




# The Leader in the Application of Plant Fibers

**Shenzhen Zhiben Environmental Protection Technology Group**



Zhiben Technology will realize all-round commercialized applications based on plant fiber materials and promote global cooperation. As a leading enterprise adhering to environmental protection and social responsibility, Zhiben Technology hopes to lead companies with environmental protection dreams to achieve the industrial updating.



ZHIBEN

## The Mission of Zhiben Group

**To Realize the Sustainable Development of Man and Nature  
with the Beauty of Industrial Civilization**

Zhiben Technology will never forget its original intention, pursuing excellent business value on the basis of the concept of environmental protection, taking it from nature and using it in nature, and doing the best for the harmonious and sustainable development of man and nature.



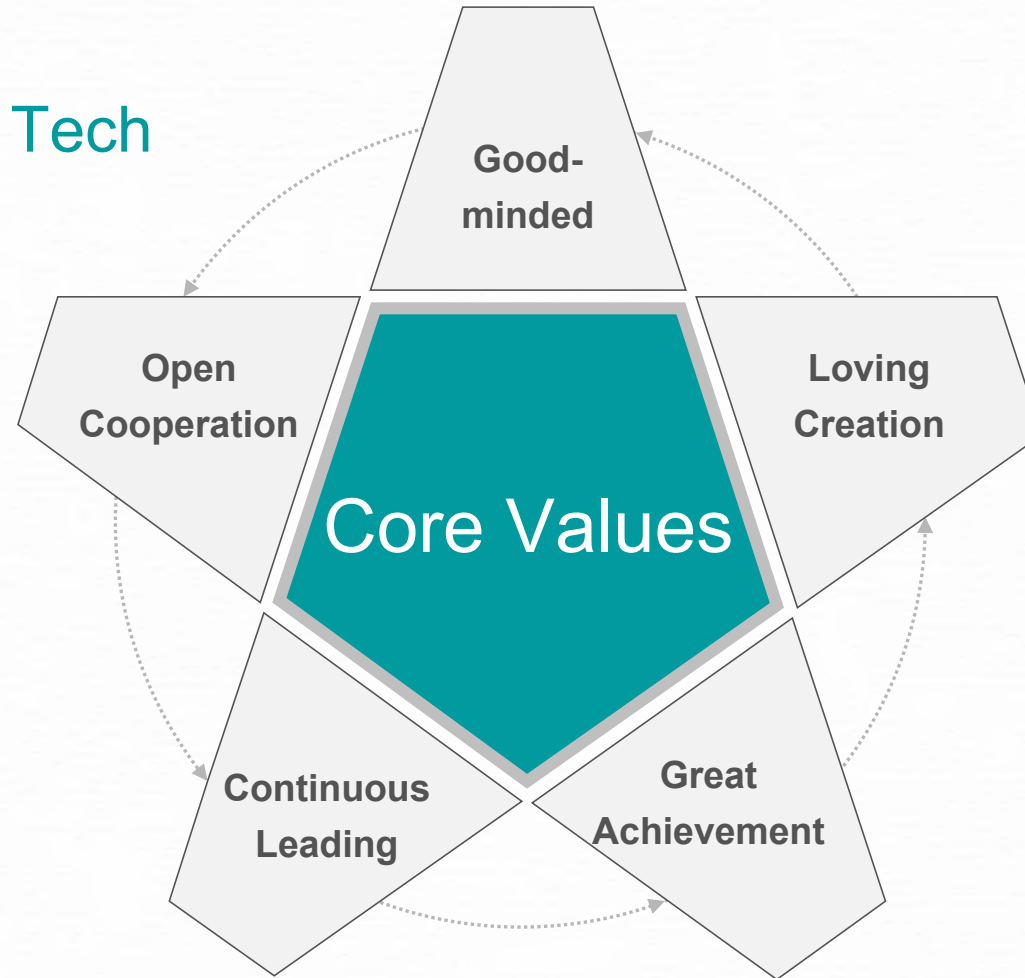
## Core Values of Zhiben Tech

### *Open Cooperation*

Promote the building of the industrial chain of plant material molding application with an open and cooperative attitude; provide good support and services for cooperation and related stakeholders

### *Continuous Leading*

Always be strict with ourselves in accordance with industry benchmark standards, maintain the highest keen insight into the market, and give market feedback faster than others. We are unsurpassed! We are not afraid of being imitated!



### *Good-minded*

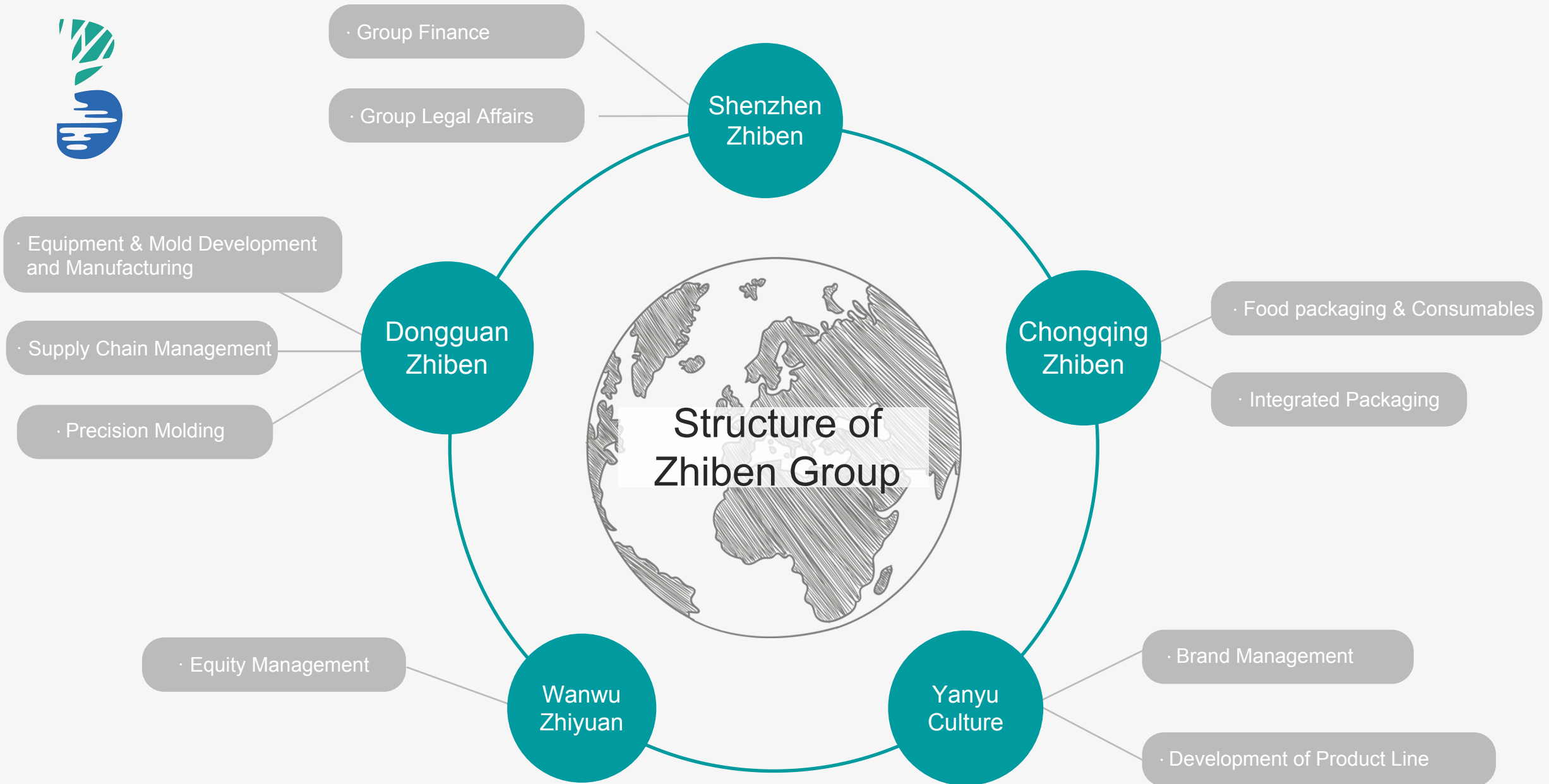
Adhere to the original intention of taking it from nature and using it in nature, take ecological and environmental protection as our mission, and unite more good companies to commit to the sustainable development of the industry

### *Loving Creation*

Product culture is more important than everything. We will make efforts to create and polish products to the extreme. We will treat each output with Ingenuity and Empty Cup Mentality, and create maximum value for customers

### *Great Achievement*

Based on the concept of sharing results, Zhiben Technology advocates co-creating and sharing the fruits of success. At the same time, our company strives to provide opportunities of co-developing and success sharing.





# Zhiben R & D Center

Dongguan Zhiben Environmental Protection Technology Co., Ltd

Dongguan Zhiben is located in Tangxia Dongguan, an important industrial town next to Shenzhen, which covers an area of 32,000 square meters and has an investment of 60 million Yuan. It is an open vertical supply chain construction industrial system such as research, discovery, and plant fiber application scenarios. The R&D team consisting of professionals from the field of product research, industrial design, graphic design, structural design, mold development, equipment research & development, material technology, etc., provides continuous innovation in the production and application of environmentally friendly materials for consumers, enterprises, and industries.



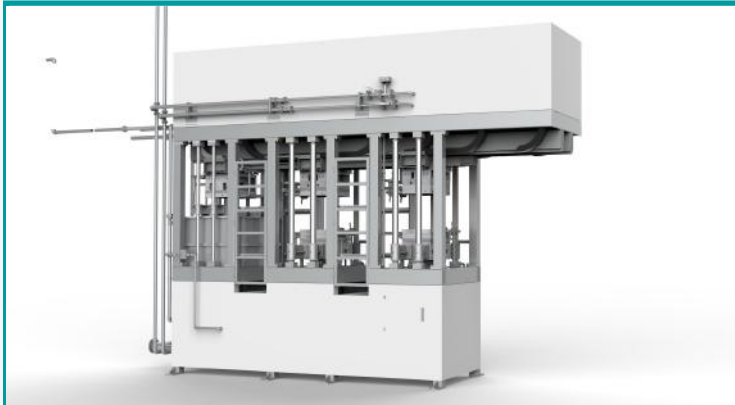


## Full Process Equipment Development

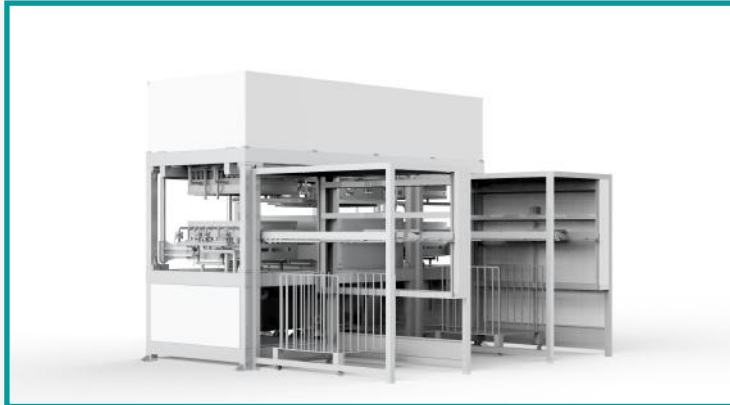
Zhiben equipment development team started from an automatic industrial equipment light start-up company with a standard of 30 persons.

Team members include

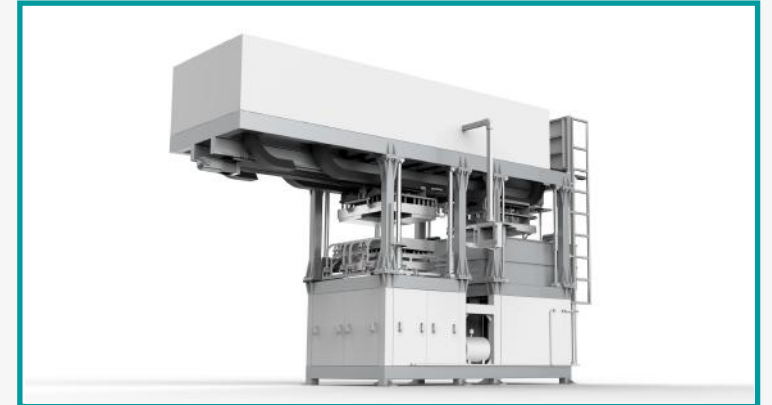
1 R & D director, 1 project director, 1 process structure engineer, 1 mechanical structure engineer, 1 electrical engineer, 3 commissioning engineer, 1 software engineer, and more than 10 assembly technicians. Since its establishment in 2017, this team has successively completed the development and manufacturing of three-type main equipment molding machines. More than 10 peripheral auxiliary equipments have been developed, manufactured and introduced into the production system. An integrated terminal to satisfy customers has been set up.



Name : Three-stage machine



Name: Bilateral machine



Name: Single side machine



# Mold Design & Process Development and Management

Department of mold development & design is responsible for the planning of the production process, development of the new ones, mold design, fixture tools' development, and technical support, which consists of 1 engineering supervisor, 1 CNC processing supervisor, 3 project engineers, 6 mold design engineers, 4 CNC engineers, 2 process engineers, 8 sample commissioning technicians, 7 technicians. Production time limitation of 5 days for sample order and 10 days for mass production can be achieved. 6~8 new sample models can be put into trial production and 4 sets of molds for mass production can be finished weekly.





## Manufacturing of High Precision Mold

The mold processing center is equipped with 53 sets of various precision processing equipment so the full processing process including CNC processing, slowing walking wire cutting, electro-discharge cutting, turning, surface grinding, decorative carving can be done in our own factory.

Zhiben mold workshop has Switzerland GF Azishamir Processing Center, slowing walking wire cutting machine, electro-discharge cutting machine, Beijing Jingdiao Engraving machine, Taiwan LEADWELL series processing machine & Hexagon 3 coordinate measuring instrument etc, which enables Zhiben to achieve the accuracy of  $0.1\mu$  feed,  $1\mu$  cutting, and nm-level surface effects.







# Equipment in Dongguan Factory

950MM\*750MM

23 sets of single side automatic molding machine

1250MM\*1000MM

2 sets of single side automatic molding machine

1250MM\*1000MM

1 set of bilateral automatic forming machine

750MM\*500MM

1 set of three-stage automatic molding machine

35m<sup>3</sup> 3 sets of pulping system

20m<sup>3</sup> 2 sets of pulping system

30m<sup>3</sup> 1 set of pulping system

65m<sup>3</sup> 2 sets of pulping system

5 kinds of slurry can be produced simultaneously. Daily production capacity is about 16 tons of precision wet-pressing molded products





## Chongqing Zhiben

In 2019, Zhiben, as a key industrial project in Chongqing, set about to build a production base in the southwest region in Kaizhou District, Chongqing, and started the first step of Zhiben's national layout. The project covers an area of 76,000 square meters. 50 million US dollars has been invested. According to the full automatic and digital factory model, 120 sets of new molding equipments have been well equipped. Annual production capacity is 60,000 tons.





# Information Center

## Performance management :

Equipment status/efficiency monitoring/facility maintenance

## Schedule management:

Online and offline reporting/process, completed quantity

## Work management:

Online progress/ Dispatch workers /schedule

## Technology management:

Mold preparation/ production parameters/ Quality inspection record/ process optimization



## FIMS

- Factory integrated management system
- Management report
- Human index
- manufacturing cost
- Customized reports

## MES

- Manufacturing execution system
- Manufacturing productivity
- Order in progress
- Quality situation

## OEE

- Whole-factory equipment efficiency monitoring
- Equipment OEE/utilization rate
- Line Balance Rate Monitoring
- Equipment abnormal report

## EMS

- Factory environment and energy consumption monitoring
- Wireless environmental factor monitoring
- (WIFI/LORA)
- Energy consumption monitoring

## PMS

- Equipment preventive monitoring system
- Process origin analysis
- Equipment preventive maintenance
- Yield prediction analysis





Bureau Veritas  
ISO9001:2005



ISO14001:2005



ESTS FSC



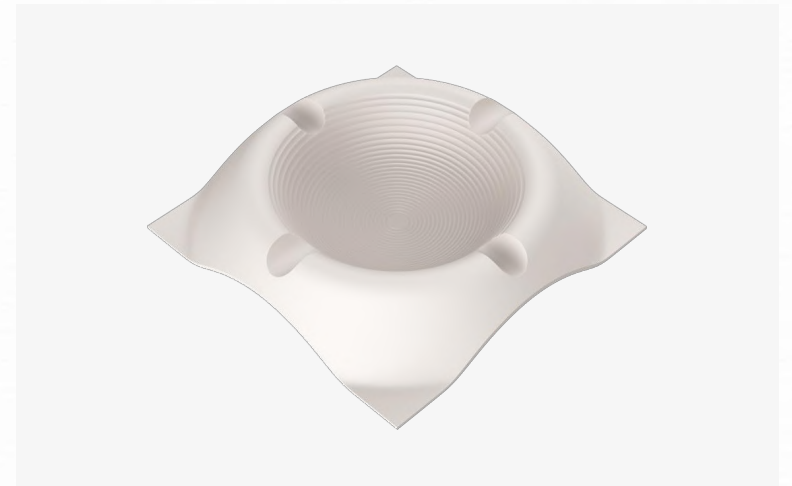
SA8000:2014



Intertek BRC-A

## Certification and System Display

With the mission of achieving the sustainable development of man and nature by the beauty of industrial civilization, Zhiben strictly complies with requirements of high-standard corporate management. S far Zhiben has successively got the certification of Bureau Veritas ISO9001:2005, ISO14001:2005, SA8000:2014, Intertek BRC-A, ESTS FSC



## Yanyu Culture -- Product Development & Design

Based on the vision of becoming "the leader in the application of plant fibers", a professional product design team set up along with the beginning of Zhiben focused on the expansion of plant fiber molded products in application of various life scenarios and worked out product integration solutions, covering household, bakery & coffee, and hotel consumables. While developing application scenarios, the team also follows the forefront process development routes made by engineering technical team. While broadening the development of existing technical capabilities of application scenarios, it also continues to exceed the limitations of process technology, which makes the applicability of molded plant fiber wider and wider.



## Zhiben Creation - Creating a new environmental friendly lifestyle

Zhiben Creation is an innovative brand of environmentally friendly lifestyle created by Zhiben Technology for the layout of C2M mode (Customer-to-Maker)

Currently Zhiben Creation is cooperating with well-known independent designers to set up a life research room. Users' ideas and suggestions on eco friendly plant fiber products will be collected in the form of Crowd-making. On the basis of different life scenarios, Zhiben Creation will innovate more pieces which are much safer, more environmentally friendly and full of more life aesthetics, and will create a new way of environmentally friendly life together with the users.

Since then, Zhiben Creation has opened a new area for the market of the environmentally friendly products, which will make the broadest market prospect and create the most profound social value.







## Degradable & compostable plant fiber coffee cup & lid

With continuous technical exploring and upgrading, Zhiben solved the buckle-up problem of the plant fiber molded cup lid and cup in mass production technically, greatly improved the efficiency and yield of mass production, and made the cost of the plant fiber lid close to that of similar plastic products.

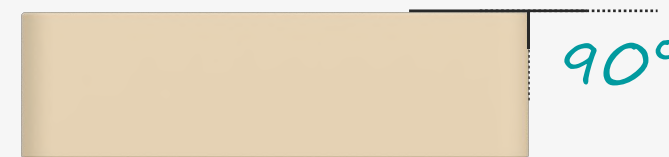
Innovative mold designs applied in zero-plastic water cup made by one-time forming make the complex product form real, which could not be completed by traditional paper roll cups. Product's Appearance is greatly improved during net-free thermoforming process. Meanwhile the risk of mold wire falling off during the production process is also avoided.





## 90 degree vertical high quality packaging box processed by integrated molding technology

The application of innovative integrated molding technology has broken through the difficulties of the zero-angle mass production and demolding in the molding industry. While ensuring the yield rate of the process, the capacity achievement rate is  $\geq 96$ , which fundamentally solves the problem of application demand for plant fiber materials in the high-precision packaging market.





## Wuxi Pu'er Tea

With the advancement and development of science and technology, plastic materials have caused irreversibly effects on earth's environment, it's seriously threatening the survival of human beings and other species. For the first time, Wuxi tea which is a collection-level Pu'er brand, uses environmentally friendly, biodegradable and ecologically-recycled plant fiber material as tea packaging, in order to solve the survival crisis of the earth's living creatures. Bagasse and wheat straw plant fiber material is naturally clean and with good air permeability. It can help Pu'er tea to be naturally transformed and fermented.

Surface of Wuxi Pu'er packaging is based on the Chinese Taoist "Let nature take its course" theory. Using abstract lines to outline the original ecological environment of Jingmai Mountain, the origin of tea leaves. The Chinese characteristics of the splashing landscape highlight the beauty of the artistic Jingmai Mountain. Refer to the packaging structure, one independent small package at a time, this modern tea packaging way provides a convenient solution for young consumers to drink tea, and promotes the inheritance of Chinese tea culture among young people.







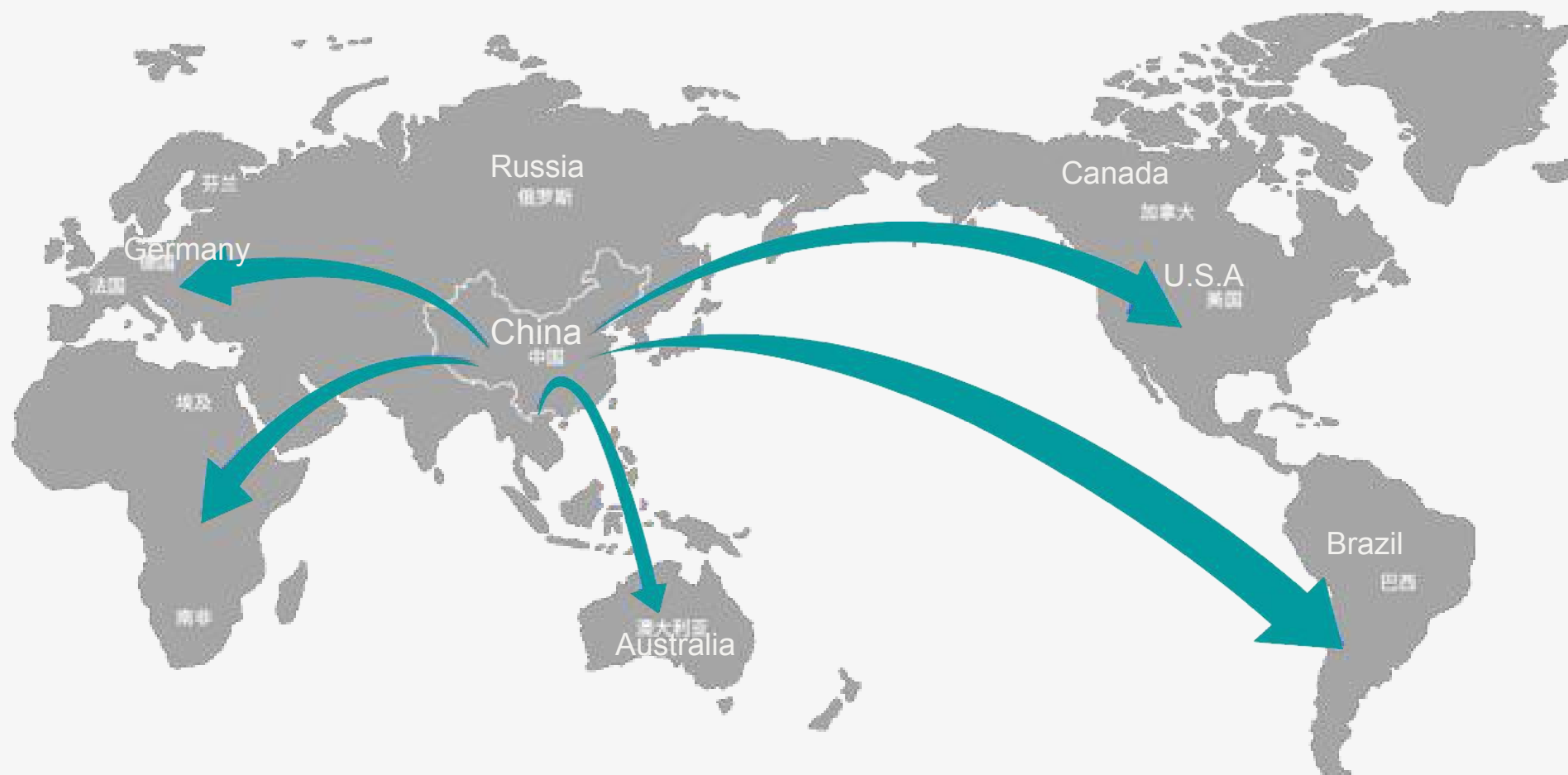
## Wuxi Kongfu teacup

With the advancement and development of science and technology, plastic materials has caused irreversibly effects on earth's environment, it's seriously threatening the survival of human beings and other species. For the first time, Wuxi Kungfu Tea Sets which is a collection-level Pu'er brand, uses environmentally friendly, biodegradable and ecologically-recycled plant fiber material as tea packaging, in order to solve the survival crisis of the earth's living creatures. The plant fiber material with bagasse and waste straw as raw materials, while ecological and environmental protection, adopts double-layer structure to ensure the scald and strength of the product. In packaging, plant fiber materials are also used to make bagasse and waste straw as raw materials. Through innovative structure, packaging and products can be perfectly combined and meet all functions of packaging.



red**dot**





## Market Status & Prospects

Starting from 2019, a series of patented products were put into the market. After one year, those can be found in the field of bakery & coffee, tea gifts and hotels of more than 30 countries and regions around the world. Compared with the previous year, we achieved a market growth of over 6 times. With the implementation of laws and regulations on restricting the use of plastics globally, opportunities of great market growth are bound to come.



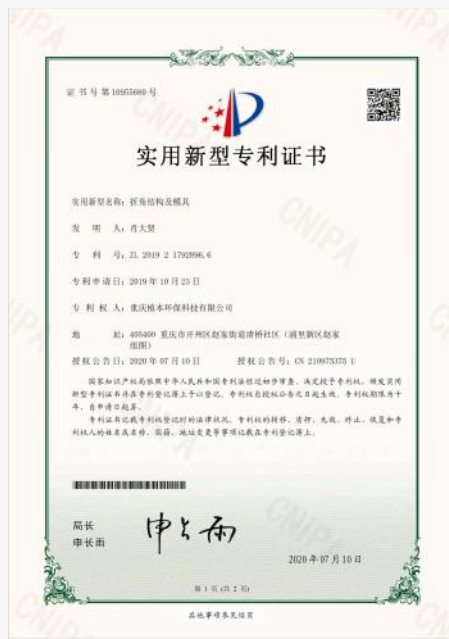
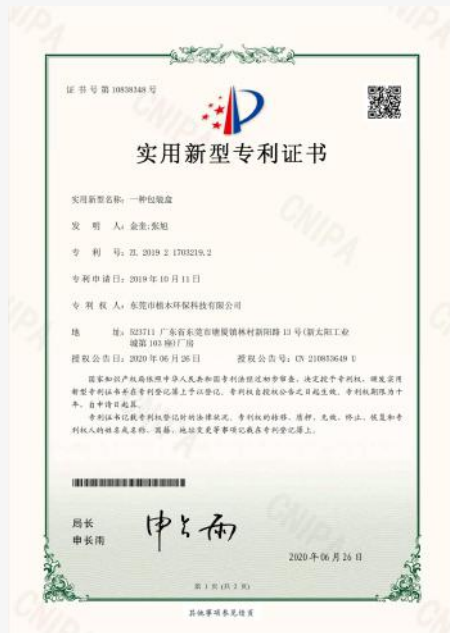
# Patent certificate







## Utility model patent certificate





# Shenzhen Zhiben Environmental Protection Technology Group

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