CXP

WE ARE CREATING A CULTURE OF USING WOOD

동남리얼라이즈
DONGNAM
REALIZE

Dongnam Realize is focused on the major goal of replacing plastics and transforming forests into massive carbon reservoirs through sustainable forest management. The company is actively engaged in the development and distribution of the 'melting wood' material, CXP, which is produced using forestry by-products.

The global context is marked by the recognition of significant threats to both humanity and the environment due to carbon emissions and toxicity issues arising from plastic production and disposal. Our commitment to reducing plastic usage is underpinned by the adoption of a 'plastic-free' wood-based material as an alternative to plastic materials, along with a wide range of plastic products.

CXP, our proprietary material, is designed to facilitate various shaping processes such as injection molding and extrusion without the need for plastic. It is compatible with existing plastic manufacturing equipment, enabling large-scale production of wooden products without additional equipment investment. Products made with CXP exhibit characteristics similar to traditional PE plastics and are serving as substitutes for various everyday plastic items.

Currently, numerous businesses and governments are conducting various tests and experiments using CXP to manufacture different products. CXP is already replacing plastics in various sectors, including consumer goods, flooring (decks), and buoys, with ongoing research and development aimed at replacing even more plastic products in the future.

A view of
the factory

We are creating a culture of using wood

DongnamRealize

HISTORY

2024

2024.01.

Start of Material Plant

2024.08.

2024 Korea ESG Management Awards 'The Best ESG' Excellence Award Winner

2023

2023.01.

Selected as one of the TOP3 for 'Best of CES Innovative K-Startup' at 'CES 2023'

2023.02.

Invited to participate in the iTB Group's 'Sustainability Conference'

2023.03.

Exhibited at the 27th International Plastic&Rubber Industry Exhibition 'KOPLAS 2023'

2023.04.

- Exhibited at the 'JEC World 2023' in Paris
- Received a Special Award for the Hong Kong Delegation at the 'Geneva International Invention Exhibition' in Switzerland
- Received a gold award at the 'Geneva International Invention Exhibition' in Switzerland

2023.05.

- Exhibited at the '2023 Korea Expo' in Paris
- Exhibited at the 'World Climate Industry Expo' in Busan

2023.08.

- Exhibited at the 'NY NOW' in New York
- Factory Establishment and Registration

2023.10.

Exhibited at the '2023 Korea ESG Eco-Friendly Competition'

2023.11.

Ministerial Commendation for Innovators in Small and Medium Enterprises - Technology Innovation Category

2022

2022.01.

CXP; Received the 'KFCC-CoC/PEFC Certification' for Sustainable

2022.05

- Exhibited at the '15th World Forestry Congress'
- Provided promotional items First Asian company to win the 'Sustainability Award' at JEC World 2022

2022.06.

- CTO spoke at the 'PEFC Vietnam & SGS Vietnam Seminar'
- Exhibited at the '2022 Wood Festival', hosted by the Korea Forest Service

2022.07.

Acquired a patent for an eco-landscape system using eco-friendly wooden blocks

2022.09.

Attended 'Tech 4 good' exhibition, hosted by FKCCI and Try Everything Exhibited at the 'Korea Wood Industry Fair'

2022.10.

Selected as the best member of K-ESG's current representative CSO spoke at the ESG Management through Forestry Corporate Seminar

2022.12.

- Spoke at the 'Forestry Management ESG Performance Sharing Conference & Lecture at the Jeju Production
- Technology Research Institue Certified as a 'Good technology company' with a ECREDIBLE T4- grade
- Received a certificate of recognition from a member of the National Assembly at the 'ESG Conference', CSO participated as a speaker

2021

2021. 08.

Exhibited CXP at the international plastic exhibition 'KOPLAS'

2021. 11.

- Winners of the first prize at the '2021 JEC Korea Startup Booster'
- Applied for a patent on the deck mounting structure

2020

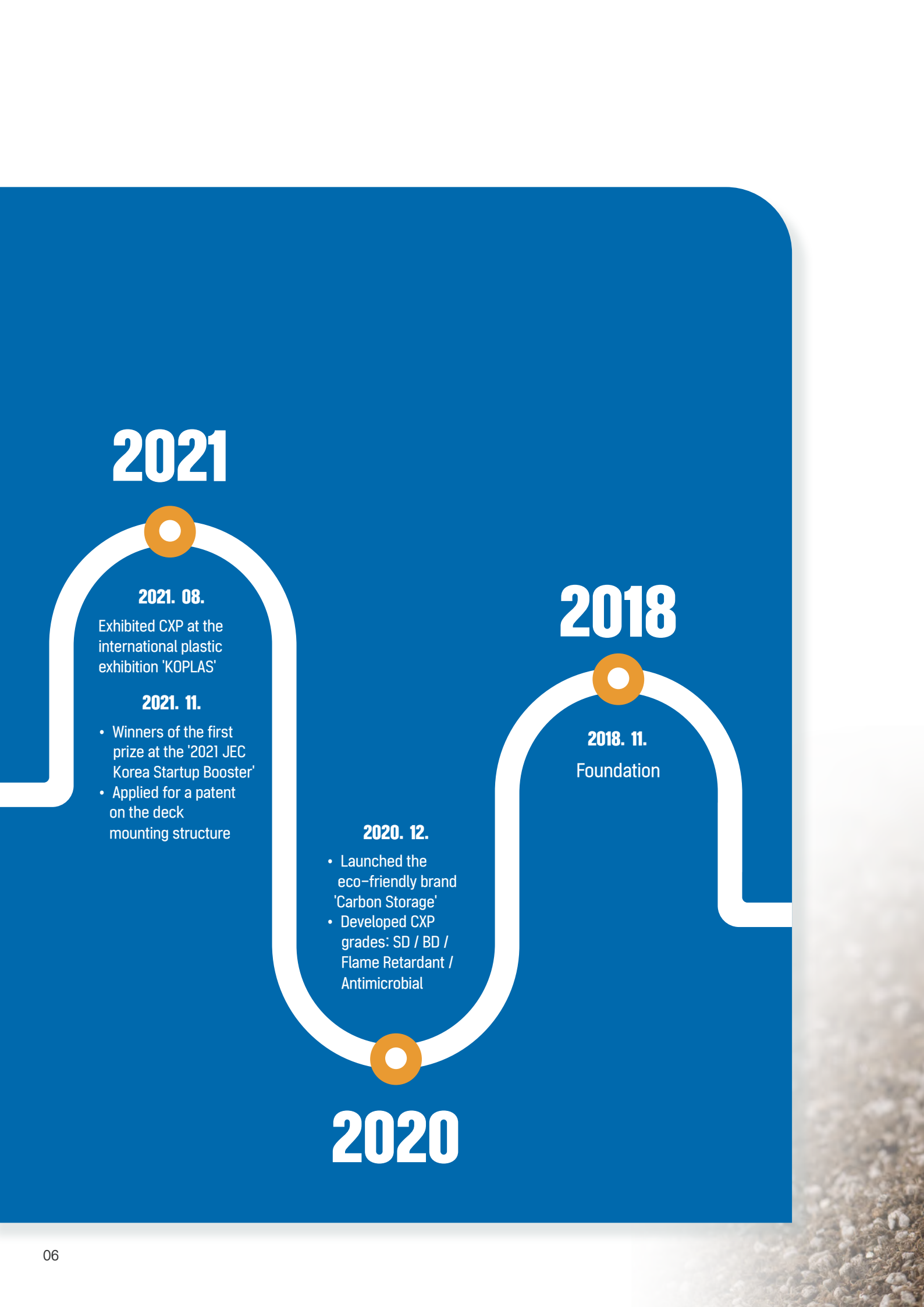
2020. 12.

- Launched the eco-friendly brand 'Carbon Storage'
- Developed CXP grades: SD / BD / Flame Retardant / Antimicrobial

2018

2018. 11.

Foundation



Base of CXP

Commonly used pellets

CXP-SD Slow Degradable

This is our most basic, yet widely popular grade used to replace general plastics. When continuously exposed to moisture, it decomposes at a rate similar to that of a heattreated dry hardwood. In a specific environments, CXP-SD carbonizes just like the dead trees during the Carboniferous Period. All CXP grades are harmless by their nature, and when SD is carbonized it becomes a powerful nourishment source for the soil.

CXP-BD Biodegradable

It's the quickest grade of CXP to decompose. In fact, the time CXP-BD takes to degrade can be adjusted from as little as 1 month and up to 3 years. This grade does not acidify or contaminate the soil after degrading, instead becoming a powerful nutrient for the nature. The downside of using a biodegradable product, however, is that CO_2 is generated during decomposition.

Customized CXP

Different formulations, made by order, allow for pellets with a variety of properties.

CXP-AM Antimicrobial

It naturally kills germs and bacteria using the same mechanism as charcoal's antibacterial properties.
It is non-toxic to humans, animals and plants, and its antibacterial activity is maintained over time.
Its antibacterial performance can also be adjusted, and the ATCC 4352 test method based on pneumococcal proved a performance up to 6.7 log, or 99.99999% of efficiency.

CXP-FR Flame Retardant

CXP-FR is used to avoid fire spreading or to prevent them altogether. This material quickly carbonizes, becoming coal, therefore extinguishing the flames. Moreover, no toxic substances for flame retarding such as bromine or phosphorus, among others, were used. Criterias for UL94, V0 grade (flame-resistant) for injection and 5V grade (non-flammable) for extrusion are met.

CXP-HI High Impact

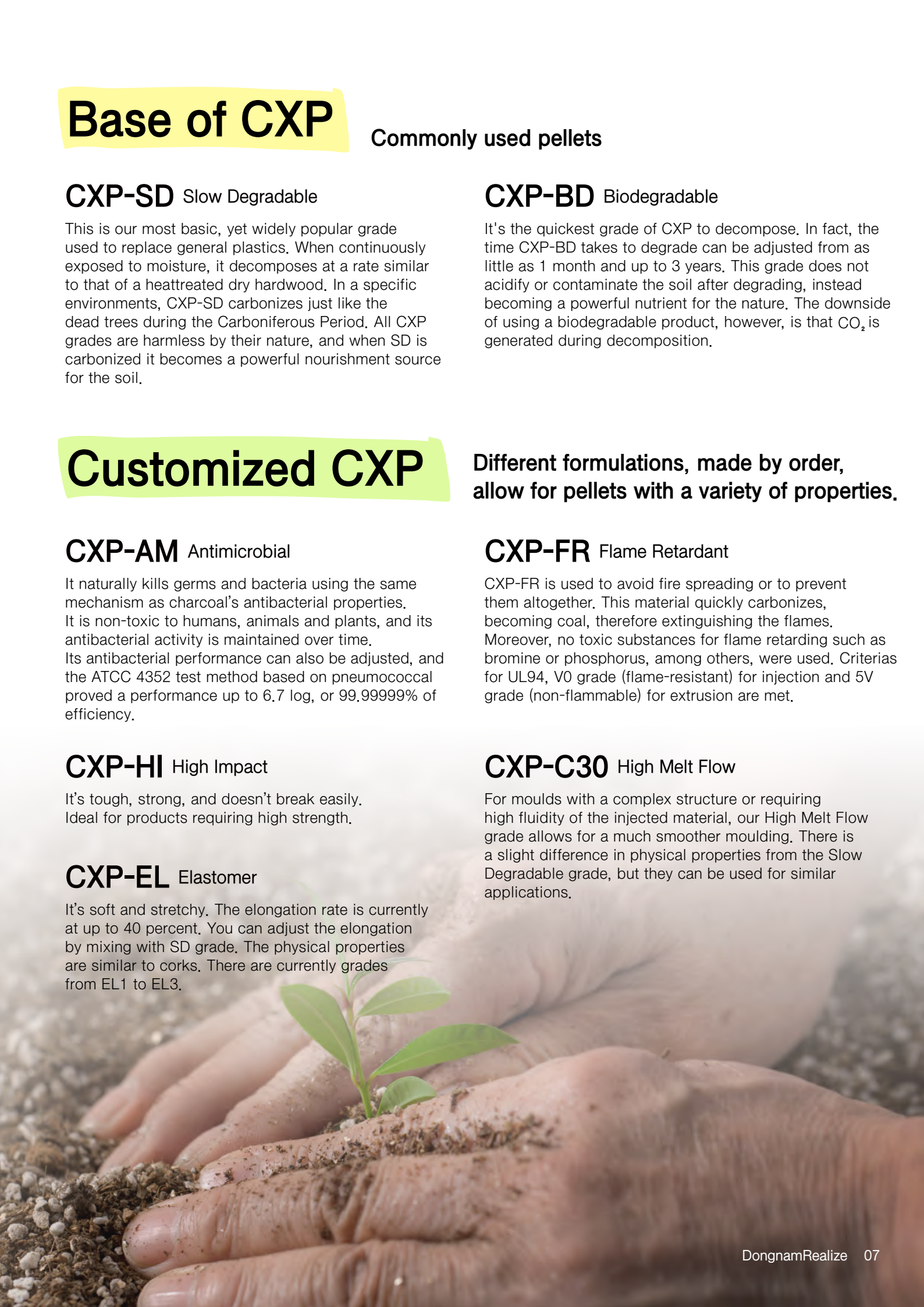
It's tough, strong, and doesn't break easily.
Ideal for products requiring high strength.

CXP-C30 High Melt Flow

For moulds with a complex structure or requiring high fluidity of the injected material, our High Melt Flow grade allows for a much smoother moulding. There is a slight difference in physical properties from the Slow Degradable grade, but they can be used for similar applications.

CXP-EL Elastomer

It's soft and stretchy. The elongation rate is currently at up to 40 percent. You can adjust the elongation by mixing with SD grade. The physical properties are similar to corks. There are currently grades from EL1 to EL3.



CXP Cellulose X-linked Polymer

CXP is a non-toxic, thermosoftening wood. By removing the binding water of wood, which is CXP's raw material, an excellent weather resistance and numerical stability are achieved even without any post-production treatment. CXP wood's unique thermoplasticity makes precise moulding and mass production possible, and its high quality and low price make it a popular alternative to plastics on the market. The decomposition period is adjustable for biodegradable types, and extra characteristics such as flame retardancy, nonflammability, antimicrobial, a higher melt flow, higher strength and higher ducility can be chosen. It is completely non-toxic when decomposed or burned, and the colors are warm and natural - all of them are made using natural mineral pigments.

When manufacturing CXP, agricultural and forestry by-products are used instead of carelessly cutting trees, thereby actively utilizing discarded resources and preventing the return of greenhouse gases to the atmosphere through the decomposition of these residues. In addition, plastic factories are harmful environments for workers due to an increased concentration of toxic gases. Simply exchanging plastic pelletsfor CXP ones can turn the workplace into a safe area, completed with a pleasant wood scent.

CXP-SD (Slow Degradable)

Daily necessities such as cups, toothbrushes, and pens.

Producing a wide range of everyday products made from PP and PE. These materials can replace various plastic products with similar usability and durability to conventional plastic items, while providing a natural feel reminiscent of the unique texture of wood.

CXP-BD (Biodegradable)

Products that need to decompose within a certain period, such as disposable items for agricultural use.

Products that are used for a limited period, such as E-clips used to guide branches of fruit trees in orchards.

CXP-AM (Antimicrobial)

Products that come into contact with many people's skin.

Can be used to create products that are non-toxic to humans, animals, and plants, and maintain antimicrobial properties over time, suitable for items that come into contact with many people.

CXP-FR (Flame Retardant)

Products that pose a fire hazard or require caution with fire.

It can produce fire-retardant products that meet the V0 rating according to UL94 standards and do not contain toxic flame retardants, ensuring safety.

CXP-HI (High Impact)

Products that require high strength, such as blocks and razors.

It is tougher and stronger compared to SD grade, making it less likely to break. It can be used to create products that require applied force.

CXP-SF (Sheet Forming)

Blow/vacuum-formed products such as disposable items.

It can be used for blow/vacuum forming thin disposable items like PET bottles. Its excellent moldability allows for the production of a wider variety of products.

CXP-EL (Elastomer)

Products that require flexibility, such as phone cases.

It is soft and highly stretchable, allowing it to be used alone or mixed with SD to adjust the elongation rate. Its physical properties are similar to cork.

CXP
6 Characteristics

Productivity

CXP Wood is thermosoftening and can be used for injection moulding and in some cases, extrusion. The material comes in pellet from, making it is easy to replace plastic: it has never been so easy to mass-produce precision wooden goods in an eco-friendly manner.

Durability

It can be used without breaking even when refrigerated due to its excellent impact strength, and it dries much faster than plastic, glass, or solid wood. Likewise, microbial growth does not occur properly unless moisture is continuously supplied. This makes it easy to keep toothbrushes, bowls, cutting boards, and cups clean.

Non-toxicity

CXP is free from 40 kinds of harmful substances, including heavy metals and environmental hormones, according to international standards. No toxic or harmful substances are produced even when the material is burned in a flame, or when the factory machines are working. The ambient is full of a pleasant woody scent and does not farm worker's health.

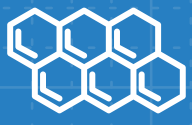
Water Resistance

Products made with CXP have no air holes inside due to the high pressure during the manufacturing processing, preventing water from infiltrating and eliminating issues such as warping or mold problems typically associated with regular wood products.

Carbon Storage

Trees absorb a significant amount of carbon dioxide as they grow. When they are burned or decayed, the stored carbon dioxide is released back into the atmosphere. Many forestry by-products are left to rot in the industry. CXP transforms them into useful plastic alternatives, so-called "Carbon Storage". By using CXP products without burning them, we can help reduce carbon dioxide emissions.

Presence of lignin



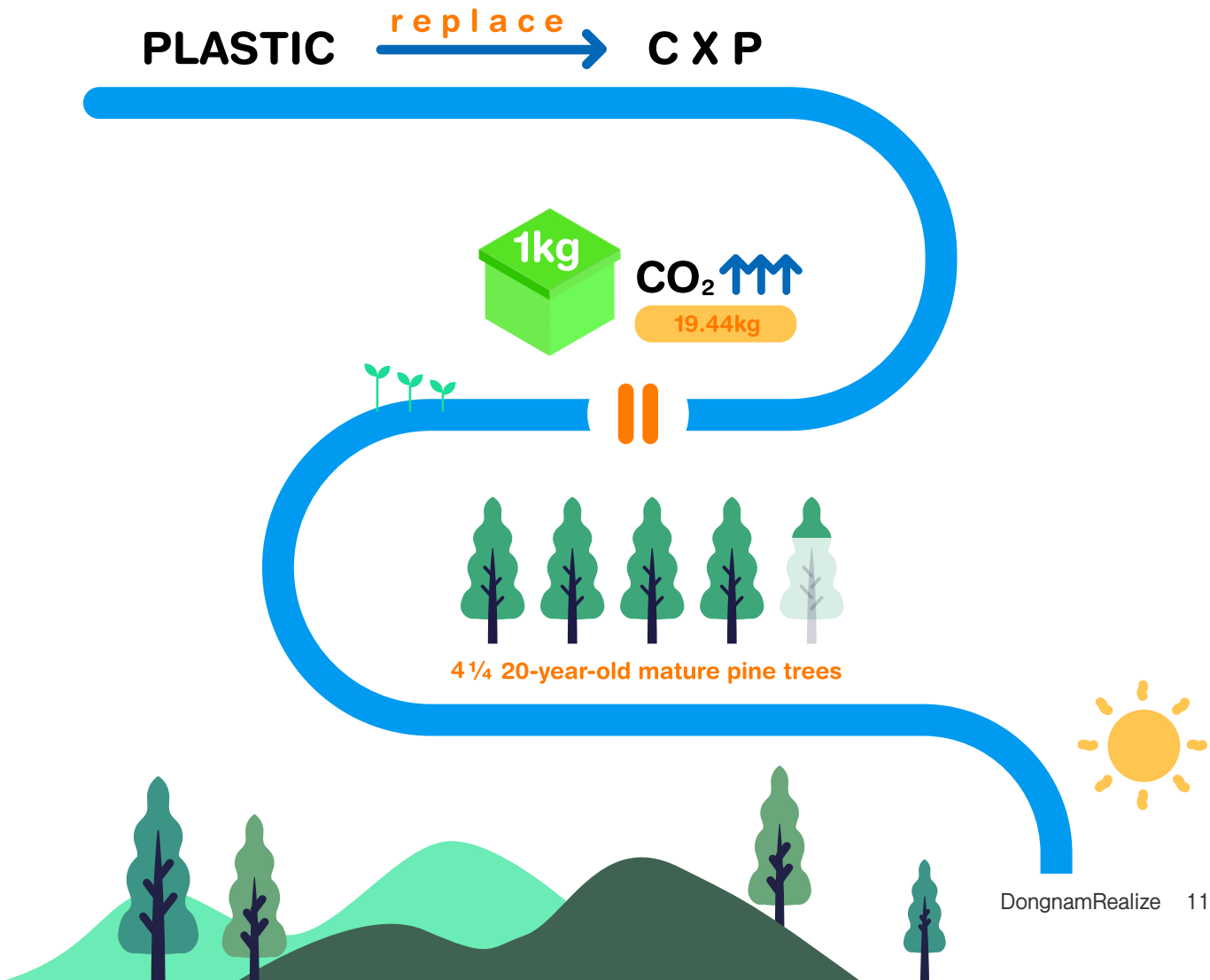
Depending on the type of wood used as raw material the scent might vary. This is because of the natural antibacterial and anticancer agent, lignin, contained in natural wood. The woody scent will naturally fade over time, as will the lignin under direct sunlight. This will make the color look brighter, a natural effect of wood that is not coated with chemicals.

CXP for Forest Growth

CXP Wood is a material that makes ESG management practices quite easy, as one thing leads to another. “Environmentally, CXP is a great alternative to plastic”, and there are three pillars that support this statement. First of all, using CXP prevents CO_2 stored in crude oil to reach the surface of our planet - which happens when such oil is extracted for fossil fuel and plastic production. The second pillar is that CXP pellets are made of the forestry industry by-products. This encourages sustainable forest management as a profitable business and prevents residues from rotting away or becoming biofuel (returning CO_2 to the atmosphere instead of storing it away), which is good both for the environment and workers.The third pillar is the opportunity for more CO_2 absorption that is unlocked when there is demand for wood and mature trees are removed to be used, new seedlings are planted. The result is thinned, healthier forests that are serving an important purpose. This is a virtuous circle and a complete solution for countries that, similarly to Korea, find themselves in a delicate position of having to care for forests that are high-maintenance but offer little to no economic value.

STRONG POINT

1. Significant increase of carbon absorption
2. Biota diversification
3. Damage control of floods and drought
4. Wildfire suppression
5. Contribution to the national and regional economies



CXP Product Gallery

Introducing a variety of products made with CXP material. There are various items, including tableware, bathroom accessories, and stationery.


NOMA

CXP Reference

[Flower Pot]

Joint event by Korea Forest Service, KORAIL, KOREA ARBORETA AND GARDENS INSTITUTE and Native Plant Distribution Event

[Portable Ashtray]

KT&G X GS25
Tender Touch Campaign

[Calm Mug]

Boryeong City Carbon Neutrality Promotional Item

[Precious Cup]

Youth Month Celebration Event in Ulsan

[Handy Front Plate]

Ulsan Whale Festival

[Handy Front Plate]

Samjin Eomuk Goods

[Toothbrush]

Samsung Biologics Event Souvenir

Awards

JEC Korea

Winner of the JEC Korea Startup-Booster

JEC World

Sustainability Award

CES 2023

Best of the K-Startup TOP3

Awarded the Minister's Commendation for Technology Innovation

The International Exhibition of Inventions (Geneva)

Receive a gold medal

The International Exhibition of Inventions (Geneva)

Hong Kong Delegation Recipient of the Special Award

2024 Korea ESG Management Awards

"The Best ESG" Excellence Award

PEFC/KFCC Certification

World's first recognized thermosoftening wood

PEFC™
PEFC/43-32-003
PEFC Certified
CXP is from sustainably managed forests, recycled and controlled sources

KFCC™
KFCC/03-025
KFCC Certified
CXP is is from sustainably managed forests, recycled and controlled sources

CXP is recognized by the international standard PEFC as a non-toxic and eco-friendly wood that contributes to sustainable forest management.

CXP can replace plastic without deforesting, to make products and using wood residues that have not became products.

By mainly using forest and agricultural by products, we aim for a natural method of preventing greenhouse gasses returning to the atmosphere due to decomposition of by-products and being biodegradable or carbonized according to production methods.

The Other Certification

- P A S S | Available for ages 3 and up
- P A S S | Microwave safe
- NON-DETECT | 8 heavy metals
- NON-DETECT | RoHS 26 substances
- NON-DETECT | Heavy metals in toothbrush handles
- NON-DETECT | Food container regulations

https://cxp.kr

www.carbonstorage.shop

@dongnamrealize / @carbonstorage

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Chungcheongnam-do, South Korea(33009)

Direct Access
to tenant company