

| Introduction of “LIMEX” materials and items



TESSELAND



1. What is LIMEX?

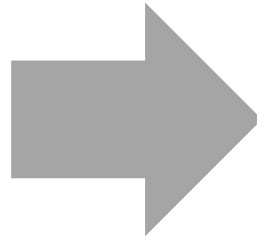
| What is LIMEX

LIMEX: An innovative material made from “limestone” + “X” (unlimited potential).



Earth is the planet of stone...

- ✓ Limestone is abundant and available all over the world



Plastic and Paper alternatives, etc...

We developed LIMEX sheet/pellets


- ✓ Can be manufactured with existing molding, recycling and printing machines
- ✓ Min 50% of inorganic materials as final products

We achieve Ecological & Economical Sustainability


| As alternative to Paper

- ✓ Save water and trees
- ✓ Water resistance & better durability (no need coating)

Paper




Trees




Water

>




Paper




LIMEX

We use almost no water to make LIMEX sheet

* Using a little water for chilling the sheets in manufacturing process.




Limestone and inorganic materials
60-80%



Polyolefin
20-40%

>



LIMEX sheet

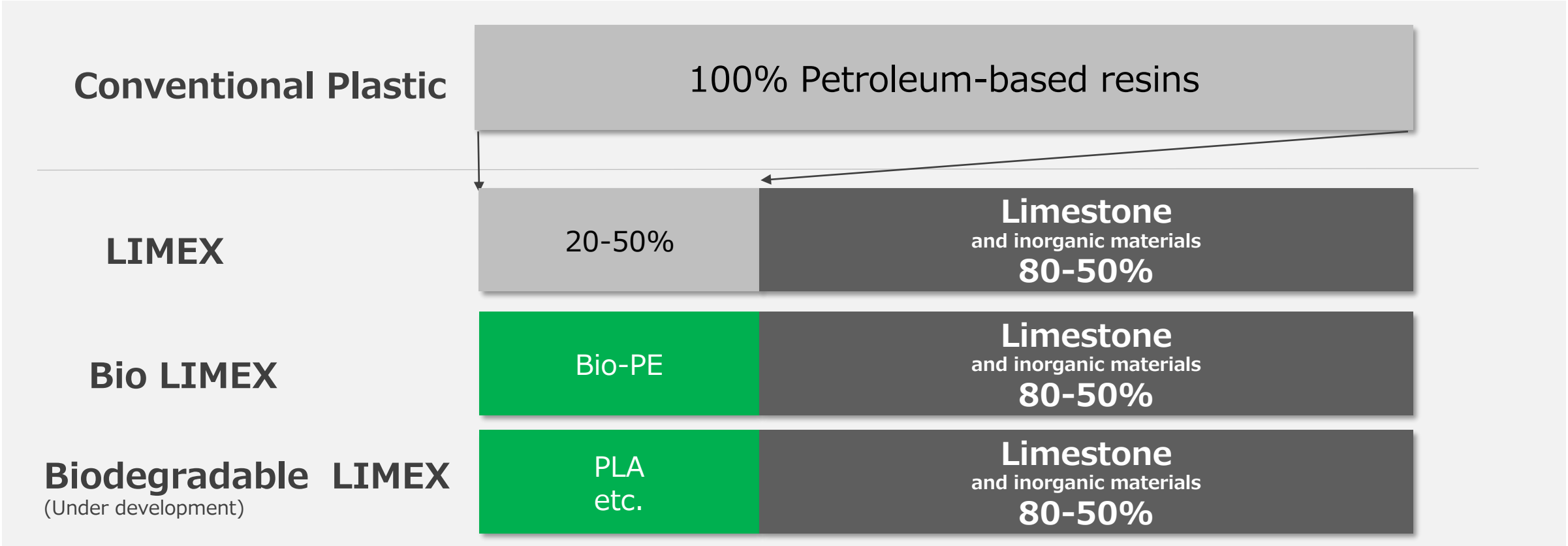
* We adjust the percentage of limestone depending on application and quality requirements.

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| As alternative to Plastic



- ✓ Drastically reduce use of petroleum-based resins



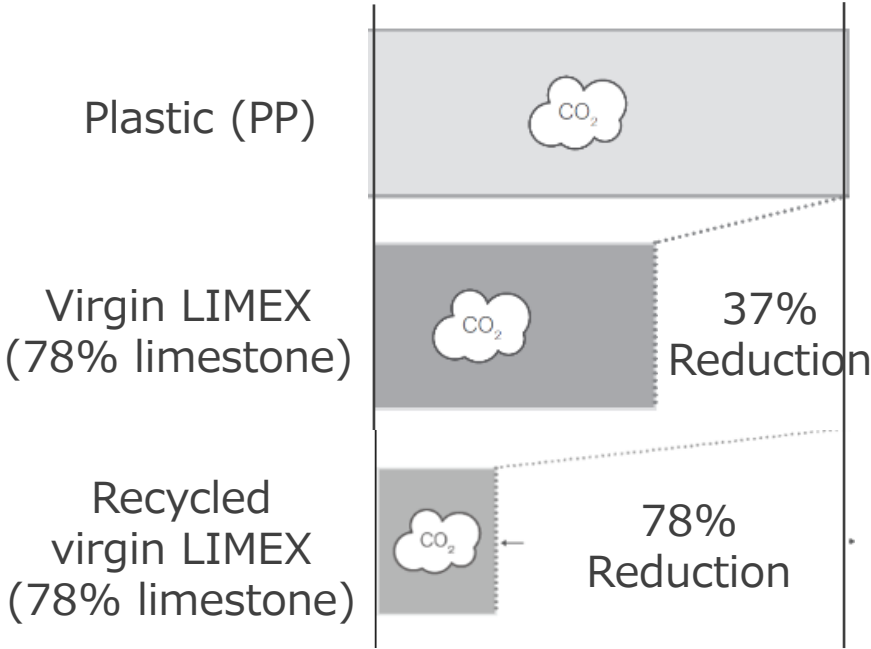
* For Bio-degradable LIMEX, bio-degradable grade (PLA + Limestone) is under development.
* We adjust the percentage of limestone depending on application and quality requirements.

| As alternative to Plastic

✓ Improve LCA

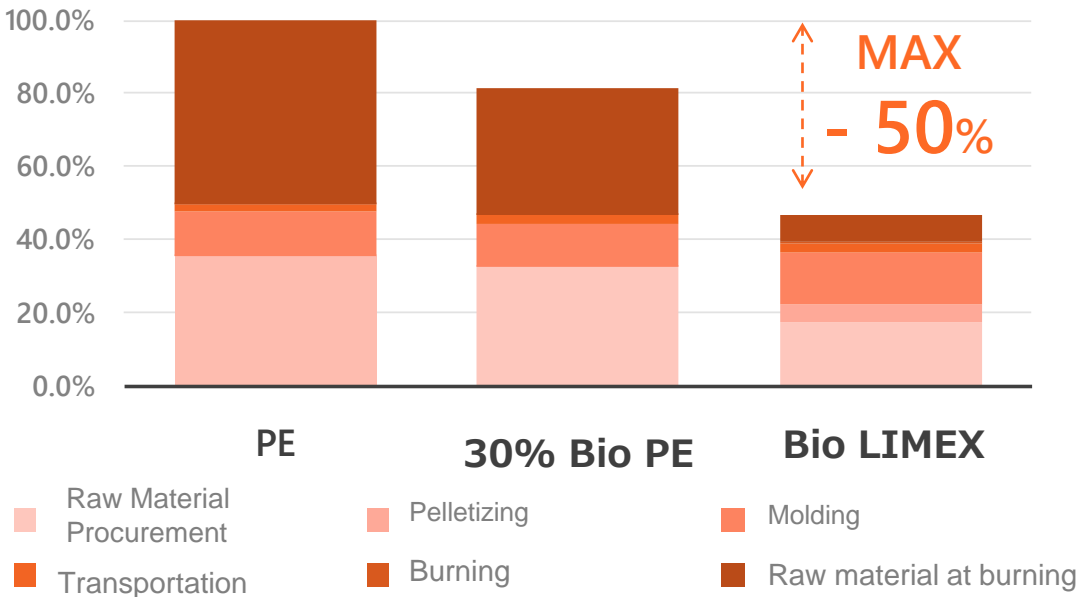
CO2 Emission

in the process from raw material procurement to manufacturing and per-kg basis.



CO2 Emission for Plastic Shopping Bags

Estimated greenhouse gas emissions [kg-CO2 eq / 1pc]

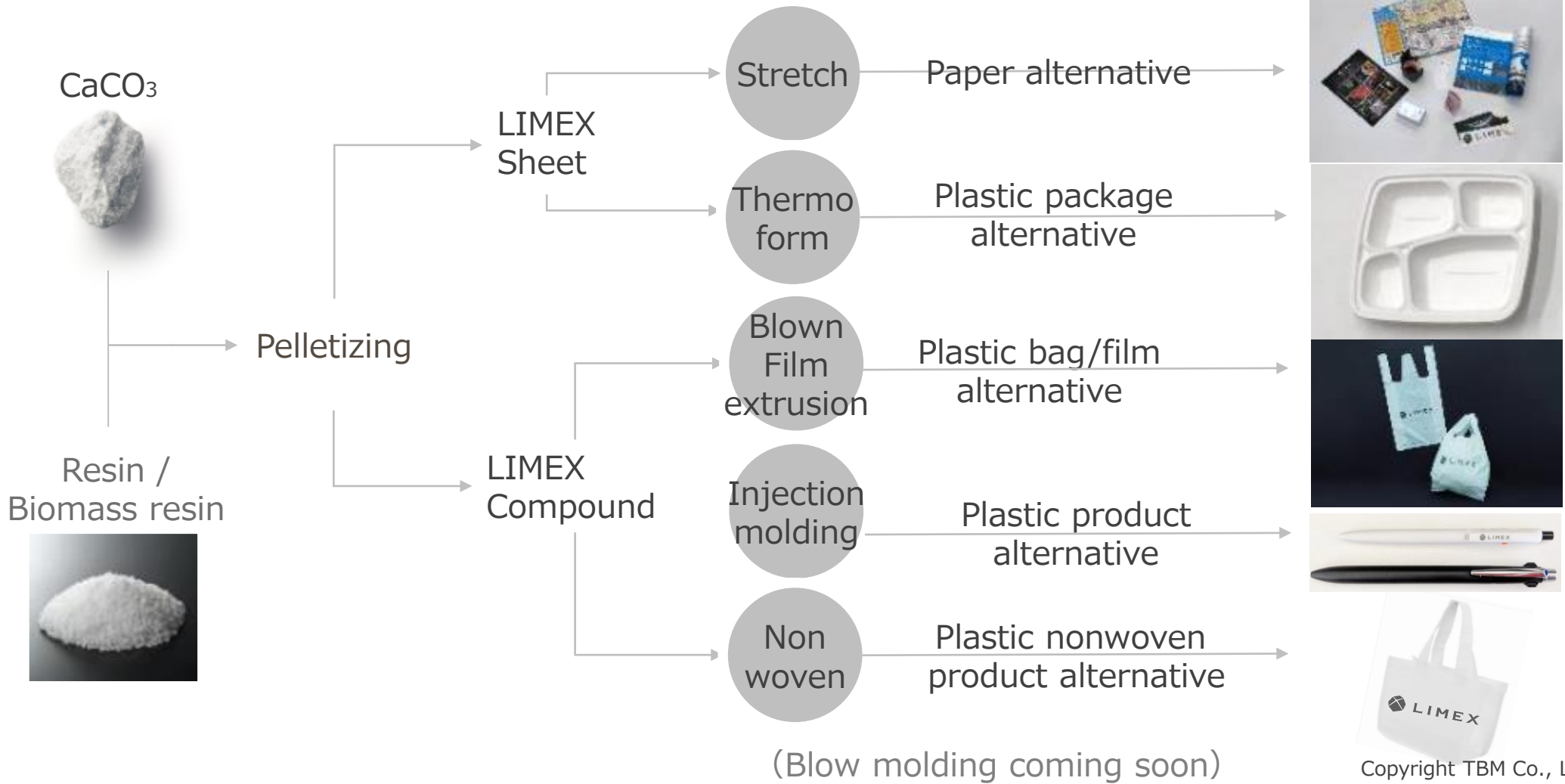


Source: TBM, jointly conducted by the Industrial Environment Management Association
Scope: Raw material procurement ~ manufacturing (depending on production condition)

What is LIMEX?

Economical & Practical

- ✓ LIMEX is applicable to various existing molding machines and methods.
No additional investment and manufacturing process change is required.



What is LIMEX?

LIMEX can be upcycled

What is upcycle?💡

To achieve sustainable manufacturing, used products are recycled to **value-added products**. It aims to change consumers' mindset to **"Used products are not waste but are resources"** and their lifestyle. It is different from conventional concept of recycling (converting to raw materials and re-use them which has lower quality).

✓ **LIMEX can be upcycled from paper alternative sheets to plastic alternative products**

Same components in LIMEX sheets (for paper alternatives) and Limex pellets (for plastic alternatives)

Paper alternative LIMEX



Collect

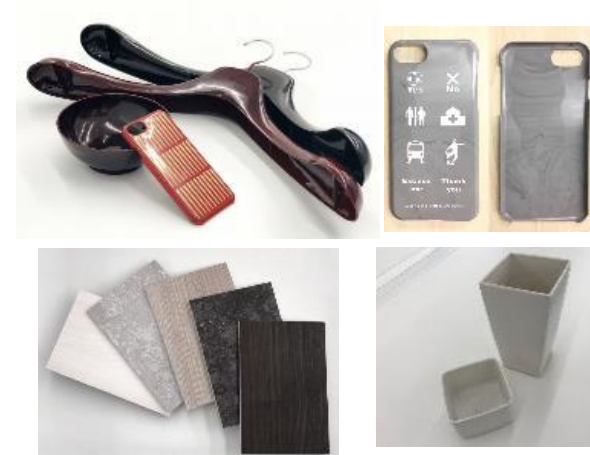


Upcycle
(add new value)



Pelletize+
mold

Plastic alternative LIMEX



|Upcycling – Blind Soccer -

IBSA game in March 2018

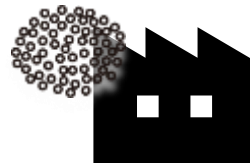


LIMEX banner

Collect



Upcycle
(add new value)



Pelletize+
mold

IBSA game in July 2018



LIMEX
smartphone case
(official goods)



IBSA fans

Upcycling - Collaboration with 7-Eleven Japan for Sustainable Circular Economies

7-eleven Japan in Okinawa uses Bio LIMEX Bag → Customers bring it back to the stores (by campaign) → Donate upcycled “LIMEX lunch plate” to orphan’s houses.



7-eleven Japan donates upcycled “LIMEX lunch plate” to orphan’s houses as CSR activity.

2. Item example / production image

| Paper alternatives

LIMEX Business Card

Already used by >4,000 enterprises

Save 10 L of water by 1 box (100 pieces)



reddot design award
winner 2018



GOOD DESIGN AWARD 2017

BEST 100



GOOD DESIGN AWARD 2017

特別賞 [ものづくり]

Paper alternatives

Booklet

ITOCHU Corporation



Hotel Equipment



Clarix Japan
(Subsidiary of Apple)



Package

High end Pencil case



Cosmetic box



Product tags

snow peak



Map

Tokyo Marathon



Posters

Suntory



Sticker/Seal

American Spirit



Menu books

Yoshinoya



Novelty cover



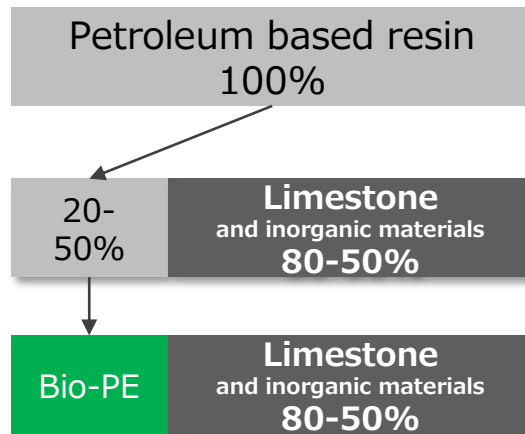
LIMEX Bag



Plastic Bag

LIMEX Bag

Bio LIMEX Bag



Bio LIMEX Bag

vs biomass based plastic bag
vs biodegradable plastic bag

- Economical
- Save biomass resource
- Reduce dependency on biomass plastic which is tight in supply

LIMEX Bag

Bio LIMEX Bag

vs paper bag

- Economical
- Save water and trees
- Not bulky – easier to stock
- Durable
- Water proof

| LIMEX Bag Examples (1/2)

Haneda Airport

Bio LIMEX



- Introduced from March 29th 2020, will be used at all the directly managed store (duty free shops etc.) by the airport by end June
- **462 tons of petroleum based plastic** and **1,114 tons of CO2 emissions** will be saved annually

LIMEX Bag Examples (2/2)

SoftBank

Bio LIMEX

(a major mobile phone provider)
approximately 6,000 stores



AIN HLD

LIMEX

(the largest dispensing pharmacy in Japan)
1,153 stores



Haruyama

Bio LIMEX

(suits brand)



G20 2019 JAPAN OSAKA Summit

as trash bag

Bio LIMEX



7-ELEVEN Okinawa

Bio LIMEX



Narita International

Airport

Bio LIMEX



Mercedes-Benz

Japan

Bio LIMEX



LIMEX Non-woven fabrics



Shopping bag of POLA



Plastic Tray

Petroleum based resin
100%

LIMEX Tray

20-
50%

Limestone
and inorganic materials
80-50%

- Less petroleum based plastic
- Less GHG emission
- Upcyclable

Lightweight and sturdy display fixtures / POP

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<https://www.limex-ecodiss.pritech.co.jp/>

POP etc

カウンター・チェア



LEDS02-0001
カウンター



LEDS02-0002
演台



LEDS02-0003
スツール



LEDS01-0000
観客席用～人型応援POP



LEDS01-0001
テレビ台



LEDS01-0002
エアコン台

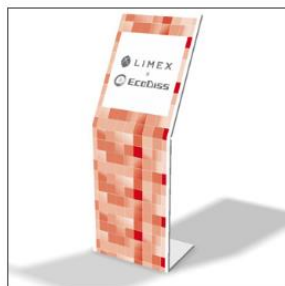


LEDS01-0003
すべり台

サイン・ラック



LEDS04-0001
バックパネル



LEDS04-0002
スタンドサイン



LEDS04-0003
ラック



LEDS04-0004
リーフレットラック

LIMEX sheets 什器・POPの他事例



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LIMEX Backlit Sheet



Plastic Sheet

Petroleum based resin
100%

LIMEX Sheet

20-
50%

Limestone
and inorganic materials
80-50%

- Uniform Surface Emittance
- Less petroleum-based plastic
- Cost Competitive!
- Compatible with various printers

Mos Food Service (Hamburger store chain)



POLA (High end Cosmetic brand)



| LIMEX Injection Molding Applications

Amenities



Stationaries



Daily goods



Tableware



Jar, Cosmetic case



LIMEX antibacterial mask case

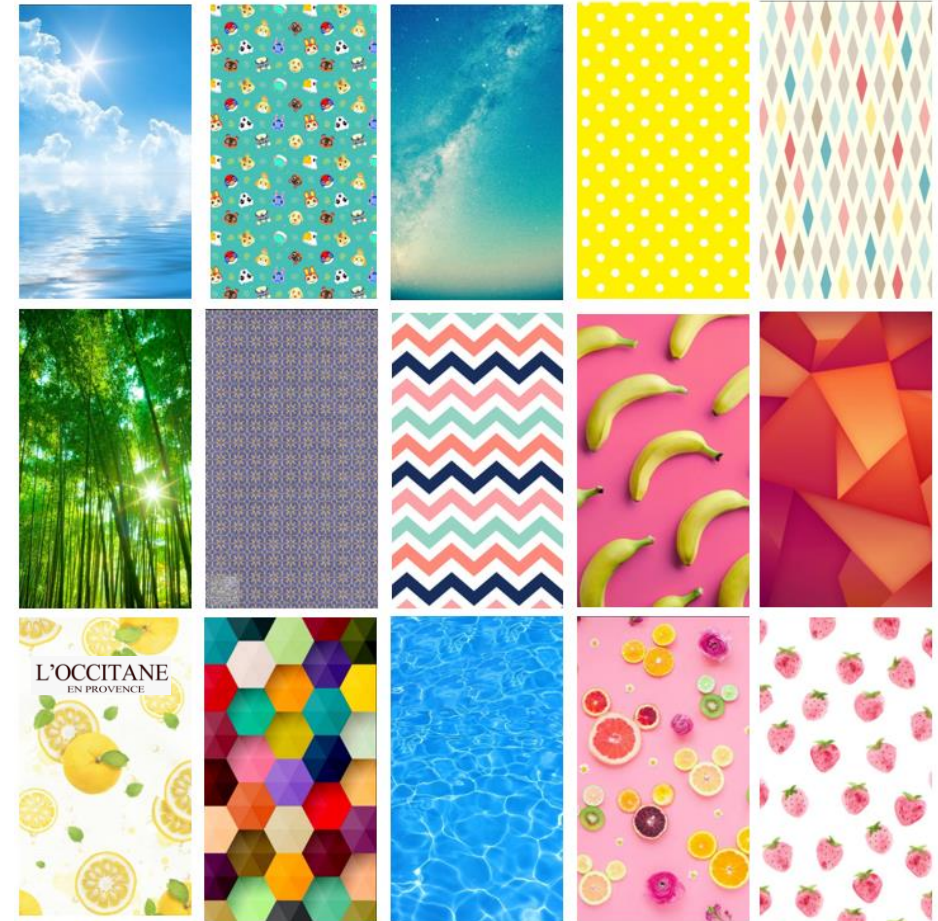
LIMEX antibacterial mask case

(Can be used for multiple purpose ☺)



Not only for commercial goods, but also

- novelty item for customer acquisition (as a tool for CRM)
- sales support tool for sales team



*image sample

Other products image [Store materials]

Staff nameplate



Menu table



Business card



Cotton case



Shopper



* This is an image. Please contact us regarding the availability of actual production.

Other products image [novelty / OEM]

Clear file



Mask case



Hairbrush



Mirror



Hair salon materials



* This is an image. Please contact us regarding the availability of actual production.

**Let's start
The Sustainability Revolution
together!**

- Thank you -