

HSD

HSD REPORT ON SUSTAINABLE DEVELOPMENT COMPETITIVENESS



Development Layout | Energy-saving & Emission-reduction | Intelligent Automation | Green Action

HSD-BR-PPT-GREEN-250101-EN-V1A

 **HELP**

 **SUPPORT**

 **DELIVER**



DEVELOPMENT LAYOUT 01

02 ENERGY-SAVING & EMISSION-REDUCTION



INTELLIGENT AUTOMATION 03

04 GREEN ACTION



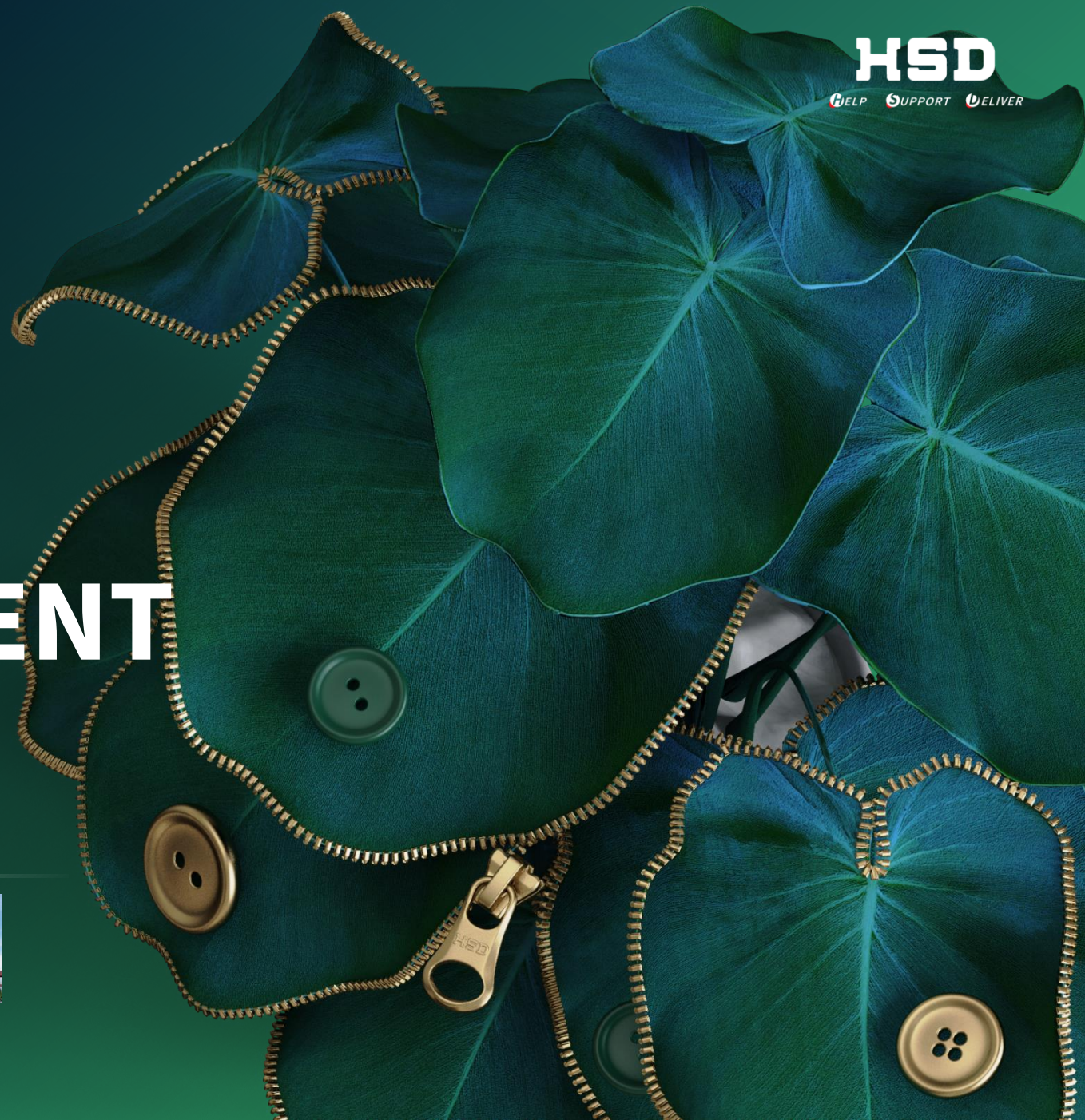
CONTENT

01



DEVELOPMENT LAYOUT

Zhejiang Headquarters | Global Branch Factories



HSD GLOBAL LAYOUT

HSD

HELP SUPPORT DELIVER



Global Layout Of HSD
From 2023 To 2027

2021
HSD Zhejiang
Factory



The fully automated smart
factory has commenced full-
scale production and operation.

Upgrade of the
comprehensive processing
industrial park



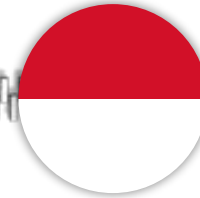
HSD Cambodia
Factory
2023

2025
HSD Vietnam
Factory



Come into operation

Completion of the
Factory



HSD Indonesia
Factory
2027

KEEP EXPANDING

3+1
Major Factories

30+
Offices
China 18~20+
Overseas 7~10+

20+

At present, HSD has offices in China:

Beijing	Dalian	Dongguan
Fuzhou	Guangzhou	Hangzhou
Hong Kong	Jiaxing	Nanjing
Ningbo	Qingdao	Shanghai
Shenzhen	Suzhou	Taiwan
Tianjin	Weihai	Xiamen

Jiashan (HSD
Headquarters / Factory)

Vietnam (Factory)



Dyeing
Department

Licence approved



Electroplating
Department

Licence approved



Intelligent
Management

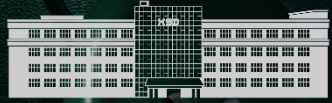
Automatic production lines

ONE-STOP MANUFACTURING
PRODUCTION



PURSuing BETTER SERVICE
Sample | Bulk Production | Logistics | Delivery Date

HSD ZHEJIANG FACTORY



One-stop Manufacturing

HSD

HELP SUPPORT DELIVER

ZHEJIANG INTELLIGENT HEADQUARTERS

Zhejiang Huashengda Zipper Technology Co., Ltd. was established in 2017. The company's overall park is located in Yaozhuang Town, Jiashan County.



> **USD 80M** investment.

80,000 sqm area.



> **400M** zippers/yr, prod. val. **800M RMB**.

Key Highlights |

China's leading large-scale zipper accessory manufacturing center, integrating **electroplating and water-repellent film** processes.

ONE-STOP MANUFACTURING

Integrates a Series of Processes and Tests

Tape Weaving, Forming, Sewing, Dyeing, Molding, Die-casting, Enamel, Electroplating, Coil Strips, Plastic Strips, Metal Strips, along with various types of coded zippers, button.



Expertise From Shenzhen, Legacy In Innovation, Expansion To Global.



The company's overall park is located in Yangtze River Delta Economic Development Zone



- Auxiliary Materials Intelligent Manufacturing Technology Industrial Park
- Inheritance of Shenzhen's 20 Years of Manufacturing Experience
- International Management of Cross-border Factories in Cambodia and Vietnam
- Technology and Management Achieve Jiashan's Intelligent Manufacturing

HSD CAMBODIA FACTORY & VIETNAM FACTORY

HSD

HELP SUPPORT DELIVER



CAMBODIA FACTORY



Production started officially on Sept 15th, 2014.

Integrate the entire production and inspection chain of zippers.

ONE & ONLY
IN CAMBODIA



> **USD 30M** investment.



320,000 sqm area.

> **1.5M** zippers/day.



Key Highlights |

The **first** Chinese zipper manufacturing enterprise in Cambodia and is also the **only** zipper factory in the country.



VIETNAM FACTORY



» About **58Km** from Ho Chi Minh City (Vietnam)

» About **170Km** from Phnom Penh (Cambodia)

2024
Brand New

THE BEST
CAMBODIA-VIETNAM HUB



> **USD 12M** investment.

15,000 sqm area.



Key Highlights |

Located at the strategic hub of the **Cambodia-Vietnam border**, offering efficient and convenient logistics, seamlessly integrating bilateral accessory manufacturing.



02



ENERGY-SAVING & EMISSION- REDUCTION

Cy-free Full-auto Electroplating Line | Solar Energy Equipment | Wastewater Treatment System |
Waste Gas Treatment System | Eco-eff. Dyeing Equipment | Environmental Air Conditioner |
Material Recycling System | Fac.-Res. Heat Reuse Sys. | Eco-circular Pond



ENERGY-SAVING & EMISSION-REDUCTION



CYANIDE-FREE

Produced Through **Cyanide-free Electroplating**

2020

2021

2022

Shenzhen

Cambodia

Zhejiang Jiashan

HSD has completed the research and development, as well as the commissioning and use of cyanide-free Electroplating production lines for **barrel electroplating** and **rack electroplating**. Cyanide-free Electroplating will effectively improve the operational safety environment for employees and enhance the efficiency of environmentally friendly wastewater treatment and discharge.



SOLAR POWER

Solar Power Generation Plan

2020

2021

2023

Cambodia
Implement

Cambodia
Comprehensive
Supporting System

Zhejiang Jiashan
Comprehensive
Supporting System

HSD has completed the comprehensive installation of **solar power generation equipment** and the supporting application systems at its factories in Cambodia and Jiashan, Zhejiang. Solar power generation will effectively reduce HSD's energy consumption and fully realize part of the company's carbon reduction plans.



WASTEWATER TREATMENT

Wastewater Treatment System

2020

2021

~

future zero
emissions

Cambodia

Zhejiang Jiashan

100% Recycling and
Reuse

The transition from complying with **international emission standards** to achieving comprehensive recycling and **zero emissions**.

ENERGY-SAVING & EMISSION-REDUCTION



WASTE GAS TREATMENT

Wastewater Treatment System

Introducing an international standard exhaust gas treatment system, with an average exhaust gas removal rate of up to **87%**



ECO-EFF. DYEING

Eco-eff. Dyeing Equipment

Introduce low-power and water-saving dyeing equipment to reduce energy consumption, reduce the use of water resources in equipment, and reduce the generation of sewage.



ECO AIR CONDITIONER

Environmental Air Conditioner

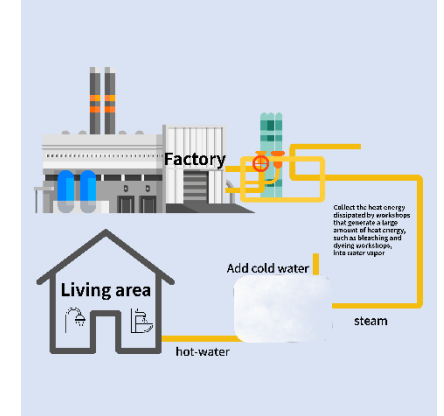
Our environmentally friendly air conditioning system has replaced the traditional fresh air-cooling with heat recapture, which effectively saves energy and significantly reduces our carbon footprint.



MATERIAL RECYCLING

Material Recycling System

Recycling zipper production materials like resin teeth, nylon monofilaments, and polyester tapes, as well as zinc and copper scrap from zipper and button production, reduces resource waste.



FAC.-RES. HEAT REUSE

Fac.-res. Heat Reuse System

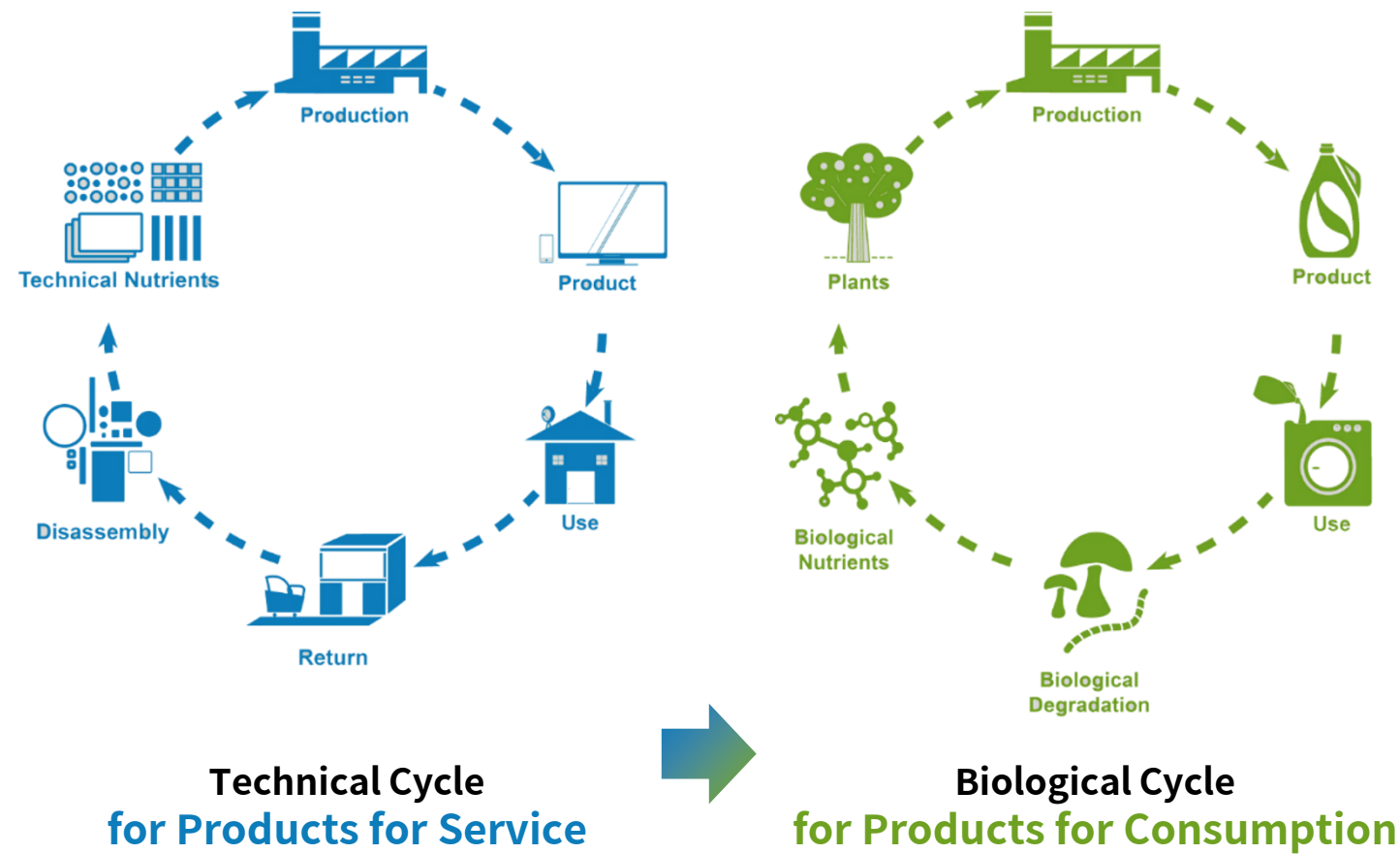
HSD captures excess Department heat to convert circulating water into steam, which heats cold water for facility use, greatly reducing hot water energy consumption.

Cambodia

Zhejiang Jiashan

Zhejiang Jiashan

ENERGY-SAVING & EMISSION-REDUCTION



HSD Cambodia Ecological Pond Circulation System



2020	Industrial Cycle	2022	Ecological Cycle	2050
70% Recycling and Reuse of Wastewater	Eco-symbiotic Industrial Park			Zero Emissions

HSD Cambodia Eco-symbiotic Environmental Protection System

ENERGY-SAVING & EMISSION-REDUCTION

Zhejiang Factory - Carbon Reduction Initiative



Accurate
Calculation of
Carbon Emissions



Set Goals and
Measures

**Launched
in 2023!**



SOLAR POWER
GENERATION



WIND POWER
GENERATION



in the course of planning

ENERGY-SAVING
LIGHTING



in the course of planning

PROCESS
UPGRADE

Die-casting



Dyeing



Electroplating



03



INTELLIGENT AUTOMATION

Multi-in-one Automatic Production Line | Vision AI Recognition System | Fully Automatic
Die-casting Production Line | Full Automation of Dyeing and Finishing | WES System



5

**FIVE
HIGHLIGHTS**



1 INTELLIGENT AUTOMATION

Multi-in-one Automatic Production Line

Is The Machine Bulky And Cumbersome?

- ✗ Occupies a large area
- ✗ Decentralized equipment management is cumbersome and complex

Is It Time-consuming And Labor-intensive?

- ✗ Low per capita productivity
- ✗ High energy consumption of equipment

Is Manual Inspection Inefficient?

- ✗ Manual work is prone to errors
- ✗ Low manual efficiency

Issues with existing zipper manufacturing production lines

01 FAST AND EFFICIENT

Increase in per capita productivity
Assembly line production

02 ENERGY-SAVING AND SPACE-SAVING

Reduced energy consumption and space saving
Centralized operation and simplified management

03 AUTOMATIC AND PRECISE

HD image inspection
Intelligent and precise discrimination

ADVANTAGES OF CONSOLIDATED MULTI-CATEGORY,
ALL-IN-ONE AUTOMATED LINES

2

INTELLIGENT AUTOMATION

Multi-in-one Automatic Production Line + Vision **AI** Recognition System

HSD

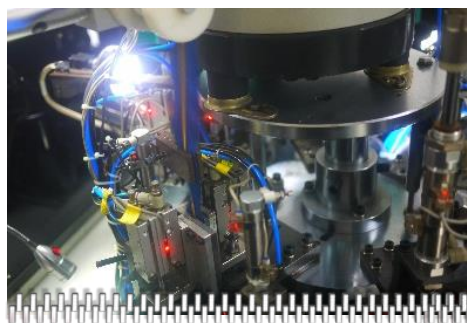
HELP SUPPORT DELIVER

Metal 4-in-one

In addition, there are Coil, Coil Injection, and Plastic Injection 3-in-one equipment.

Examples of Equipment

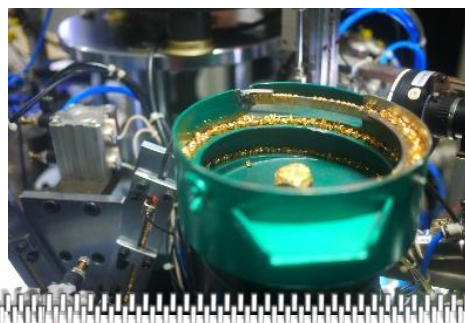
Metal #4 | YG Slider | Close end |
Automatic Production Line



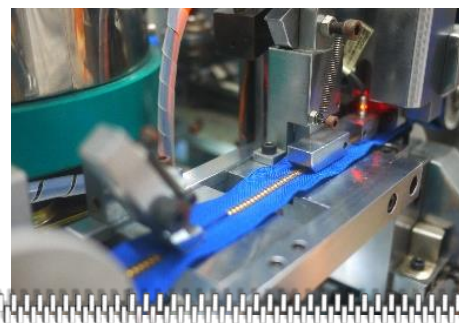
01 BOTTOM STOP



02 PRE-INSERTION OF
SLIDER



03 TOP STOP



04 CUTTING TO
LENGTH



05 FINAL PRODUCT
INSPECTION



INTELLIGENT IMAGE INSPECTION

By entering commands into the control panel, the machine can automatically detect defective products according to the instructions and sort them into the defective product channel.

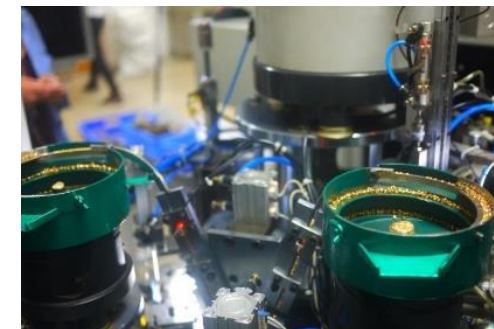
Accurate Calculation of Carbon Emissions

AI intelligent identification enhances product yield.

Average daily production per person is
20,000 zippers.



Efficiency has been increased by
5 times.



3

INTELLIGENT AUTOMATION

Flexible Automated Production Line + Vision **AI** Recognition System

HSD

HELP SUPPORT DELIVER

Metal Zipper Production Line

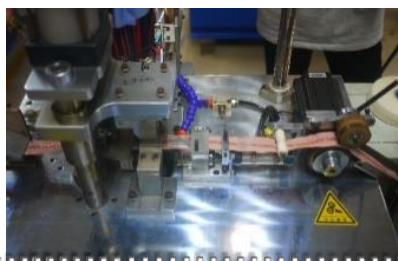
Examples of Equipment

In addition, there are Coil, Coil Injection, and Plastic Injection Zipper Production Line .

Metal #5 | Auto-lock Slider | Open end | Automatic Production Line



01 PRESET LENGTH MARKING



02 GLUE FABRIC-FEEL ADHESIVE



03 PUNCHING HOLES



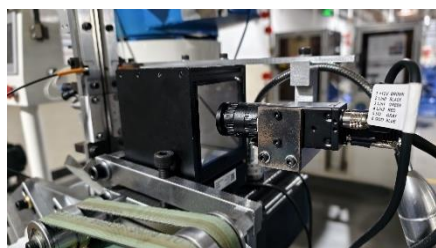
04 BOX & PIN



05 PRE-INSERTION OF SLIDER



06 TOP STOP



INTELLIGENT IMAGE INSPECTION

By entering commands into the control panel, the machine can automatically detect defective products according to the instructions and sort them into the defective product channel.

Accurate Calculation of Carbon Emissions

AI intelligent identification enhances product yield.

Average daily production per person is **2,000** zippers.

Efficiency has been increased by **4** times.



07 FINAL PRODUCT INSPECTION

4

INTELLIGENT AUTOMATION

Fully Automatic Die-casting Production Line

HSD

HELP SUPPORT DELIVER



Reduce workload
Eliminate hazardous
jobs



Boost efficiency
Precise control and
stable quality

APPLICATION
DEPLOYMENT



Cambodia

Zhejiang Jiashan

2021

Completion of the
implementation of full-item
automation.

FULL INTELLIGENT AUTOMATION IN DIE-CASTING



ADVANTAGES OF CONSOLIDATED MULTI-CATEGORY, ALL-IN-ONE AUTOMATED LINES

Automated Material
Feeding Recognition

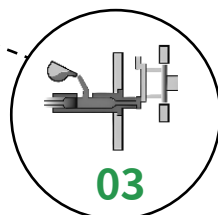


02



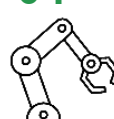
Automatic Processing of
Metal Melting and Alloying

Automatic Die
Casting Molding



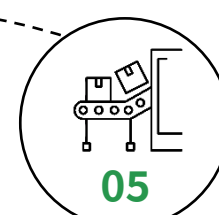
03

04



Automatic Robot
Arm Demolding

Automated Finished Product
Collection and Storage



05

06



Automatic Recycling of Scrap
Materials and Gating Scraps

5 INTELLIGENT AUTOMATION

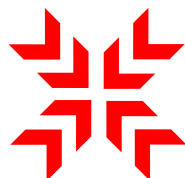
Fully Automatic Die-casting



The occupied area is reduced by **30%**.



Per capita efficiency is increased by **400%**.



Accidents are avoided.

Eliminating the need for employees to operate multiple machines reduces safety accidents.

ADVANTAGES OF CONSOLIDATED MULTI-CATEGORY, ALL-IN-ONE AUTOMATED LINES

APPLICATION DEPLOYMENT SCHEDULE

2020

Cambodia

2021

Zhejiang Jiashan

2023

Completion of the implementation of full-item automation.

Achieve full intelligent automation in dyeing and finishing (automatic feeding, standard recipes, intelligent color matching, intelligent sampling).

2022

Integrate the HSD Global Factory Color Matching Management System with the DATA COLOR System.

2021

Develop an automatic feeding system for auxiliaries and dyes.

2020



FULL INTELLIGENT AUTOMATION IN DYEING AND FINISHING

6 INTELLIGENT AUTOMATION

WES System

WMS
×
WCS



Improve

- Utilization rate of automated equipment
Labor productivity
- Overall throughput of the logistics center



Reduce

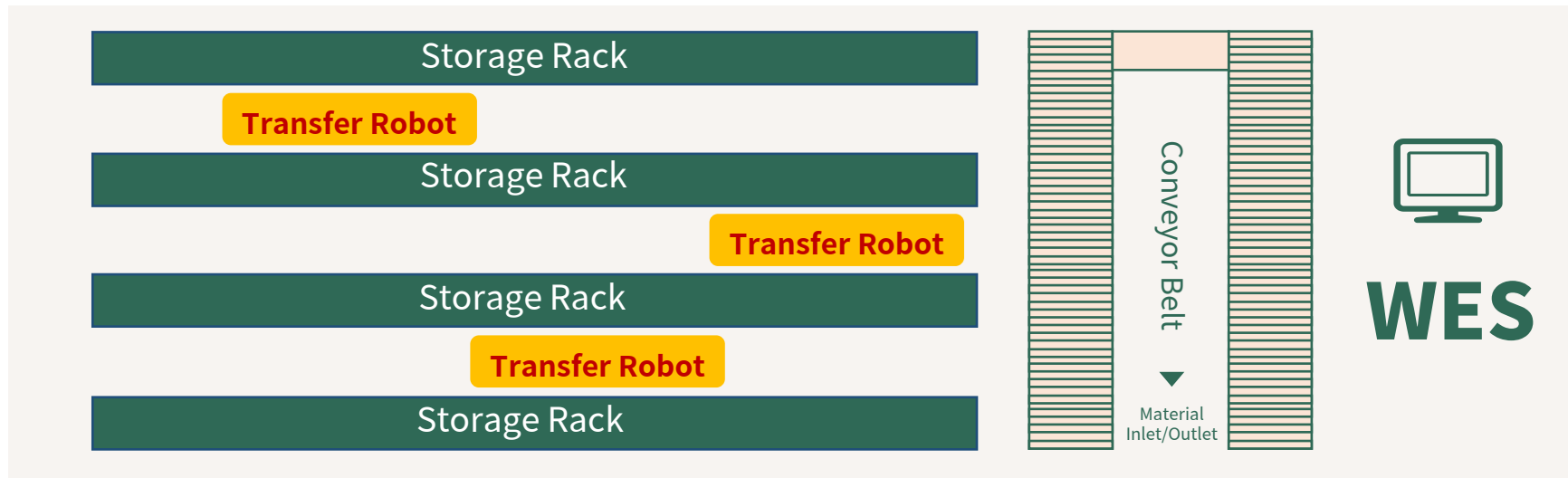
- Disruption time in logistics operations
- Response time for customer orders in the logistics center

Warehouse Execution System (WES)

- WES can leverage existing systems and resources in the logistics center to minimize disruptions in logistics operations.
- It enhances the utilization of automated equipment and labor productivity, thereby reducing the response time for customer orders in the logistics center.
- It increases the overall throughput of the logistics center. By establishing business agility to meet the demands of an omni-channel supply chain.

6 INTELLIGENT AUTOMATION

WES System



Warehouse Execution System (WES)



01. Quality Control (QC)



02. Convey



03. Autonomous Vehicle



04. Intelligent Warehousing



05. Autonomous Vehicle



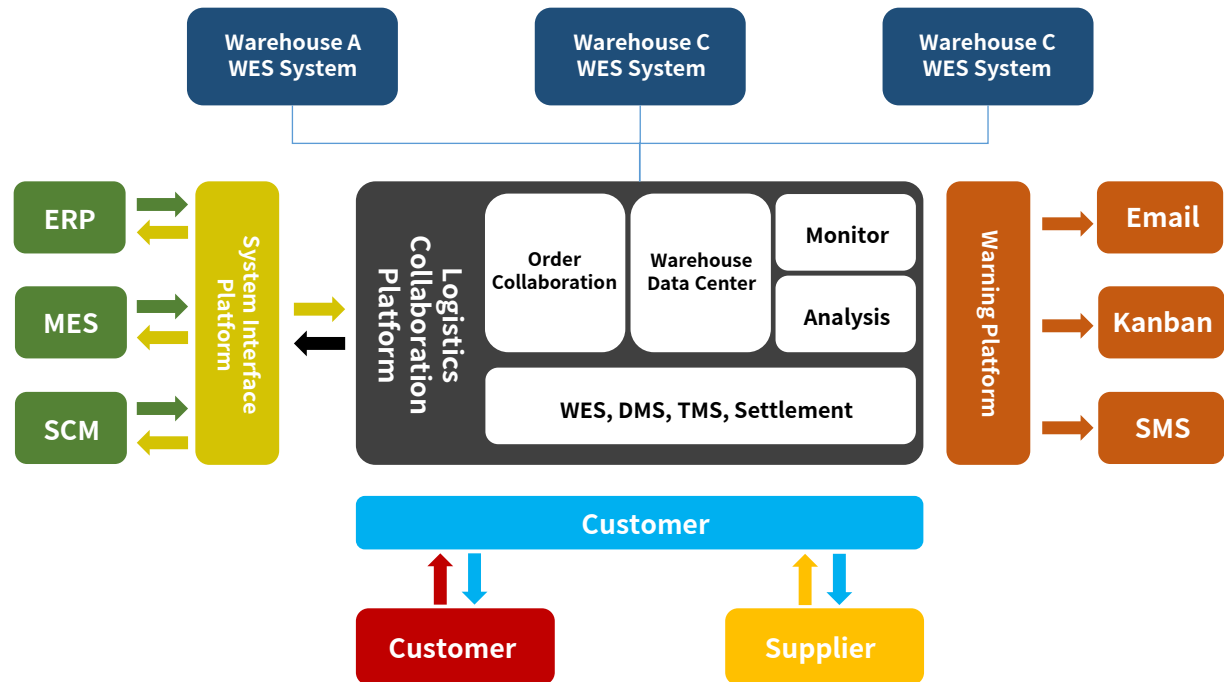
06. Automatic Packaging



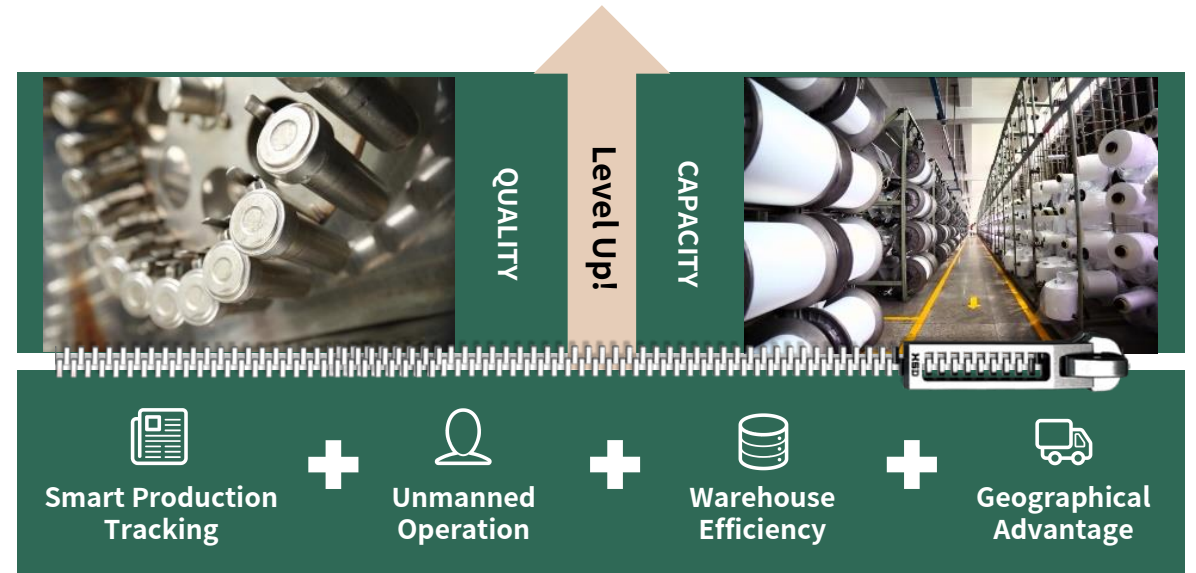
07. Dispatch

6 INTELLIGENT AUTOMATION

WES System



Calculation Framework of HSD WES System



Application Deployment Schedule

2025	2026	2027
Development and Testing of WES System	Completion of WES System Development	HSD Jiashan Factory in Zhejiang, Jiashan Intelligent Manufacturing

04



GREEN ACTION

Recycled Products | Material Recycling System | Friendly Process
Improvement | Single PET Products | Biobased Products | Biodegradable
Products | HSD Green Shirt Initiative | Eco-certification | EOCA Alliance



9

NINE HIGHLIGHTS



GREEN ACTION

HSD

HELP SUPPORT DELIVER

HSD GREEN 
ACTION VIDEO



Welcome to scan
the QR code.



1 GREEN ACTION

Recycled Products

HSD environment friendly yarn zipper series, using **100% Eco-yarn**, in order to protect the earth with you.
HSD annual production of 400M pcs of zippers, total recycling of PET about 0.6 billion bottles .



Produce **1**
Zipper



Reduction of
carbon
emissions



Reduction of
water usage



Recycle
1.586
Plastic Bottles
for Earth



Saving of fuel



HSD
HELP SUPPORT DELIVER



HSD Recycled Yarn Products

100%
RECYCLED
POLYESTER

Global Recycled Standard (GRS) Version 4.0



Total Quality. Assured.
Intertek Testing Services NA, Inc.
900 Chelmsford Street
Lowell MA 01851

Scope Certificate Number ITS-Z26411-GRS-01948700
Scope Certificate Version Number ITS-Z26411-GRS-01948700

Intertek
certifies that

ZHEJIANG HUASHENGDA ZIPPER TECHNOLOGY CO., LTD.

Textile Exchange-ID (TE-ID): TE-00002629
License Number: Z26411
No. 28 Qingliang Avenue, Yaozhuang Town,
Jiashan County, Jiaxing City, 314100,
Zhejiang Province, China

has been audited and found to be in conformity with the
GLOBAL RECYCLED STANDARD 4.0 (GRS 4.0)

Product categories mentioned below (and further specified in the product appendix) conform with the following standards:

Functional accessories (PC0017)

Process categories carried out under responsibility of the above mentioned organization for the certi
Preparatory (PR0022); Weaving (PR0033); Dyeing (PR0008); Molding (PR0018); Finishing (I
Manufacturing (PR0016); Warehousing distribution of final products (PR0048)

*The processes marked with an asterisk may be carried out by subcontractors

This certificate is valid until: 2025-02-09
Audit criteria:

Place and Date of Issue
Lowell, MA, USA, 2024-02-10
Last Updated: 2024-02-10
Extended Until:
Status: Valid


Calin Moldoveanu
President, Business Assurance

Certification Body Licensed by: Textile Exchange; Licensing Code: CB-ITS
 Certification Body Accredited by: ANAB; Accreditation Number: 0204
 Inspection Body: Intertek Testing Services Ltd., Shanghai
 Auditor(s): N/A

This scope certificate provides no proof that any goods delivered by its holder are GRS certified. Proof of GRS certification of goods delivered is provided by a GRS certificate (TC) or equivalent covering them.

The issuing body may withdraw this certificate before it expires if the declared conformity is no longer guaranteed.

To authenticate this certificate, please visit www.TextileExchange.org/Certificates.

This electronically issued document is the valid original version
TE-ID: TE-00002629

Page 1 of 5

HSD 100% Recycled
Plastic Bottle Yarn Zipper Tape

Product Number	Product Category	Product Details	Material Composition*	Standard (Label Grade)	Facility Number
12	Functional accessories (PC0017)	Zipper (PD0037)	71% Recycled post-consumer polyester (RM0189) + 6% Polyester (RM0186) + 23% Zinc alloy (RM0300)	GRS	TE-00002629
13	Functional accessories (PC0017)	Zipper (PD0037)	74% Recycled post-consumer polyester (RM0189) + 6% Polyester (RM0186) + 2% Other (Polyformaldehyde) (RM0262) + 18% Zinc alloy (RM0300)	GRS	TE-00002629
14	Functional accessories (PC0017)	Zipper (PD0037)	44% Recycled post-consumer copper (RM0295) + 21% Recycled post-consumer polyester (RM0189) + 34% Zinc (RM0300) + 1% Copper alloy (RM0292)	GRS	TE-00002629
15	Functional accessories (PC0017)	Zipper (PD0037)	42% Recycled post-consumer copper (RM0295) + 20% Recycled post-consumer polyester (RM0189) + 38% Zinc (RM0300)	GRS	TE-00002629
16	Functional accessories (PC0017)	Zipper (PD0037)	38% Recycled post-consumer copper (RM0295) + 21% Polyester (RM0186) + 39% Zinc (RM0300) + 2% Copper alloy (RM0292)	GRS (No label)	TE-00002629
17	Functional accessories (PC0017)	Zipper (PD0037)	38% Recycled post-consumer copper (RM0295) + 3% Recycled post-consumer polyester (RM0189) + 18% Polyester (RM0186) + 39% Zinc (RM0300) + 2% Copper alloy (RM0292)	GRS (No label)	TE-00002629
18	Functional accessories (PC0017)	Zipper (PD0037)	100% Recycled post-consumer polyester (RM0189)	GRS	TE-00002629
19	Functional accessories (PC0017)	Zipper (PD0037)	52% Recycled post-consumer polyester (RM0189) + 48% Polyester (RM0186)	GRS	TE-00002629
20	Functional accessories (PC0017)	Zipper (PD0037)	27% Recycled post-consumer polyester (RM0189) + 73% Brass (RM0292)	GRS (No label)	TE-00002629
21	Functional accessories (PC0017)	Zipper (PD0037)	27% Recycled post-consumer polyester (RM0189) + 48% Recycled post-consumer metal (RM0249) + 25% Metal (RM0246)	GRS	TE-00002629
22	Functional accessories (PC0017)	Zipper (PD0037)	45% Recycled post-consumer polyester (RM0189) + 55% Other (Polyformaldehyde) (RM0262)	GRS (No label)	TE-00002629

1 GREEN ACTION

Recycled Products

ALL RAW MATERIALS HAVE GRS CERTIFICATION



Monofilament ✓



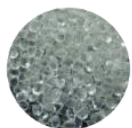
Yarn ✓



Copper wire ✓



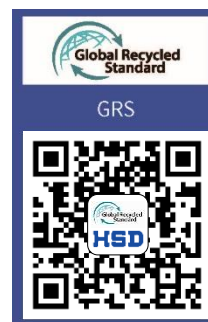
Alloy ✓



POM chips ✓



Copper ✓



Scan the QR Code | Certificate

HSD Get GRS Certificate Product

Coil Zipper



Metal Zipper



Plastic Zipper



Metal Button



bluesign®

HSD **zipper** product approved by bluesign system.

HSD is **the first Chinese** zipper company that is approved by bluesign system and gets the certificate for zipper products.



Scan the QR Code | Certificate

bluesign® CERTIFICATE



1 GREEN ACTION

Recycled Products

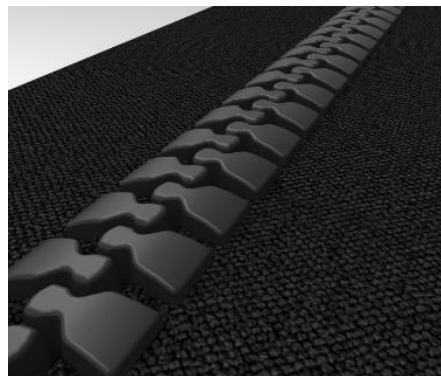
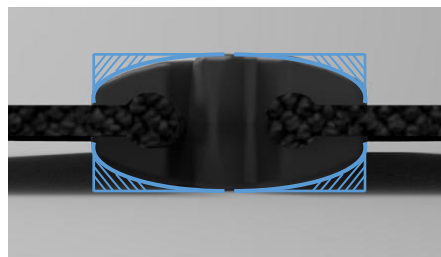
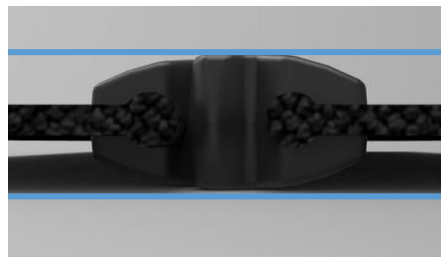


Zipper elements, sliders, and pullers made from recycled plastics through the HSD eco-friendly recycling system enable nearly 100% recycled application of the product.

Tape: 100% recycled yarn process;
Elements & sliders: 100% recycled process
through the HSD eco-friendly recycling system.

Plastic Zipper Series				
Used Type	Type	CE	OE	2WAY
	#3	✓	✓	✓
	#5	✓	✓	✓
	#8	✓	✓	✓

HSD CONCEPT



Plastic-reducing Product - Double Side Curved Elements

Double Side Curved Elements Are **15%** Thinner Than Conventional Elements.

Double Side Curved Elements Save **10%** Material Than Conventional Elements.

Curved Elements Series				
Used Type	Type	CE	OE	2WAY
	#3	✓	✓	
	#5	✓	✓	✓
	#8	✓	✓	

According to the 2016 China Zipper Market Research and Development Trend Forecast Report, the annual consumption of zippers in China is approximately 46 billion meters. Based on a conservative estimate of saving 10% plastic usage per 20cm DOUBLE SIDE CURVED ELEMENTS, approximately **23,000 metric tons** of plastic could be saved annually in China.



2 GREEN ACTION

Material Recycling System

Product Tracking Mechanism for Recycled Eco-yarn Products

01 Texture for Eco-yarn Dedicated Webbing

02 Batch Number Management for Eco-yarn

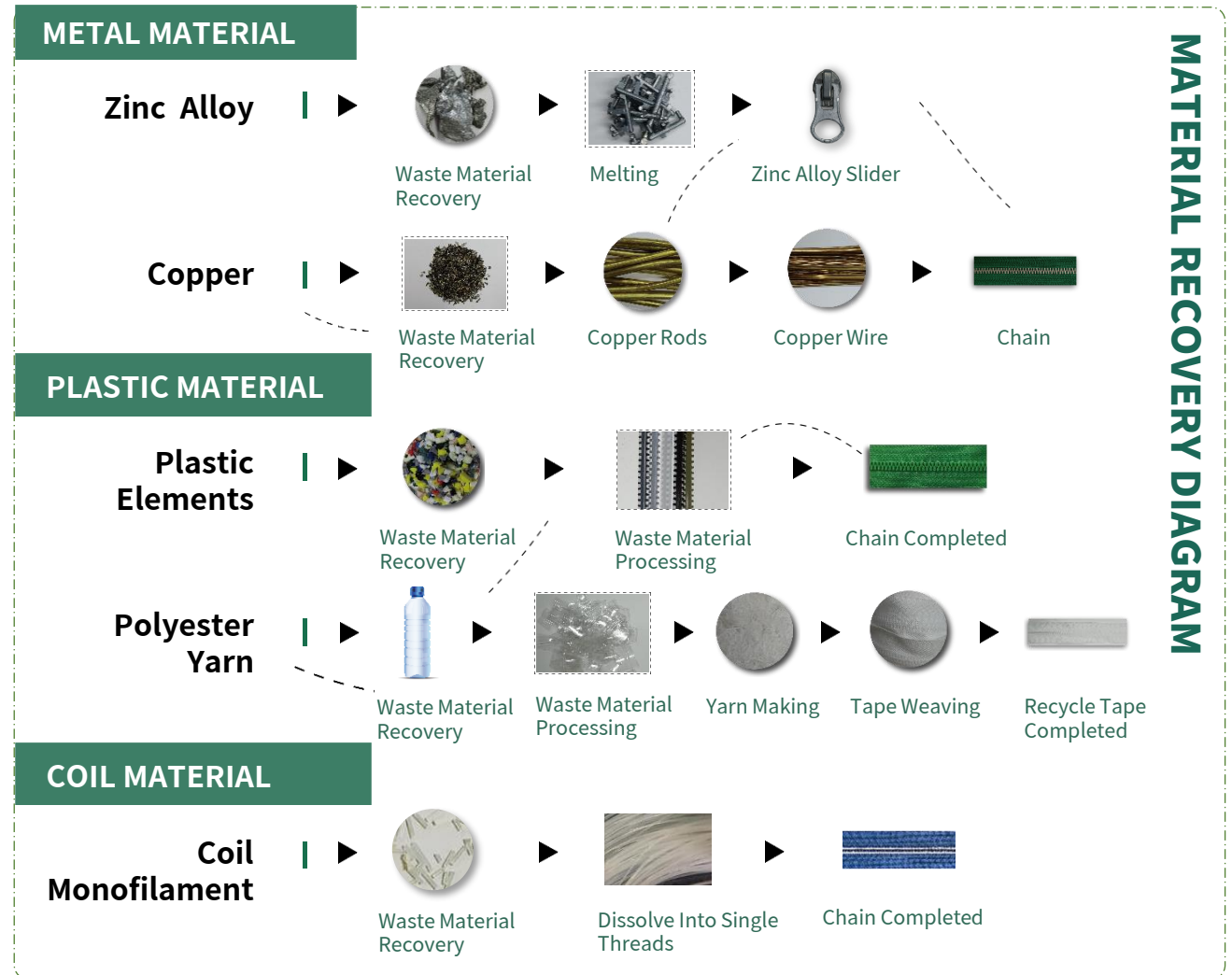
03 Specialized Machinery for Webbing Production

04 Designated Storage Area

05 Control of Product Material Code



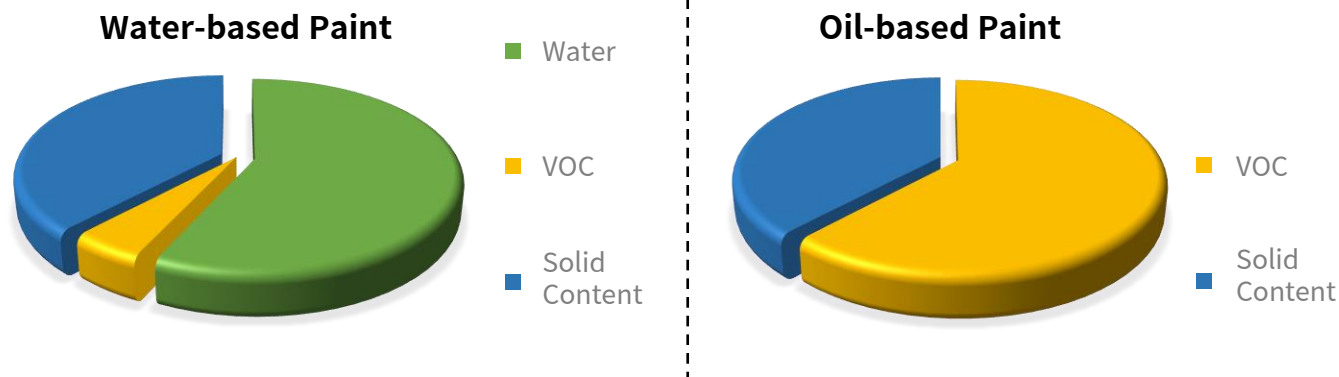
(Indicative Texture - Not Final Version)



3 GREEN ACTION

Friendly Process Improvement

Friendly Process Improved Product - Water-based Paint



HSD Water-based Paint Process Continuously Improving Quality

Completed Full Color Range Wash Standards



Water-based Paint

Eco-friendliness

Uses water as a diluent, harmless to humans

Odor

Contains no harmful carcinogens, non-toxic and odorless

Appearance

Not easily volatile, resistant to yellowing, strong durability

Safety

Contains no organic solvents, safe and non-flammable

Oil-based Paint

Eco-friendliness

Uses banana water or thinner as a diluent

Odor

Contains a strong irritant odor

Appearance

Harmful substances volatilize over a long period, poor durability

Safety

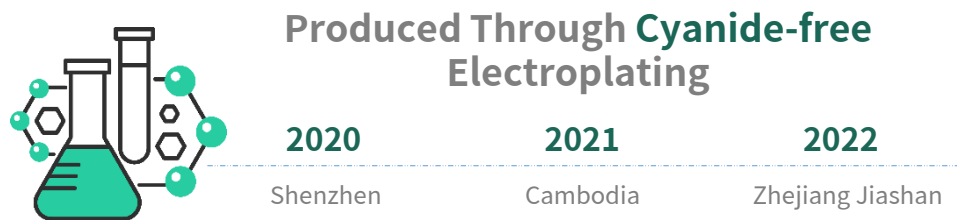
Containing benzene, xylene, and other organic compounds, it is highly flammable.

PROJECT	DESCRIPTION
Type	Ultra-Durable Water-based Two-Component Polyurethane Clear Coat
Composition	Base Component: Water-based Polyurethane Synthetic Resin, Water
Hardener	Water-based Polyurethane Synthetic Resin, Additives
Drying Time	Surface drying at room temperature: 30 minutes to 1 hour (standard application rate: 80~100g/m ²)
Color	High-gloss transparent and matte transparent
Usage	Application on wooden desktops, surfaces, metal parts, and other surfaces

3 GREEN ACTION

Friendly Process Improvement

Friendly Process Improved Product - Cyanide-free Electroplating



CYANIDE-FREE

Cyanide-free Electroplating

Eco-friendliness

Environmentally friendly and non-toxic, reducing harm to humans and the environment from the source and helping to minimize plating wastewater pollution.

Safety

High safety during use, with equipment and process designs that fully consider safety factors.

Presence of Toxins

Does not contain cyanide or other toxic substances in the plating solution, and does not release toxic gases or produce toxic wastewater during use.

Cost

Potentially higher material costs, but lower long-term maintenance costs and potentially lower unit-time operational costs due to efficiency. In some cases, the overall cost may be lower than or equal to cyanide plating.

Cyanide Electroplating

Eco-friendliness

Uses toxic chemicals harmful to both the environment and humans, with difficult-to-treat plating wastewater.

Safety

Poses safety risks during transportation, use, and storage, with severe consequences if leakage or accidents occur.

Presence of Toxins

Contains cyanide and other toxic substances in the plating solution, which may be released into the environment causing harm.

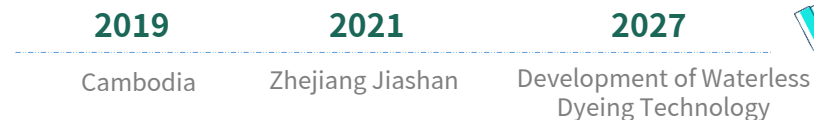
Cost

Relatively inexpensive plating solution materials, but high post-treatment costs for pollution control.

Friendly Process Improved Product - Low-power & Water-saving Dyeing



Eco-eff. Dyeing Equipment



Low-power & Water-saving Dyeing



4 GREEN ACTION

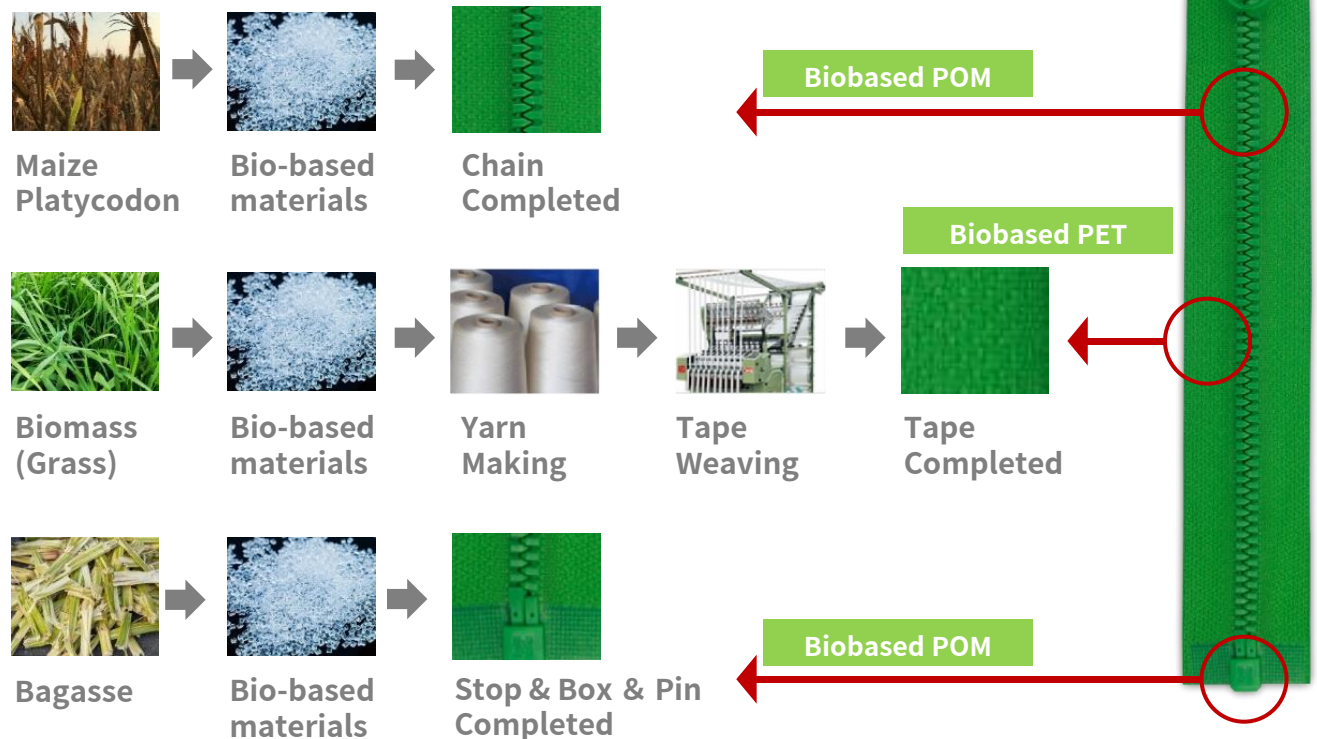
Single PET Products



5 GREEN ACTION

Biobased Products

Illustration of Biobased Product Manufacturing



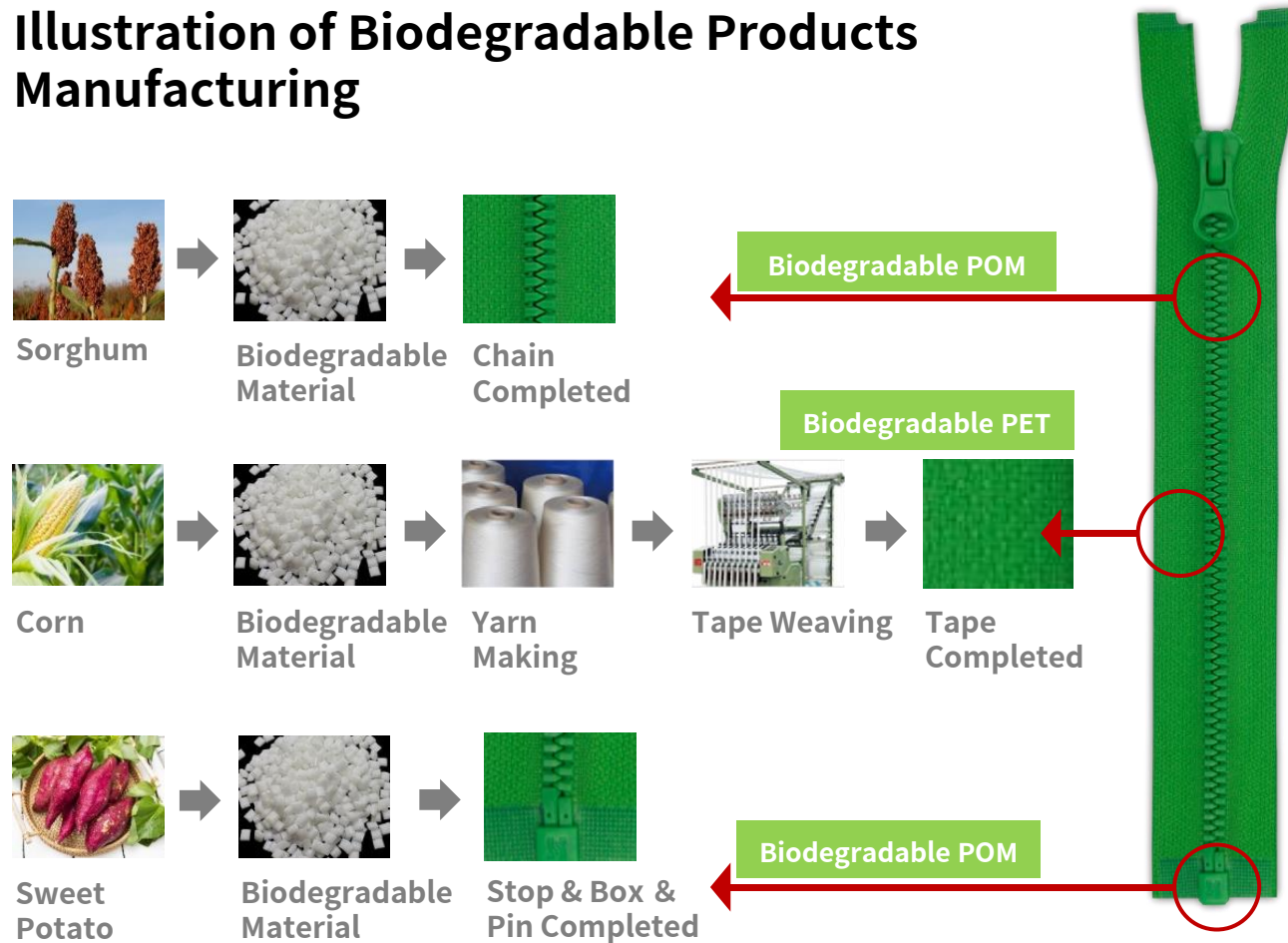
Carbon Cycle of Biobased Products



6 GREEN ACTION

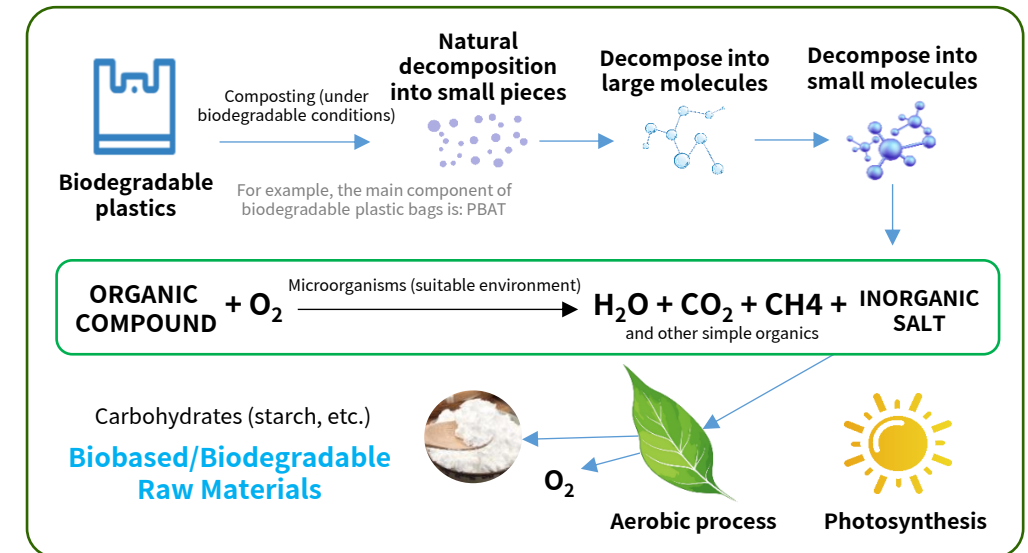
Biodegradable Products

Illustration of Biodegradable Products Manufacturing



Carbon Cycle of Biodegradable Products

Biodegradation refers to the process in which a material undergoes three stages of surface biodegradation, biodegradation, and absorption by microorganisms through dissolution, enzymatic hydrolysis, and cell phagocytosis, and is decomposed into simple compounds such as carbon dioxide or/and methane, water, as well as mineral inorganic salts and biological dead bodies containing elements, including biodegradable metal materials, biodegradable inorganic non-metallic materials, and biodegradable polymer materials (plastics).



7 GREEN ACTION

HSD Green Shirt Initiative

HSD Environmental Protection Measures Planning



- Eco-friendly Material - Carton Box
- Eco-friendly Material – Tape
- Eco-friendly Material - Packaging Bag
- Eco-friendly Material - Printing Ink
- Eco-friendly Material - Recycled Paper (for Workshop Printing and Process Cards)
- Eco-friendly Material - Label Sticker (Two-layer Logistics Label)
- Eco-friendly Material - Internal Office Supplies



Eco-friendly Carton Box

- Zero Glue Carton Box
- Zippered Carton Box

Zero Glue Carton Box



Eco-friendly Carton Box

- Zero Glue Carton Box
- Zippered Carton Box

Zippered Carton Box



Eco-friendly Carton Box

- Zero Glue Carton Box
- Zippered Carton Box



Eco-friendly Material Tape

- Narrowed Tape
- Degradable Tape (PLA Film)



Narrowed Tape

Tape width reduced by **10%** in sealing.

Eco-friendly Material Tape

- Narrowed Tape
- Degradable Tape (PLA Film)



Degradable Tape (PLA Film)

Biodegradable tape with PLA film, also for window film or paper bags.

Eco-friendly Material Tape

- Narrowed Tape
- Degradable Tape (PLA Film)



Printing Ink

- Non-recycled bag
- Biodegradable bag



Non-recycled bag

Non-recycled courier bags, food-grade PE, smooth and safe. Raw material: PE.

Printing Ink

- Non-recycled bag
- Biodegradable bag



Biodegradable bag

PBAT+PLA, eco-friendly, degrades to water and CO2, zero pollution. Raw materials: PBAT + PLA.

Printing Ink

- Non-recycled bag
- Biodegradable bag

7 GREEN ACTION

HSD Green Shirt Initiative

HSD Environmental Protection Measures Planning



2024

Start project evaluation

2025

Phase One:
Eco-friendly Packaging Solutions for Basic Materials

2026

Phase Two:
Eco-friendly packaging solutions for large-scale materials.

2027

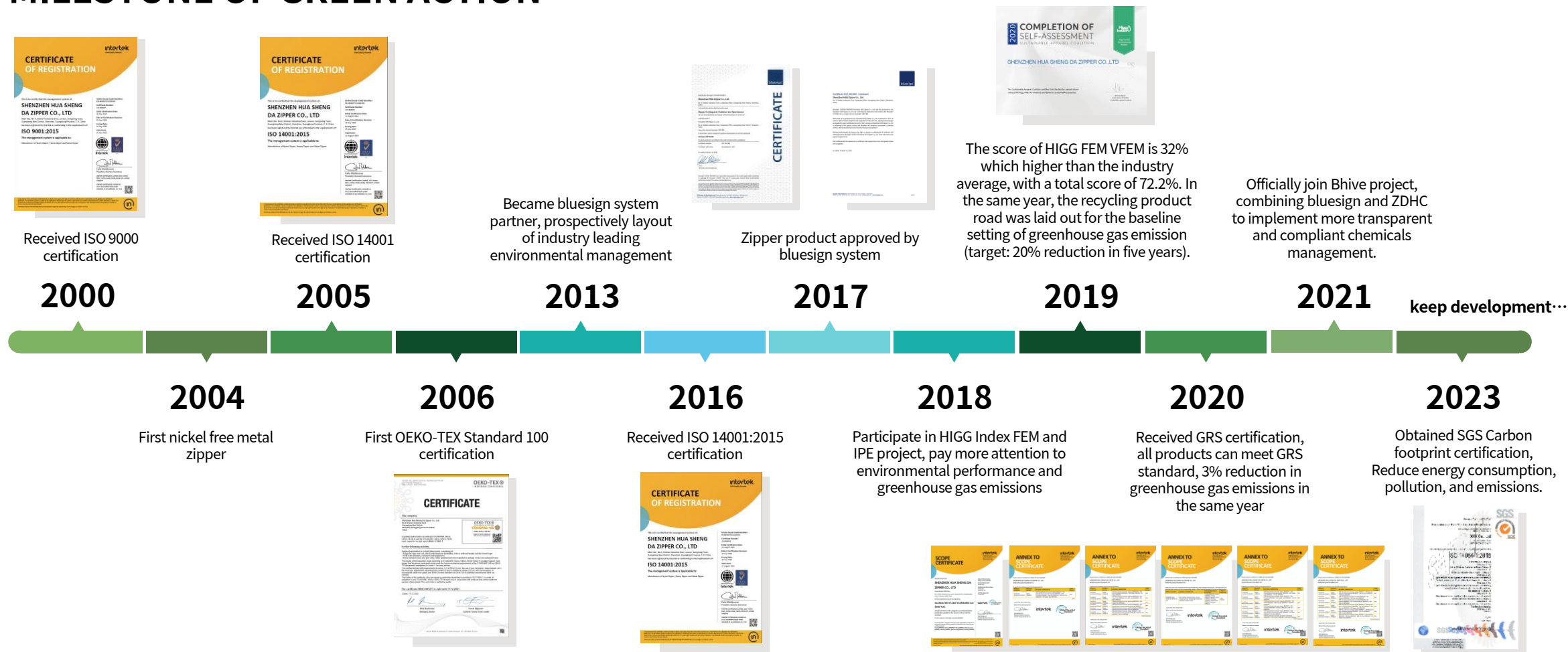
Eco-packaging for all products.

- Eco-friendly Material - Carton Box
- Eco-friendly Material – Tape
- Eco-friendly Material - Packaging Bag
- Eco-friendly Material - Printing Ink
- Eco-friendly Material - Recycled Paper (for Workshop Printing and Process Cards)
- Eco-friendly Material - Label Sticker (Two-layer Logistics Label)
- Eco-friendly Material - Internal Office Supplies

8 GREEN ACTION

Eco-certification

MILESTONE OF GREEN ACTION

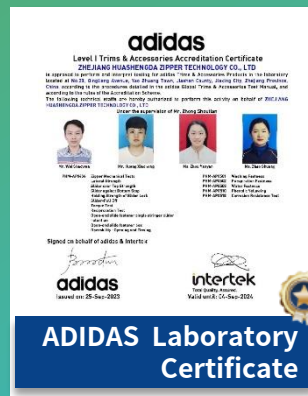


8 GREEN ACTION

Eco-certification

Our Guarantee

- Bluesign System Partner
- Bluesign Certificate
- GRS Certificate
- ADIDAS Lab Certificate
- Anta Lab Certificate
- ADIDAS Color Management Certificate
- PUMA Dystar Color Certification

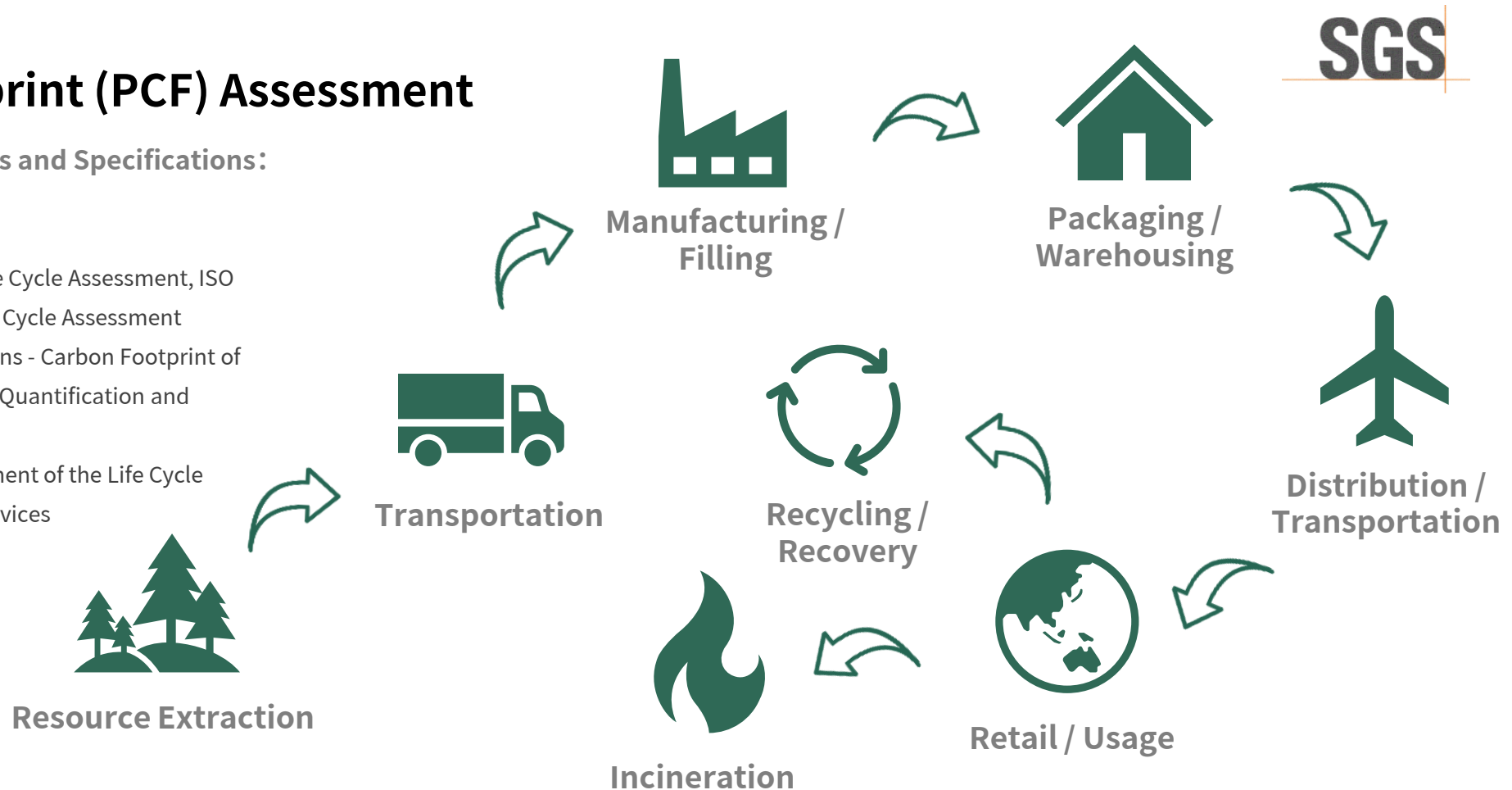


- HIGG INDEX FEM & FSLM
- OEKO-TEX 100
- TQP
- ISO 9001:2015
- ISO 14001:2015
- SGS PCF

Product Carbon Footprint (PCF) Assessment

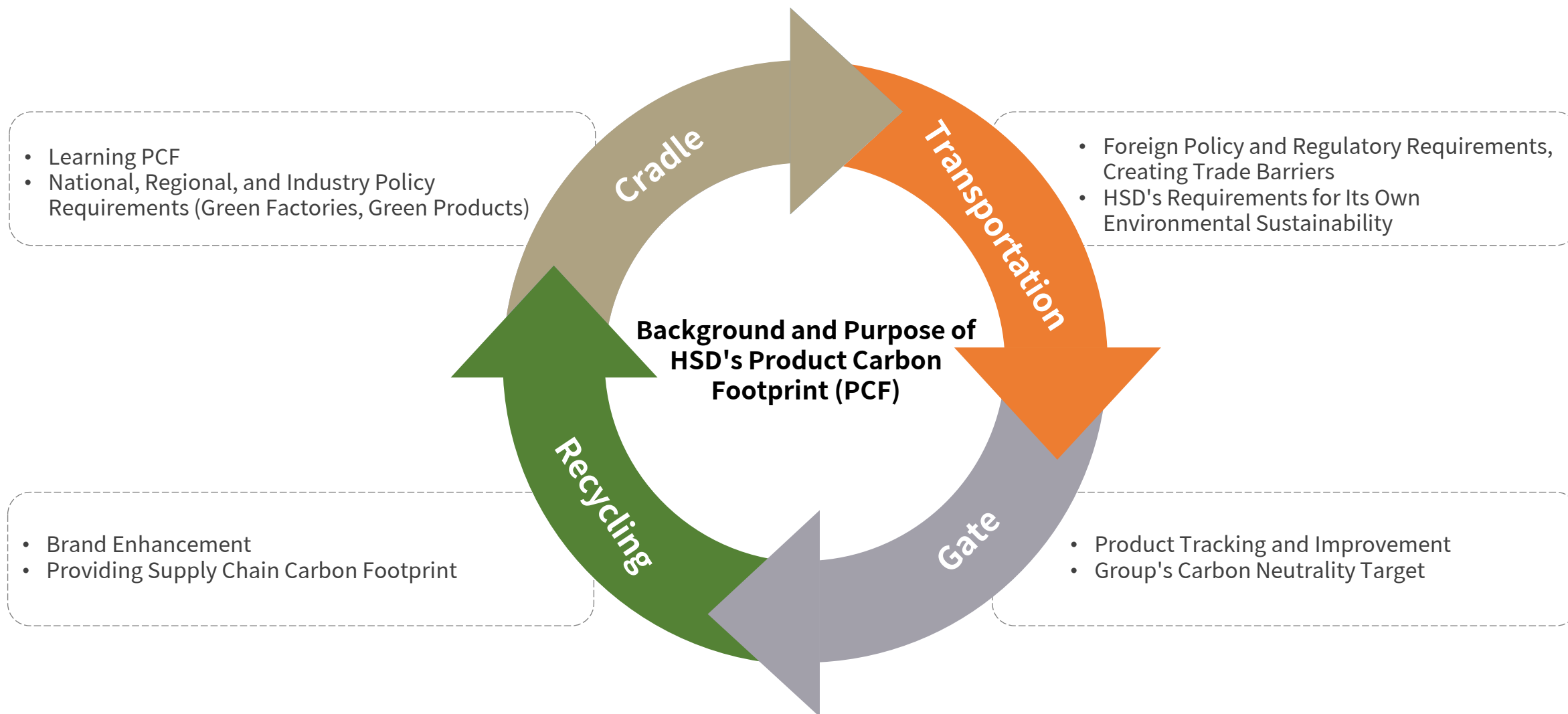
According to International Standards and Specifications:

- ISO 14040: Principles and Framework for Life Cycle Assessment, ISO 12044: Requirements and Guidelines for Life Cycle Assessment
- ISO/TS 14067:2018: Greenhouse Gas Emissions - Carbon Footprint of Products - Requirements and Guidelines for Quantification and Communication
- PAS 2050:2011: Specification for the Assessment of the Life Cycle Greenhouse Gas Emissions of Goods and Services



8 GREEN ACTION

Eco-certification



9 GREEN ACTION

EOCA Alliance

HSD
HELP SUPPORT DELIVER



REDUCING PLASTIC WASTE PLEDGE

Our company pledges

- To provide a source of drinking water on our stand throughout the show for visitors and staff to refill reusables
- To encourage every employee / person working on the stand to bring their own reusable mug or bottle from home for use during and after the show. If needed, the company will provide reusables to ensure all staff have an alternative to single use.
- Not to use or provide single use plastic bottled drinks during the show
- To take all possible measures to avoid single use plastic food or drink items* on the stand and to source, reuse and dispose of alternatives sustainably
*for example cups, glasses, cutlery, crockery, food wraps, straws, stirrers, single portion milk, sugar, sweets etc.
- To proudly communicate this pledge and encourage colleagues and friends to join our mission to keep the tradeshow free of disposable waste.



EOCA—Plastic Reduction Initiative



HSD SUPPORTS THE OUTDOOR PLASTIC REDUCTION INITIATIVE AND PARTICIPATES IN THE EOCA PROCESS

2019

HSD becomes a member of the EOCA

2020

Participate in formulating the plastic reduction plan

2021

Collaborate with brands to jointly participate

2022

Implement in the long term



GREEN ACTION

HSD Sustainable Development

HSD

HELP SUPPORT DELIVER

CARBON NEUTRALITY

Ultimate Goal



Reduce Our Own Energy Consumption

By establishing an ISO50001 energy management system, energy consumption management platform, conducting energy audits, and providing energy management training, we can explore energy-saving potential and improve energy performance.



Develop New Energy Sources And Carry Out Afforestation

Develop new energy sources such as photovoltaics, wind energy, hydrogen energy, and carry out afforestation



Purchase Green Electricity Certificates

Purchase national renewable energy green electricity certificates and I-REC international renewable energy electricity certificates

HSD not only contributes to environmental protection, but also responds to the national call to achieve the goals of **reducing carbon emissions by 50% by 2030** and **achieving zero emissions by 2050**.

HSD

HSD REPORT ON SUSTAINABLE DEVELOPMENT COMPETITIVENESS



Development Layout | Energy-saving & Emission-reduction | Intelligent Automation | Green Action

HSD-BR-PPT-GREEN-250101-EN-V1A

