



Eco-friendly Solution

Material & Technology



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LOTTE CHEMICAL

Sustainable Management System



| | |
|---|---|
| 7 AFFORDABLE AND CLEAN ENERGY | 7. Ensure access to affordable, reliable, sustainable and modern energy for all |
| 12 RESPONSIBLE CONSUMPTION AND PRODUCTION | 12. Ensure sustainable consumption and production patterns |
| 13 CLIMATE ACTION | 13. Take urgent action to combat climate change and its impacts |

The SDGs stand for 'Sustainable Development Goals', which was adopted by the UN General Assembly. The term refers to global goals that the UN and the international community aim to achieve from 2016 to 2030.

Implementation of UN SDGs

LOTTE Chemical is taking the lead in implementing the UN's Sustainable Development Goals. We are focused on achieving carbon neutrality and creating a circular cycle of resources, thereby contributing to the Goal 7, 12 and 13. We believe our efforts will help the world move forward.

LOTTE CHEMICAL

Eco-friendly Strategy & Goals

GREEN PROMISE 2030

Every Step for GREEN



INITIATIVE & SLOGAN

LOTTE Chemical is carrying out core tasks after it mapped out its eco-friendly business strategy by introducing the "Green Promise 2030" initiative in a bid to better implement ESG management drive and secure future growth engines.

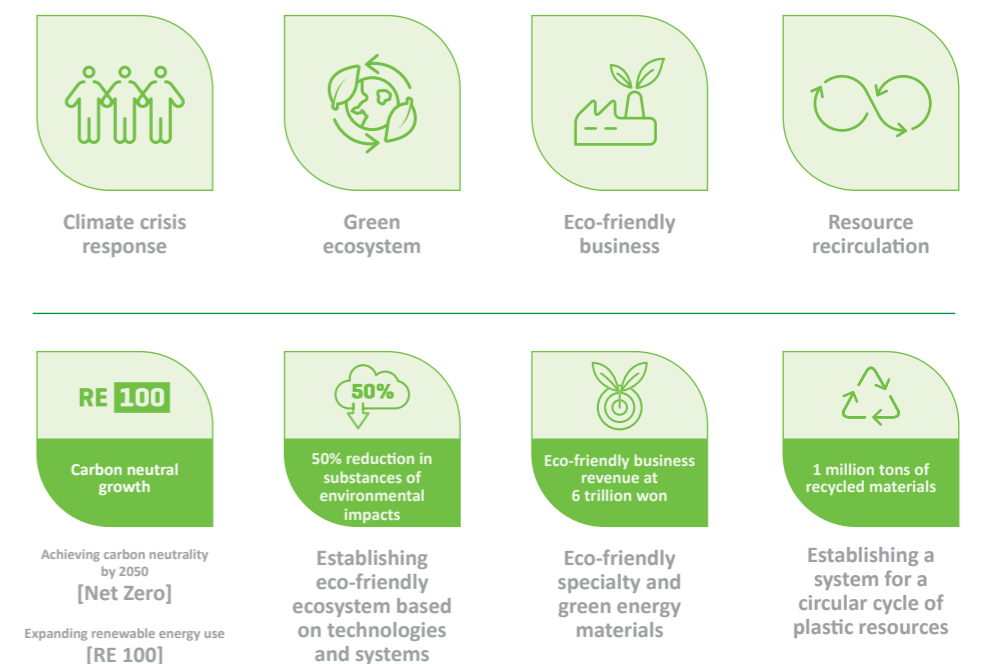
[ESG] Environmental Management

LOTTE Chemical is actively applying ESG criteria to its management in an effort to become a sustainable company. In particular, the company is implementing enterprise-wide environmental management by analyzing global eco-friendly trends and risks, and drawing up a preemptive response system.



STRATEGY

2030 GOAL



LOTTE CHEMICAL [Advanced Materials]

Integrated Resource-circulating Solutions

In line with the enterprise-wide eco-friendly strategy and goals, LOTTE Chemical's Advanced Materials business introduces [the integrated eco-friendly and resource-circulating solutions], featuring a range of fields from recycling process technology and product lineups to quality management system and certifications.

01

Resource-circulating technology platform and products

- ① High-quality and eco-friendly recycling technology & product lineup
- ② Continued R&D support for recycling technology

02

Global supply and production management system

- ① Partnerships with global providers of renewable raw materials to secure a stable supply
- ② Operation of regional production hubs
- ③ Expansion of the eco-friendly market through joint development with customers

03

Strict quality control and certification standards

- ① Operation of a thorough in-house quality management system
- ② Securing the reliability of product quality by obtaining certifications from official institutions



LOTTE CHEMICAL [Advanced Materials]

Recycled Plastic Production Platform

LOTTE Chemical's Advanced Materials business offers diverse lineups for each process of the resource circulation cycle in a bid to meet the customer's need for eco-friendly products, based on the company's recycled plastic production platform that utilizes its proprietary technology and expertise, and its strict quality control.

01

MECHANICAL RECYCLING

A recycling process solution that [shreds post-consumer plastic products and then reuses them in the production process]

Line-ups

| | | |
|--------------|------------|-----------|
| ABS | ABS/PET | PC |
| PCM 35~85% | PCM 15~40% | PCR 5~90% |
| PC/ABS | PP | |
| PCR 15 ~ 80% | PCR 5~90% | |

02

CHEMICAL RECYCLING

A recycling process solution that [uses the chemical decomposition to extract raw materials from post-consumer plastic products]

Line-ups

| | |
|------|-------------|
| MABS | Transparent |
|------|-------------|

03

CLOSED LOOP RECYCLING

A circular recycling process solution that [collects plastics used in post-consumer products, and then recycles them for the production of the same finished products]



SOLUTION 01.

MECHANICAL RECYCLING

In line with the enterprise-wide eco-friendly strategy and goals, LOTTE Chemical’s Advanced Materials business introduces [the integrated eco-friendly and resource-circulating solutions], featuring a range of fields from recycling process technology and product lineups to quality management system and certifications.

PROCESS

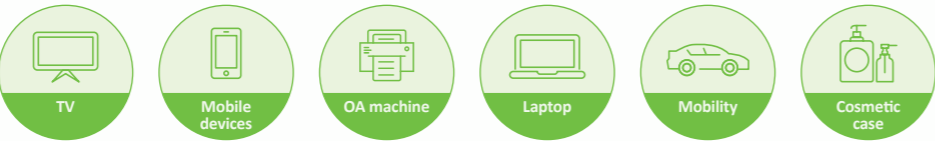


PRODUCT LINE-UP

| PC | | PC/PBT | | PC/ABS | |
|------------|------------------------|--------------------|------------------------------------|----------------|---|
| 50% | GW-1029 | 20% | GW-3080 ^(m) | 10% | GW-1069 ^(m) |
| [FR] 20% | GC-1022U (1.5 V0) | PC/GF | | 30% | GW-1070 ^(m) |
| [FR] 5~90% | GV-102X (1.0 V0) *** | 30% | GW-3203 | 50% | GW-1069S *** ^(m) |
| | | [FR] 30% | GC-3203 *** | 80% | GW-1041 |
| | | | | | [FR] 15% GC-1101 (1.5 V0) |
| | | | | | [FR] 30% GC-1048 (1.5 5VB) |
| | | | | | [OBP]** 50% GV-1155B/1005B (OBP 5%+PCM 45%) *** |
| PP | | PP-TD | | PP-GF (GF 30%) | |
| 50% | ET-310 ^(m) | 20% | A-352R (TD 20%) *** ^(m) | 20% | LGI-161R *** ^(m) |
| | | 20% | A-353R (TD 30%) ^(m) | 30% | RG-153 ^(m) |
| | | 50% | AR-354 (TD 40%) ^(m) | | |
| ABS | | ABS/PET | | PP+EPDM | |
| 35% | GC-0735 *** | 28% | GC-0700 | 20% | ER-362 ^(m) |
| 55% | GC-0755 | 40% | GC-0730 | 70% | ER-321F ^(m) |
| 85% | GC-0785 | [OBP]** 5% GC-0705 | | 95% | ER-321 ^(m) |
| ABS/PC | | ABS/PC | | | |
| 20% | GW-1020 ^(m) | | | | |
| 30% | GW-1030 ^(m) | | | | |

* % : PCR Content | ** Ocean Bound Plastic | *** Under development | ^(m) Mobility application

APPLICATIONS

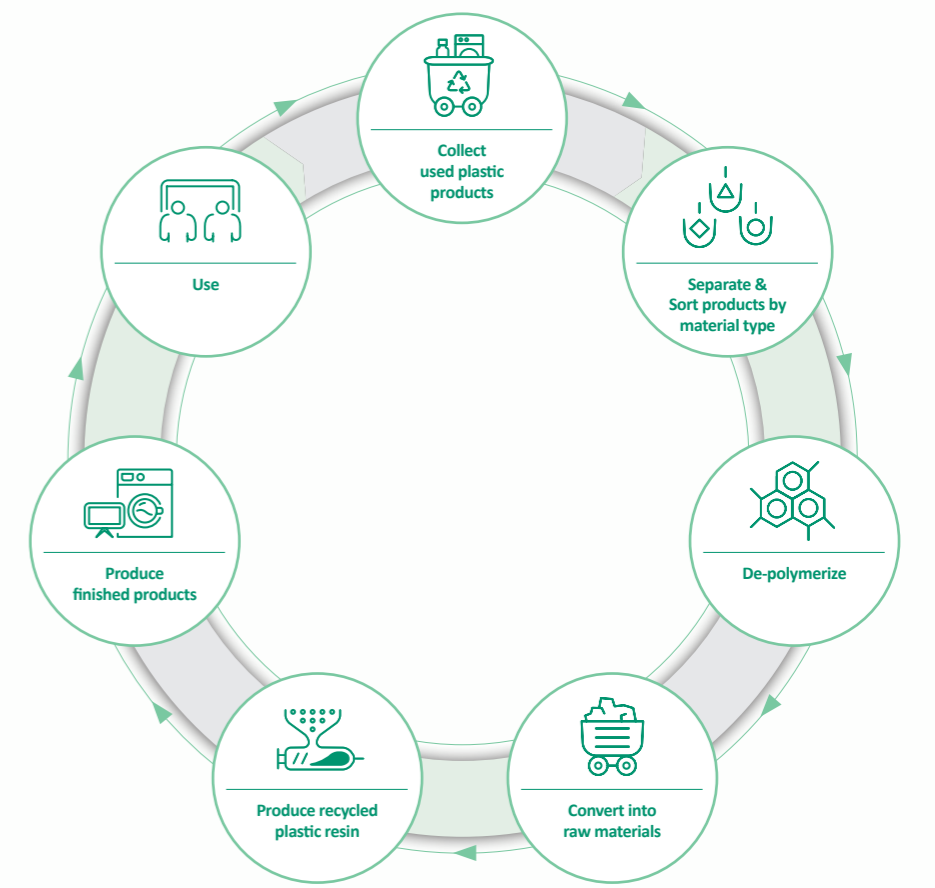


SOLUTION 02.

CHEMICAL RECYCLING

Chemical recycling refers to a recycling process in which post-consumer products or by-products from processes are converted into secondary raw materials through thermal de-polymerization. LOTTE Chemical has applied chemical recycling to the mass production of transparent MABS for the first time in the world.

PROCESS



PRODUCT LINE-UP

| MABS | | Transparent | |
|------|--|-------------|----------|
| | | 20% | GV-0510 |
| | | 35% | GV-0520 |
| | | 35% | GV-0520I |

APPLICATIONS

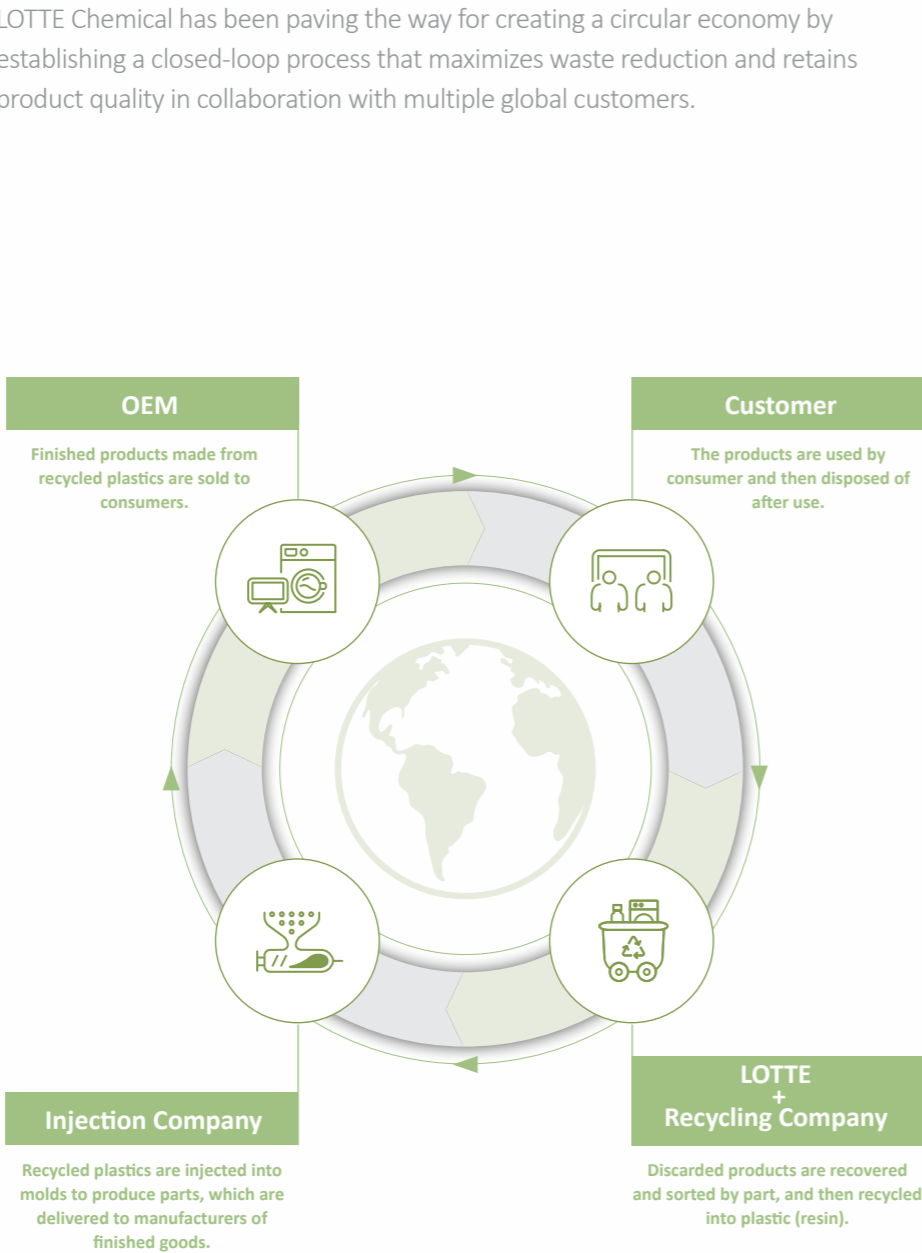




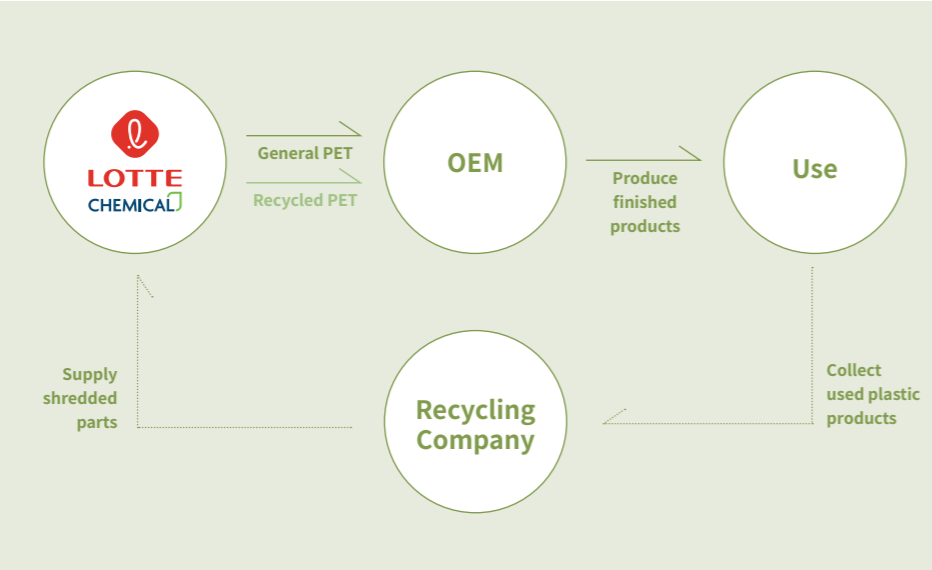
SOLUTION 03.

CLOSED LOOP RECYCLING

PROCESS



COLLABORATION
CASE



Environmental Assessment & Certification

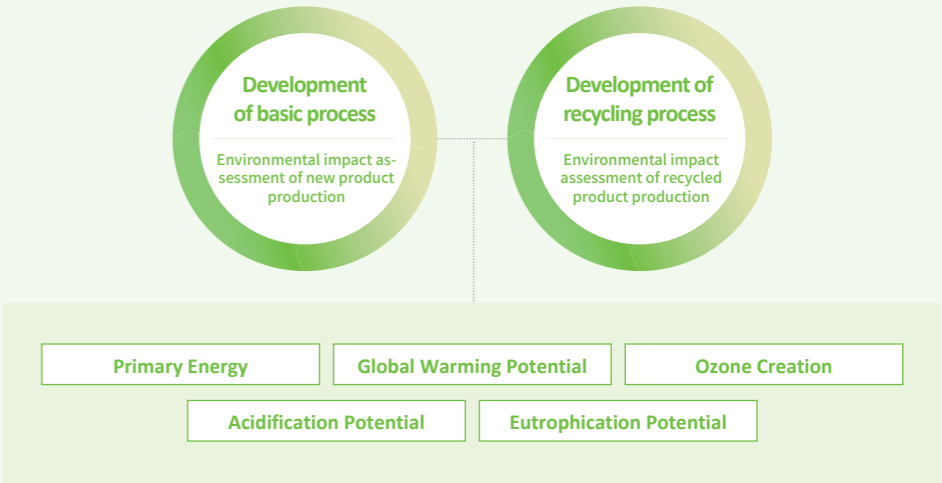
LOTTE Chemical provides certification solutions tailored for customers through the assessment of external certification bodies, in an effort to meet the surging demand for environmental certification in relation to global warming and pollution.



UL – EPD (Environmental Product Declaration)

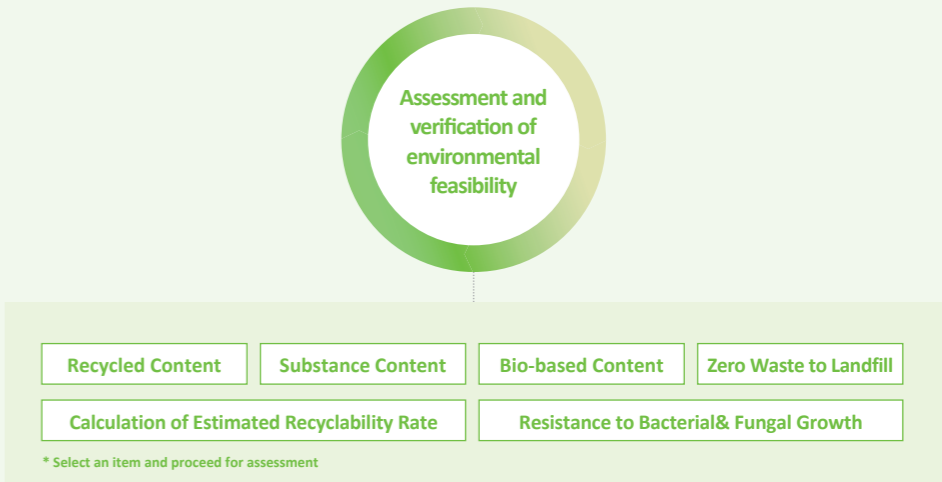
LOTTE Chemical has undertaken the environmental impact assessment on the production process of its compounding products in accordance with ISO 14040, and obtained the UL's EPD (Environmental Product Declaration) certification, based on ISO 14025.

(*PRC PC [GC-1214] production process)



UL – ECV (Environmental Claims Validation)





LOTTE Chemical's eco-friendly product lineup has received UL's Environmental Claim Validation (ECV) for environmental assessment criteria.







CASE STUDY

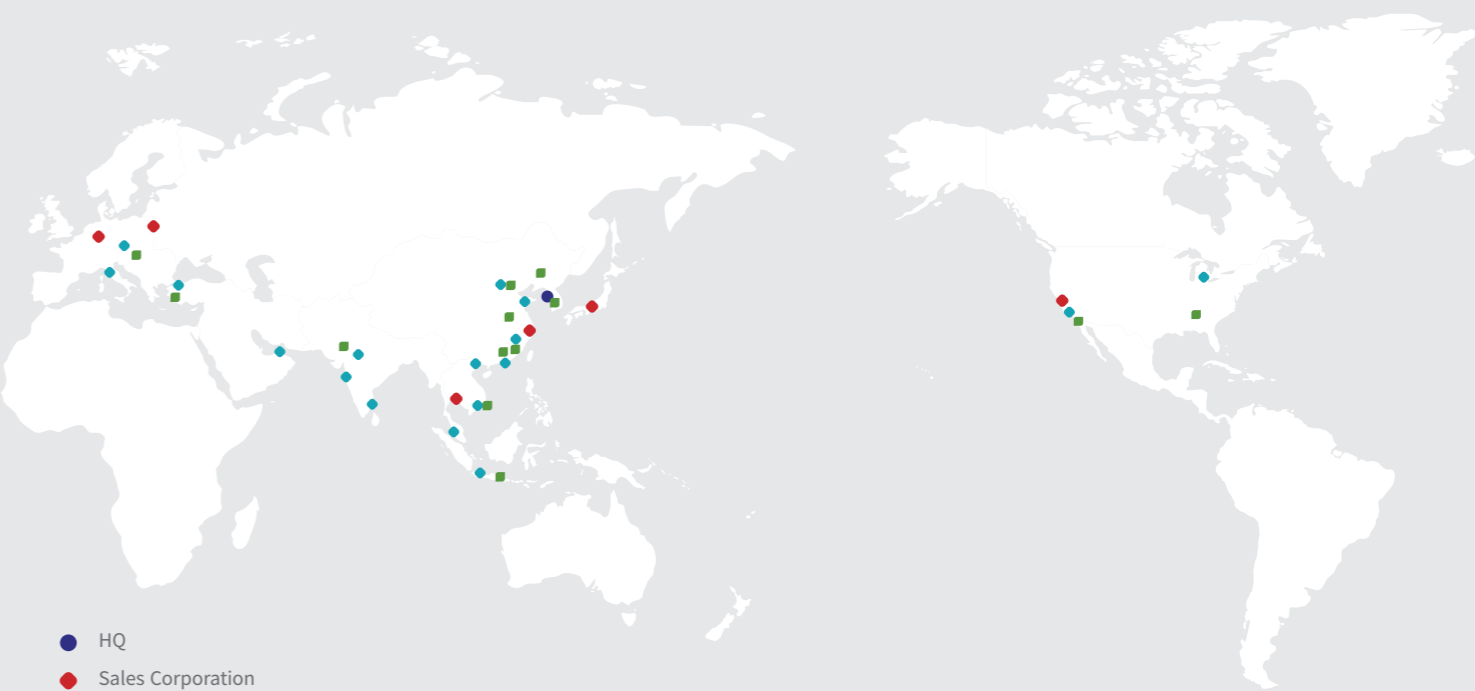
MECHANICAL RECYCLING

| | 1 | 3 | 4 | 4 |
|--------------|--|---|--|---|
| Application |  Air conditioner |  Laptop |  TV remote control |  Automotive - Under cover |
| Product | ABS/PET GC-0700 | PC/ABS GC-1101 | PC/ABS GC-1017 | PP ER-321 |
| Region | Global | Korea | Global | Global (U.S.A., Europe) |
| Key features | Chemical resistance | - Impact strength - Colorability | Flame retardant (Over V-1) | Weatherability |

CHEMICAL RECYCLING

| | 1 | 2 |
|--------------|---|---|
| Application |  Washing machine - Window display |  Cosmetic case |
| Product | Transparent MABS GV-0510 | Transparent MABS GV-0520 |
| Region | Global | Global (Korea, France, U.S.A) |
| Key features | World-first Transparent MABS based of the chemical recycling process : Transparency, Surface quality & Impact strength | |

Global Network [Advanced Materials]



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- Sales Corporation
- Branch/Sales Office
- Production Plant

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[World's first chemically recycled transparent material applied to BIC® razors]

BIC, a global manufacturer of plastic products, has incorporated LOTTE Chemical's first-ever chemically recycled transparent MABS in the production of women's razors, in an attempt to respond to the stepped-up regulations on the use of disposable plastics in Europe.

| | |
|---------------------|---|
| Product | Transparent MABS GV-0520 |
| OEM | BIC (Europe) |
| Application & Model | Women's razors - Click 3 Soleil, Click 3 Soleil Sensitive, Click 4 Soleil |
| Key features | Balanced properties - Transparency, Surface quality, Impact strength & Flowability |

