LIMEX

PRESENTATION

What is LIMEX?

LIMEX is a limestone-based material which can become alternative to paper and plastic. It is a revolutionary new material that contributes to a more sustainable society.

- Limestone is an almost inexhaustible material (a 100 per cent self-sufficient natural resource in Japan) and is inexpensive.
- LIMEX patents are submitted in over 40 countries, and has already been approved in over 20 countries.

As Paper Alternative - LIMEX Sheets

[Background]

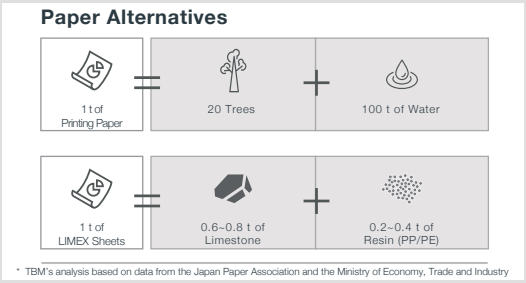
By 2050, it is expected that 40 per cent of the world's population will face serious water stress. Among the "Top 10 Global Risks" announced in the World Economic Forum held in Davos, "Water Crisis" was ranked first in 2015, third in 2016 and 2017, and fifth in 2018.

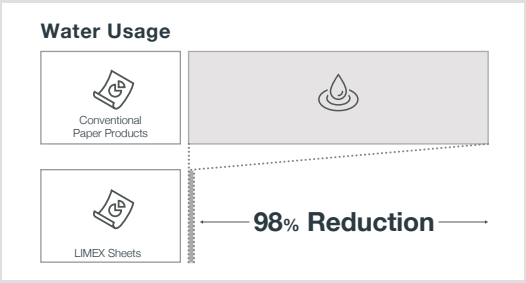
[Product]

With high water-resistance and high durability, LIMEX products are used in over 3,000 companies (as of October 2018) as restaurant menus, posters, maps (Tokyo Marathon), booklets (Nomura Research Institute's Sustainability Book), POP displays and so on.

[Environmental Evaluation]

LIMEX Sheet uses 98% less water in the manufacturing process compared with conventional printing paper. Therefore, it is possible to locate a LIMEX manufacturing plant even in inland areas (far from water source) close to users, enabling to avoid long-distance transportation and to minimize the carbon footprint. With LIMEX, it is possible to establish a local production and local consumption model.





As Plastic Alternative

[Background]

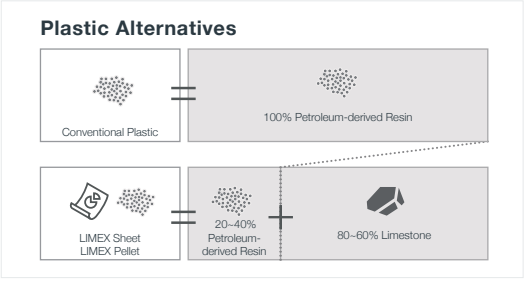
Environmental issues such as climate change, CO_2 emissions and microplastics are highly critical.
The volume of plastic waste floating out into the world's ocean is as much as annual consumption of plastic in Japan (about 11 million tonnes).
It was announced that the weight of plastic waste in the ocean is going to exceed the weight of fish by 2050.

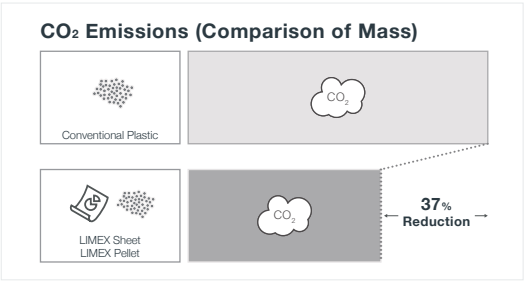
[Product]

In order to address the global plastic pollution and to meet plastic regulations, we can offer LIMEX as plastic alternative.
LIMEX has already been used as food containers and daily goods in Japan.
LIMEX has the potential to be used for construction materials, automobile parts and further more applications in the future.

[Environmental Evaluation]

By using limestone as main raw material,
LIMEX can reduce the use of petroleum-based resin significantly.
CO_2 emmission from LIMEX manufacturing process is 37 per cent less than petroleum-based resin.
Therefore, LIMEX contributes to minimize negative environmental impact from marine plastic pollution, global warming, and climate change.





Production of LIMEX

[Manufacturing Plant]

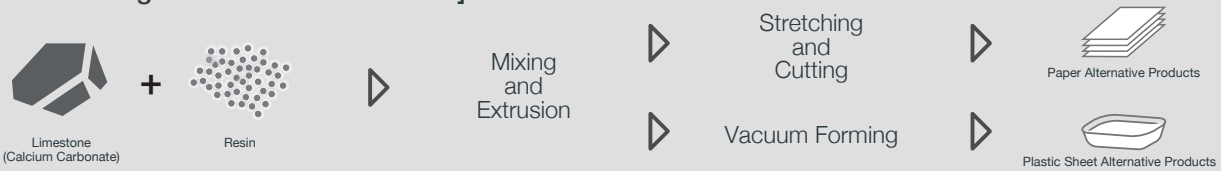
Supported by the "Subsidy for Advanced Technology Demonstration and Evaluation Facility Development" from the Ministry of Economy, Trade and Industry, operation of the first LIMEX manufacturing plant started in 2015.

The second LIMEX plant is to start its operation in 2020, and the construction is supported under the "Subsidy to Business Investment for Employment Creation in the Tsunami and Nuclear Disaster-affected Areas"

First Manufacturing Plant
@ Shiroishi Zao city, Japan
Annual production 6,000t

Second Manufacturing Plant
@ Tagajyo city, Japan
Annual Production 30,000t (Estimate)

[Manufacturing Process of LIMEX Sheet]



LIMEX Business Overview

Research and Development

2013 Selected by the Ministry of Economy, Trade, and Industry to be aided by
"Subsidy for Advanced Technology Demonstration and Evaluation Facility Development"
2014 LIMEX's technology registered to be patented
2015 Operation starts in the First manufacturing plant in Shiroishi Zao in Miyagi prefecture
2016 Conduct of Life Cycle Assessment research in collaboration with Tokyo University Professor Oki's Laboratory
Starts the sales of LIMEX name cards
2017 Selected for NEDO Strategic Innovation Program for Energy Conservation of FY 2017
2018 Starts the development of biodegradable LIMEX and LIMEX furniture surface sheets

Partnership

2016 Makes a selling agency contract with Dentsu
Signs a basic agreement for joint development and licensing with Toppan Printing
2017 Signs a basic agreement with Junior Chamber International Yokohama on "Circular Economy Program with the usage of LIMEX"
LIMEX qualified for the Tokyo Trial Order Certificate Product
Starts providing LIMEX sheets for the on-demand printing market with a partnership with RICOH
2018 Signs a partnership agreement with Sabae City and Keio University on upcycling

Global Expansion

2016 Establishes the first overseas subsidiary company Times Bridge Management Global, Inc. in San Francisco, USA
2017 Signs a basic agreement with National Industrial Cluster Development Program and JGC Corporation
to explore the possibility of development and manufacturing of LIMEX in Saudi Arabia
Signs a service partnership with CDP, an international NPO based in the UK
2018 Joins the partnership with Brussels SDG summit
Signs a business alliance with ITOCHU

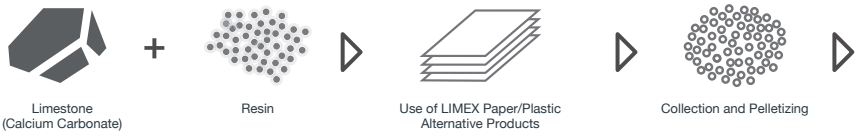
Outlook of LIMEX

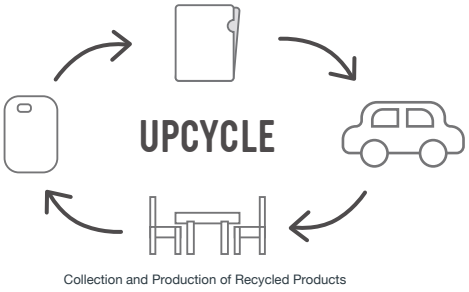
Global contribution to save precious natural resources and solve environmental issues

We seriously desire to develop a circular economy by upcycling LIMEX products.
In addition, we are developing a biodegradable LIMEX for single-use applications which may be difficult to upcycle.

[Upcycle]

Upcycling is to recycle into a product with higher quality or value compared with the original.
We will need to establish a collection scheme of LIMEX products to realize the upcycling model.





Through upcycling, we can raise awareness of consumers that waste is not something to be thrown away, but something that is reusable and recyclable.
Furthermore, by establishing a LIMEX ecosystem of manufacturing, consumption, and collection with locally available limestones, we can develop new industries and employment in such areas.

[Biodegradable LIMEX]

We are developing biodegradable LIMEX for single-use products, and for regions where it is currently difficult to collect and upcyle LIMEX products.

Biodegradable LIMEX can contribute to address environmental issues such as CO_2 emissions and marine pollution, specifically microplastics issues (microplastics: plastic particles 5mm or less in size)

Development of high added value products

LIMEX application is not limited to paper and plastic alternatives.
Our target is to expand use of LIMEX for furniture, construction material, automobiles, medical services, and robots etc.

Current LIMEX Products

Future Products

TBM Co., Ltd.

Our company name stands for “Times Bridge Management”
with a wish to create businesses and technologies that prolong for centuries and to be a company that bridges the generations.

[Mission] To create a world where people are smiling and connected

[Vision] Learning from the past to build a future.
A circular- and sustainability-oriented innovation that prolongs for 100 years and beyond.

Contribution to the SDGs

TBM contributes to the SDGs (Sustainable Development Goals) agreed by the world leaders in September 2015 at the UN Summit.
Out of the 17 SDGs, TBM prioritizes eight SDGs: 6, 8, 9, 12, 13, 14, 15, and 17.
The business of LIMEX contributes to the environment, society, and economy by focusing in particular on SDG 12, “Responsible Consumption and Production”.
The main raw material of LIMEX is limestone, which is a resource abundantly available around the world.
By utilizing limestone, LIMEX can significantly reduce the consumption of precious natural resources such as water and oil.
Furthermore, TBM will contribute to developing a circular economy that can efficiently use natural resources by establishing LIMEX ecosystems of collecting and upcycling.

Company Information

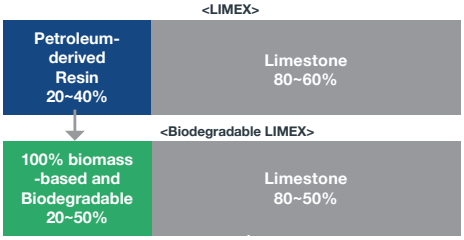
Chairman	Yuichiro Kaku	Former Managing Director of Nippon Paper Industries
CEO	Nobuyoshi Yamasaki	
COO	Koji Sakamoto	Former Operating Officer at Yahoo Japan Corporation
Director	Kenji Fukahori	Yaesu Lawyer at the Sogo Law Office
Director	Takashi Kobayashi	Former KYOCERA Corp.
Outside Director	Tadato Kakuji	Former Nomura Securities Co., Ltd
Outside Director	Minoru Sugimori	CEO at ISHIZUE Corp.
Fulltime Auditor	Koichi Kato	Former Special Adviser to the Prime Minister
Part-time Auditor	Masaru Mizuno	Former Vice President at Marubeni Co., Ltd.
Operating Officer CSO	Taiichi Yamaguchi	Former PricewaterhouseCoopers Co., Ltd., FujiXerox Co., Ltd.
Operating Officer CMO	Takayuki Sasak	Former Dentsu Inc.
Operating Officer In Charge of Sales	Momo Nakatani	Former UBS Securities Japan Co., Ltd., Merill Lynch
R&D Leader	Eiji Mizuno	Former 3M Japan
Chief Adviser	Kazuo Noda	Chairman of Japan Research Institute
Technical Advisor	Tetsuya Imamura	Former Operating Officer at Kao Co., Ltd.
Advisor	Tetsu Itabashi	Former Director at JGC CORPORATION
Location	2-7-17-6F, Ginza, Chuo-ku, Tokyo, Japan TEL 03-3538-6777 FAX 03-3538-6778	
Number of employees	94 (As of 2018 October)	
Capital	8,844 million yen (Including legal capital surplus) (As of 2018 October)	
Group company	Bioworks Corporation	Times Bridge Management Global, Inc.

Bioworks Corporation: Developer of ‘PlaX’, a Highly Functional Bioplastic

PlaX…The 100% biomass-based material is highly functional in aspects such as moldability, heat resistance, and flexibility. Developing effective biodegradable plastics had various challenges and has not been succeeded yet. However, by adding the proprietary developed additive to PLA, Bioworks successfully developed ‘PlaX’ that has competitive performance in comparison to conventional petroleum-derived plastics.

PlaX

Creates price competitiveness by applying the technology of LIMEX and using limestone, an inexpensive resource as a fill.



Media Features

Awards

- The Stevie Award hosted: the Gold Stevie AwardsAsia-Pacific Stevie Awards for the Category of ‘New Product and Product Management’
- Stanford University hosted: 7th Japan-US Innovation Award at the Innovation Showcase
- Organization for Small & Medium Enterprises and Regional Innovation hosted: 2014 New Japan Business Creation Awarded with the Reconstruction Award
- Organization for Small & Medium Enterprises and Regional Innovation hosted: Japan Venture Awards 2016 Awarded with the “Great East Japan Earthquake Reconstruction Award”

LIMEX PRODUCT Paper Alternatives

Background

Producing 1 ton of traditional paper commonly requires 100 liters of water and 20 trees. Therefore, there is a big impact on natural resource availability. Furthermore, it is critical for companies to address water and forest resource issues in order to achieve the SDGs.

Characteristics

1. LIMEX requires almost no water and no trees, and therefore is able to contribute to save precious natural resources.
(Save water [SDG 6], Save forest [SDG 15])

2. LIMEX has high water resistance and tear strength, enabling to be comfortably used in outdoor conditions.

3. LIMEX products can be recycled into plastic alternatives with high efficiency. [SDG 12]

Product Lineup

9.

10.

1....Booklet
2....Map
3....Tag
4....Folded box
5....Menu
6....POP Display
7....Name card
8....Sticker / Label
9....Poster
10....Banner

Credentials

[Menu]
Sushiro

[Leaflet]
kokusai motorcars

[Tag]
Snow Peak

[Sustainability Book]
Nomura Research Institute

[Floor Guide]
Izumi Garden Tower

[Sticker]
Natural American Spirit

[Map]
Tokyo Marathon

[Booklet]
SDG Summit

[Booklet]
CDP Report

[Banner]
The Japan Blind Soccer Association

[Credo Card]
DYNAM

[POP Display]
ITO EN

LIMEX PRODUCT Plastic Alternatives

Background

Attention given to marine pollution caused by microplastics has catalyzed regulations against single-use plastics to take place globally.
Furthermore, companies are expected to be responsible and take actions against environmental issues
such as oil savings and climate change, and to realize a carbon-free society.

Characteristics

1. LIMEX can reduce use of petroleum-derived plastic and the impact on climate change. [SDG 13]
2. LIMEX can contributing to prevent further marine pollution by reducing plastic content. [SDG 14]
3. LIMEX can contribute to the transition into a circular economy by upcycling LIMEX products. [SDG 12]

Product Lineup

1....Container
2....Mask case
3....Folder + Pen
4....Household items (Comb and Toothbrush)
5....Honeycomb board for industrial use*
6....Furniture surface sheet*
7....Urushi products*
8....Backlight panel
9....Biodegradable LIMEX*

* Currently in development

Credentials

1.

2.

3.

4.

1. [Food container]
Used for food containers at the largest city marché in Tokyo.
2. [Folder]
Used by various organizations such as the Bureau of Transportation
Central Nippon Highway Patrol Tokyo Company,
Tokyo Metropolitan Government, and Tokyo University.

3. [LIMEX comb]
Used at a business hotel chain Super Hotel.
4. Upcycling [Merchandise (Smartphone case)]
Used as official goods (Smartphone cases)
upcycled from the banner used in the World Grand Prix.