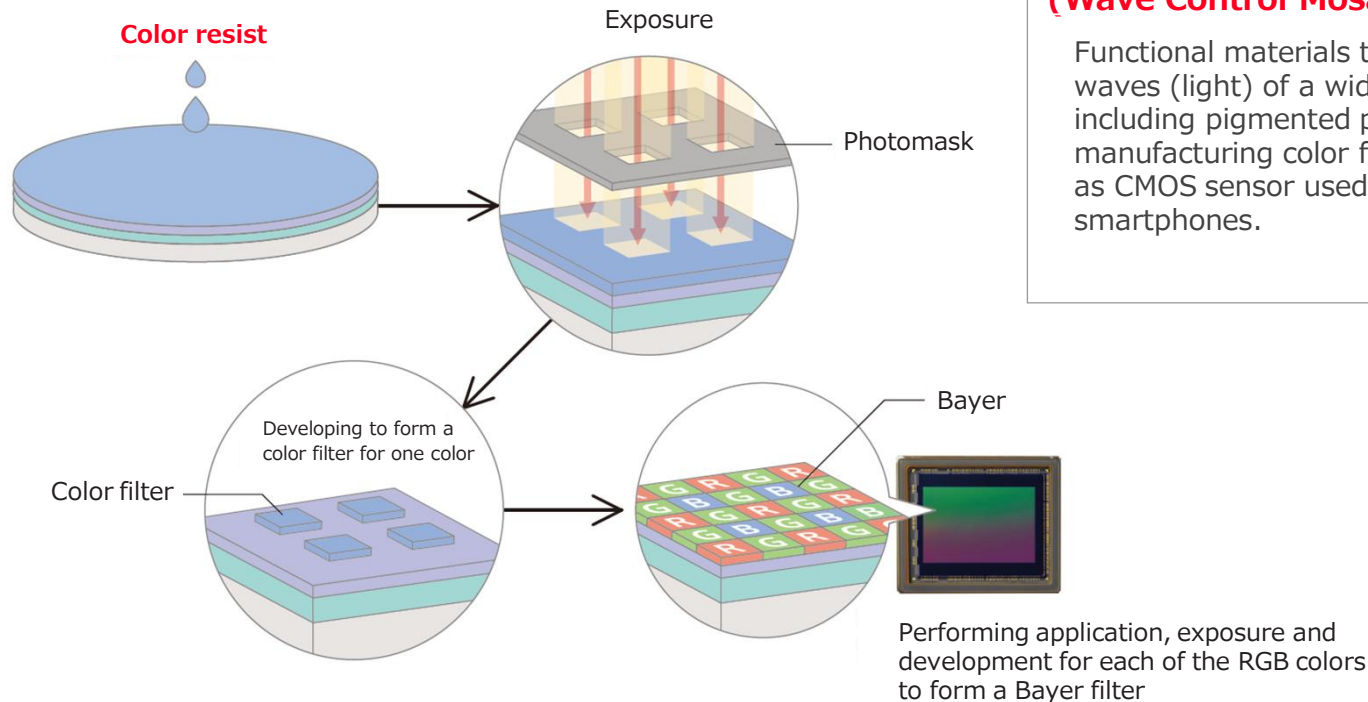
Polyimide for Re-wiring Layer

Material with a high level of heat resistance and insulation performance, used to form chip's re-wiring layer.

Appendix3 Fujifilm's product used in Image sensor

Process of Manufacturing Image Sensor

Applying **color resist** on the wafer, which forms the base



Fujifilm's Products

Color Mosaic for Image Sensor (Wave Control Mosaic)

Functional materials that control electromagnetic waves (light) of a wide range of wavelengths, including pigmented photosensitive materials for manufacturing color filters of an image sensor, such as CMOS sensor used in digital cameras and smartphones.

