



**Shangai Fuming New Material Technology Co.,Ltd.**

**“Lock-Fresh” Physical  
fresh-keeping materials**

fresh-keeping materials

***Ultra-long preservation    Ultra-low loss***

***Physical freshness    safety and health***

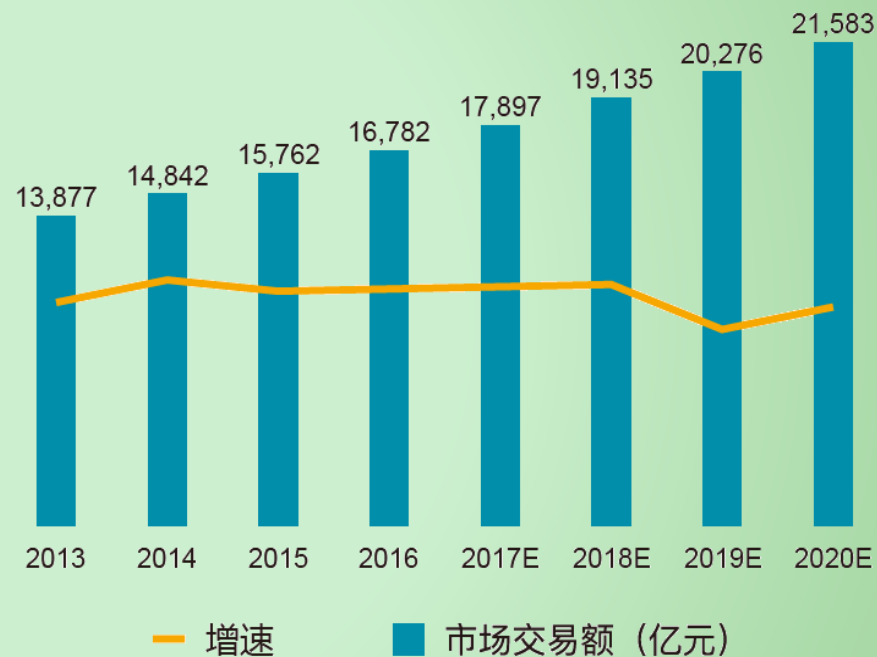
- The world's first pure physical preservation technology
- At present, Fuming has obtained one national invention patent and more than 10 utility model patents, and its core technology has entered the PCT protection of international patents.
- Focuses on cutting-edge technology in the field of physical preservation, with advanced technology, reliable products and comprehensive services
- According to tests, general vegetables and fruits can extend the shelf life to 30-90 days, chilled meat 120 days, aquatic products 45 days, and ensure that the quality of fresh food does not decline.
- At present, there are dozens of new physical fresh-keeping materials of "lock fresh" brand researched and developed by the company, including fresh vegetables, fruits, mushroom, fresh flowers, fresh meat, aquatic products and cooked food, all of which have passed strict third-party testing and reached the national and EU standards.

# Situation of domestic fresh food industry

**20000** Billion

Fresh food market has a large scale,  
steady growth and high consumption

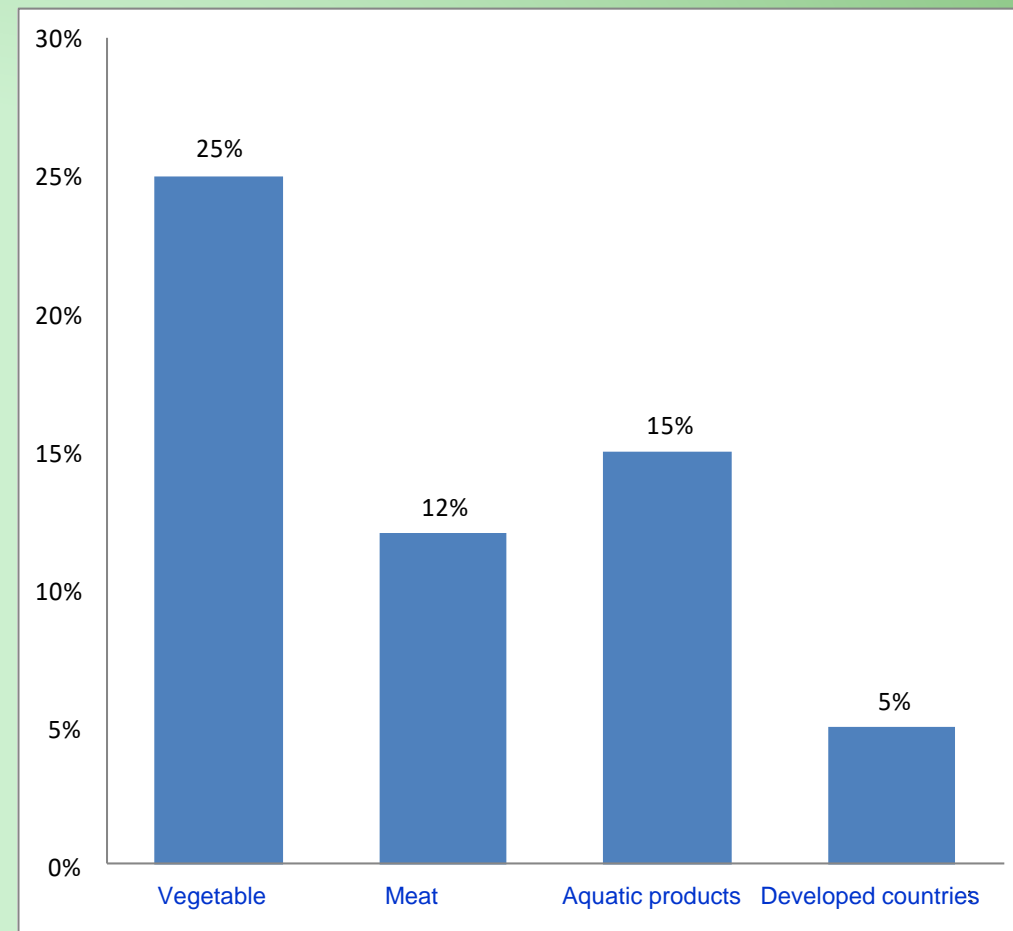
2013-2020年生鲜市场交易额



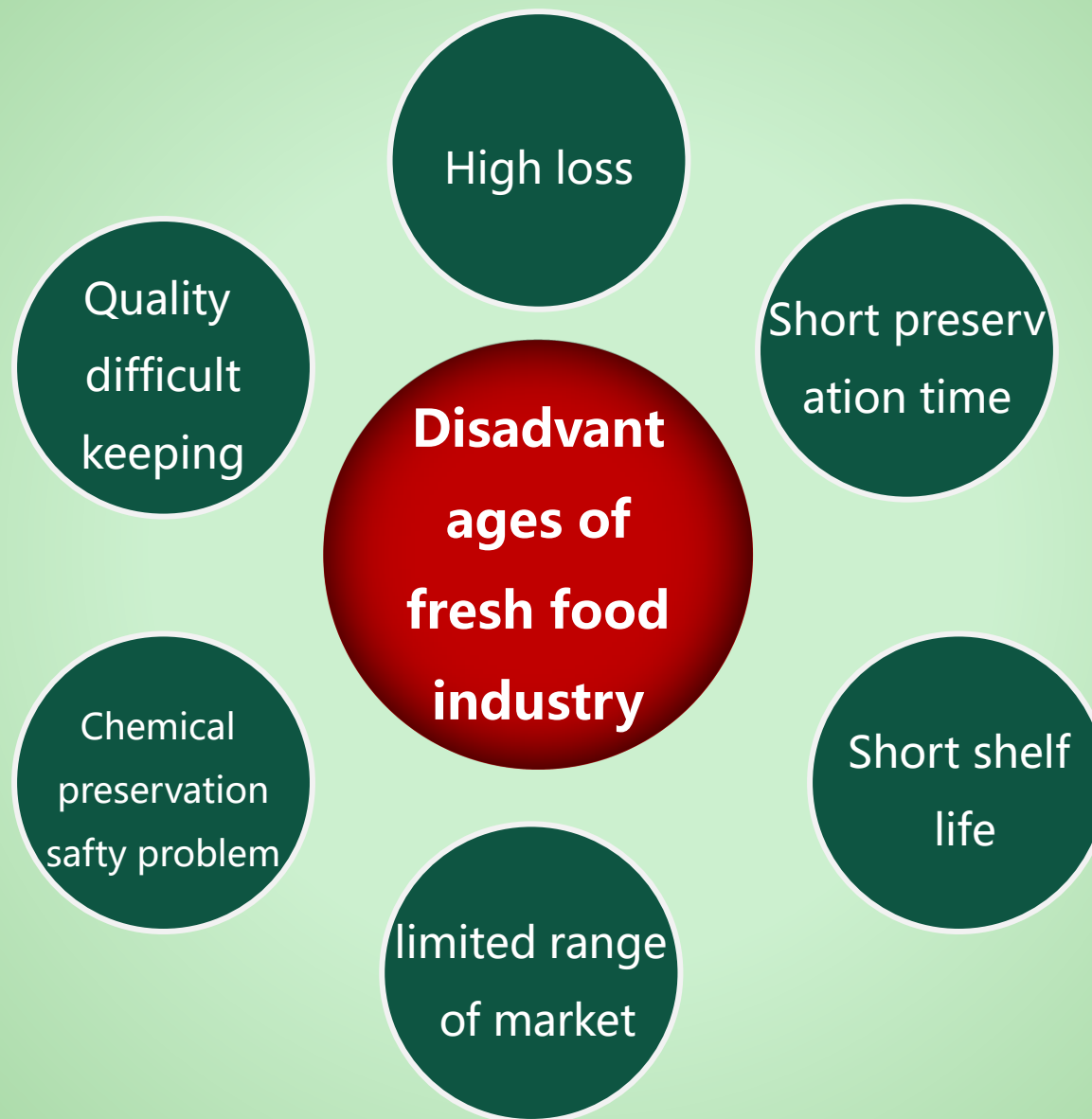
数据来源: 中商产业研究院整理

## High loss

The loss rate of fresh food in China is much higher than that in developed countries.



数据来源: 公开资料整理





**Cold storage+Intelligent modified atmosphere packaging**

The fresh-keeping time is 3-5 times of that of traditional materials, with low loss, safety and health, and original taste



**Cold storage+modified atmosphere bag packaging**

Nitrogen filling: the fresh-keeping effect is not obvious, the taste changes, the cost is high, and it will be invalid when opening bag.  
Microporous membrane: the fresh-keeping effect is not obvious, slightly better than PE bag



**Cold storage+air conditioned storage**

A few varieties (such as apple) have obvious fresh-keeping effect, but most of them have general effect, large investment and poor efficiency



**Cold storage +Chemical preservation**

The preservation time is long, but the chemical preservatives have influence on food safety, and the taste will change



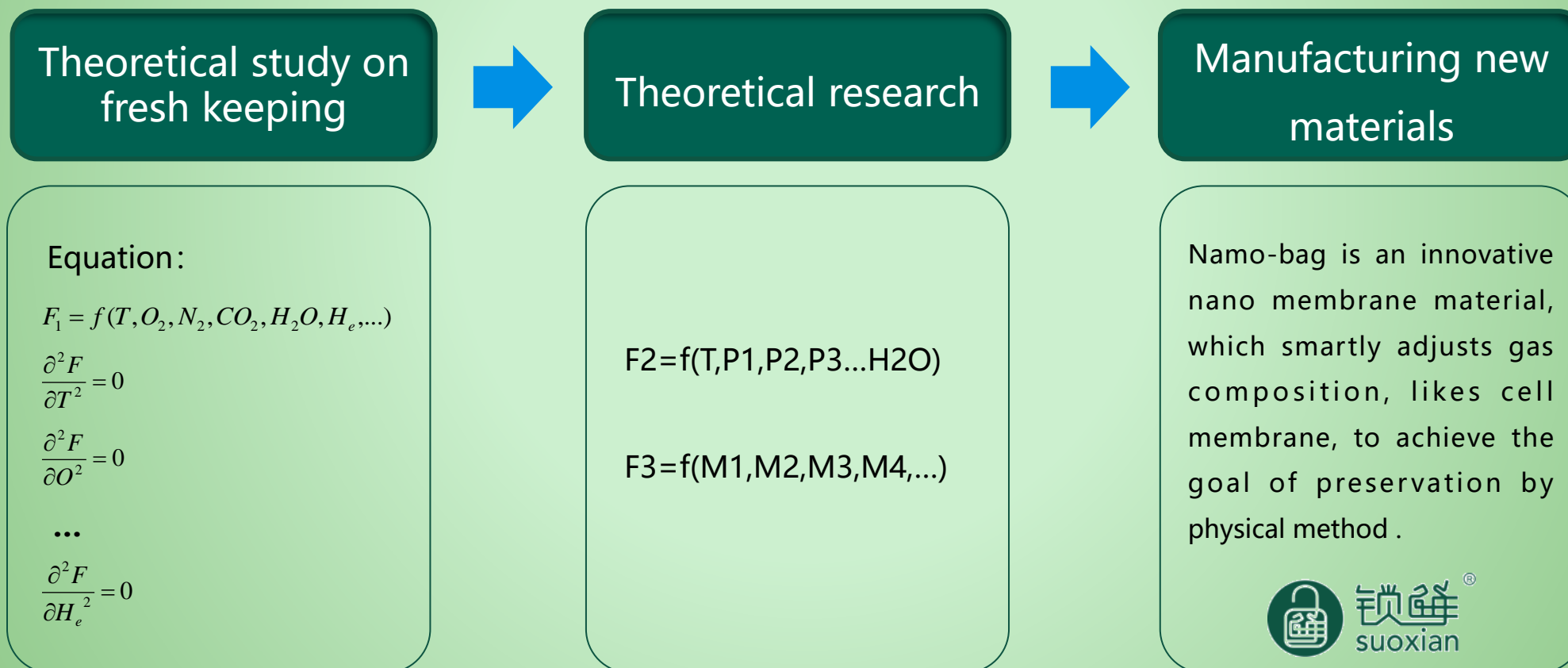
**Cold storage +freezing**

The preservation time is short ,high loss



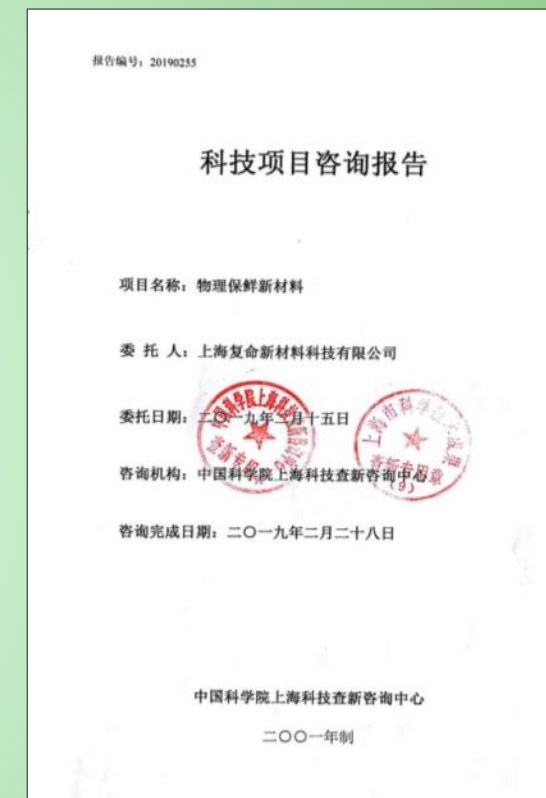
# Lock-Fresh™ Physical fresh-keeping materials

## Find the key of keeping freshness:



"Lock fresh" products have completely independent intellectual property rights:

- Make a new research on innovation theory
- The "Lock fresh" namo-bag is an innovative nano membrane material which can smartly adjusts gas composition, likes cell membrane. It can achieve the goal of extending preservation time, reducing the loss, and maintaining the quality.



## “Lock fresh” products:

Fresh vegetables, fruits,  
mushroom, fresh flowers



Fresh meat, aquatic  
products and cooked food

**Bag series:** Vegetable bag ,fruit bag,  
fresh flower bag , mushroom bag.

**Film series:** box covering film, pillow  
packaging film , winding film.

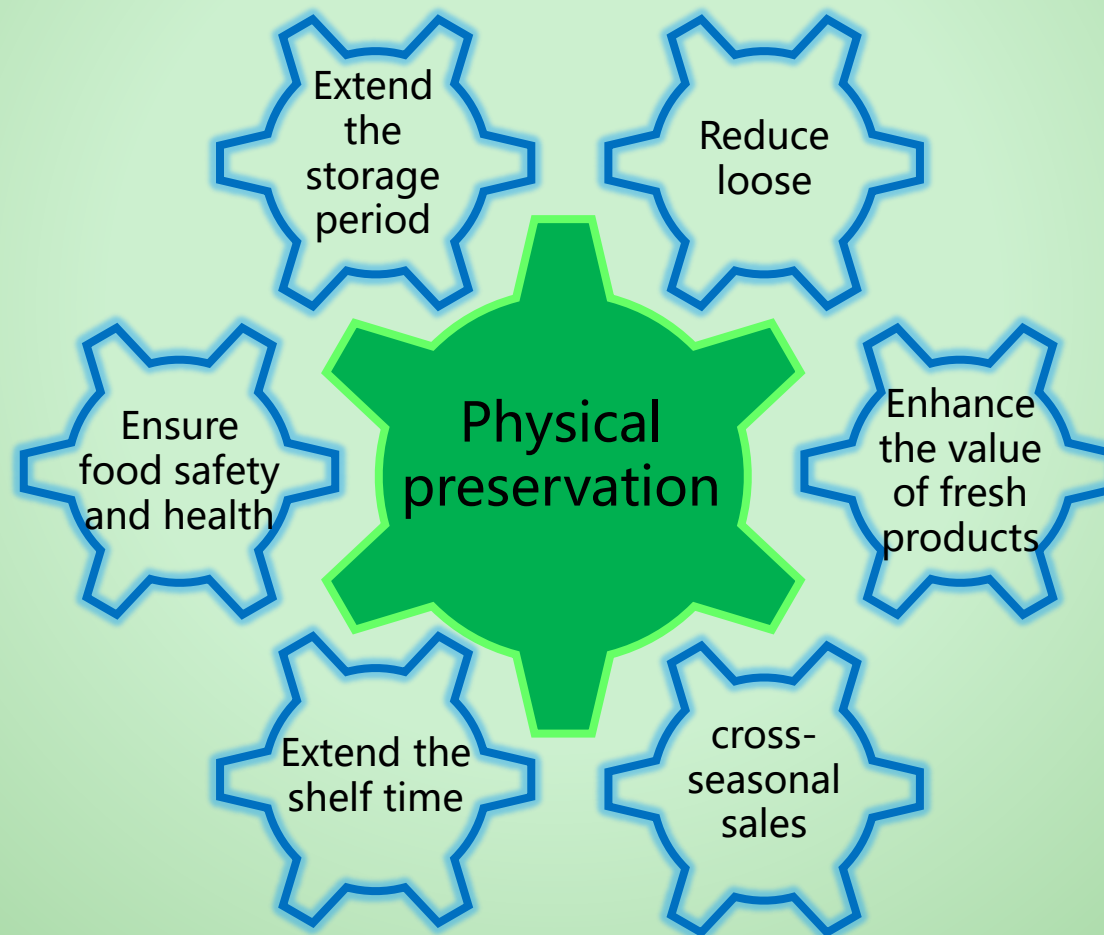
**Box series:** Anti-fog strawberry box,  
Anti-fog cherry box, Anti-fog vegetables,  
Anti-fog mushroom box, etc

**Bag series:** Meat ba, aquatic  
products bag and cooked food bag

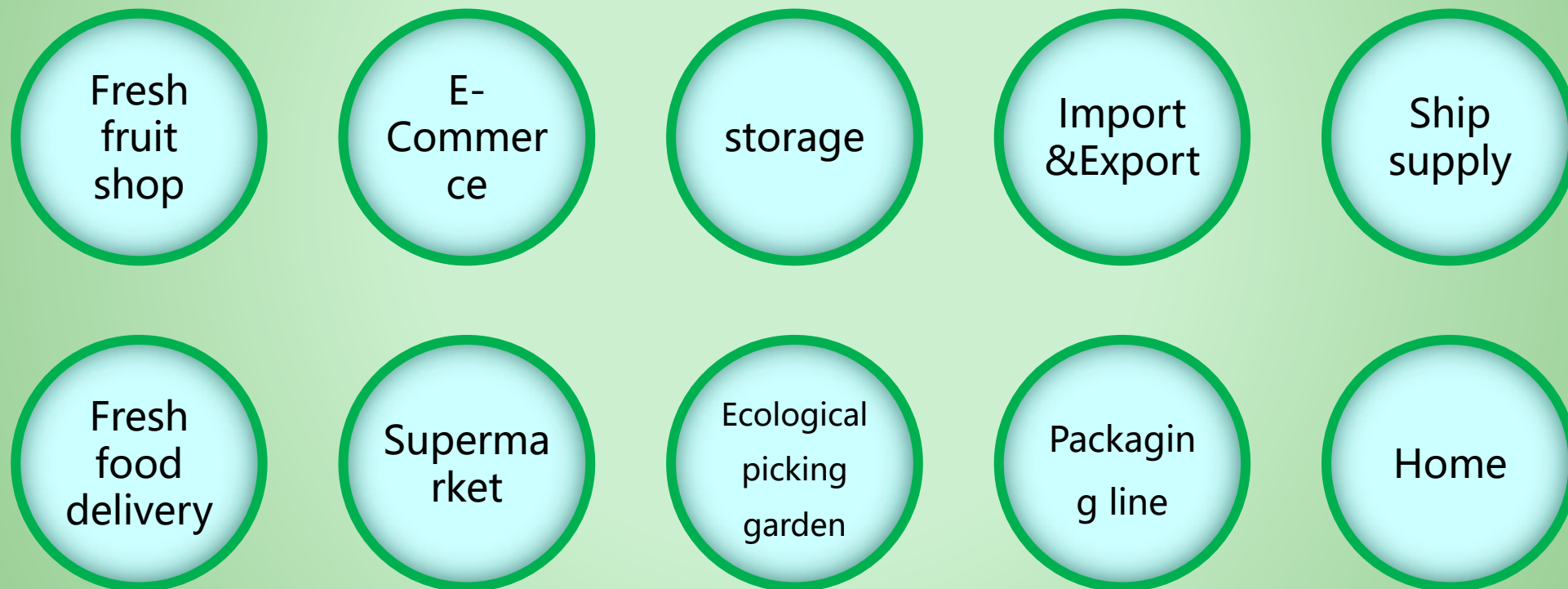
**Film series:** Roll film for machine (   
box covering film、Surlyn film ect.)

**Box series:** Chillced meat modified  
atmosphere box ,cooked food modified  
atmosphere box

## Advantage of our products:



## Application area:



## "Lock fresh" nanomaterials series product

- According to the investigation, This is the unique fresh-keeping technology in the world ,with unique physical bacteriostasis technology.



## "Lock fresh" Vegetable&Fruit bag

The "lock fresh" vegetable and fruit bag is convenient to use, without vacuumizing, inflation and equipment packaging. Generally, the shelf life of fruits and vegetables is extended for 30-90 days, and the loss is generally less than 10%. Anhui and Jiangsu customers can store and sell nectarines for more than 20 days, which can only be stored for 3-5 days, so as to reduce the loss from 30-40% to 0. Xinjiang customers use a large number of "lock fresh" bags to store flat peaches and small white apricots, ready to do cross-seasonal sales.





# "Lock fresh" bags of fruits and vegetables -- Test of fresh preservation time:

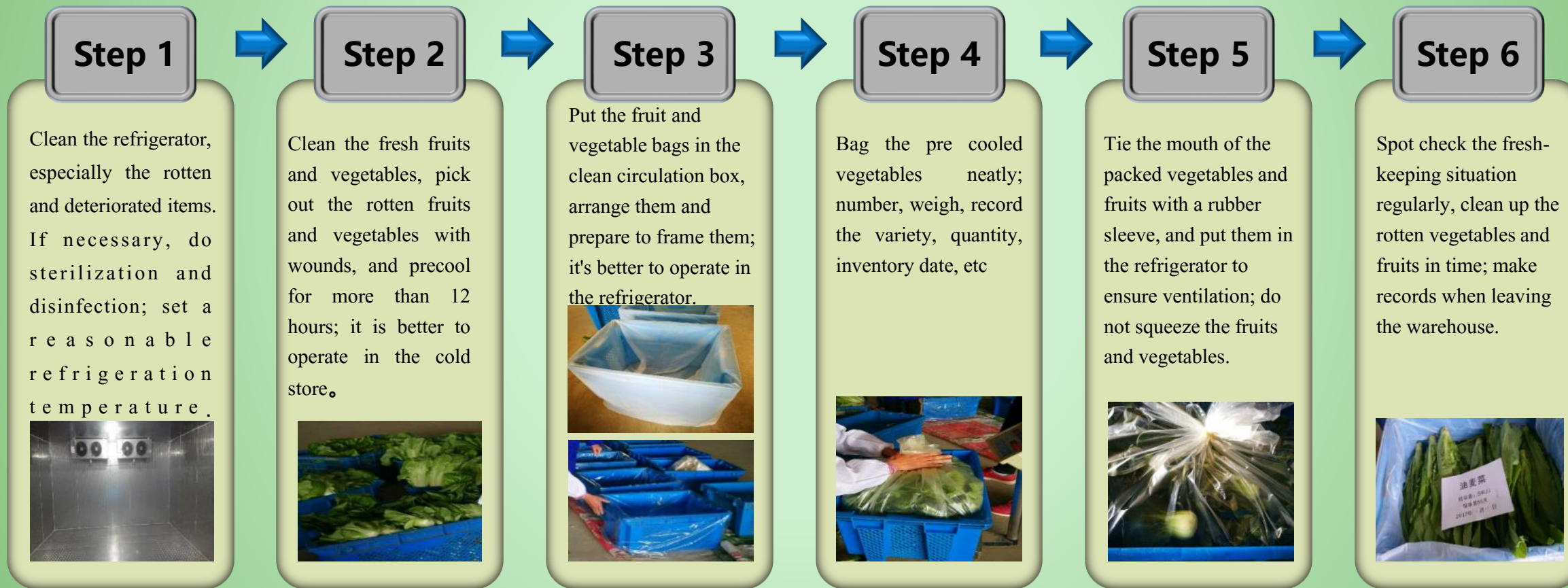
品名	保鲜时间	保鲜温度	损耗率
杭白菜	60天	0~4℃	≤5%
韭菜	25天	0~5℃	≤5%
芹菜	60天	0~4℃	≤5%
西红柿	60天	青熟11~15℃	≤2%
		全熟7~10℃	
甘蓝	50天	0~2℃	≤3%
油麦菜	60天	0~4℃	≤5%
上海青	60天	0~4℃	≤5%
菠菜	60天	0~4℃	≤5%
山东晚桃	4个月	0~4℃	≤15%
阳山水蜜桃	25天	2~5℃	≤5%

品名	保鲜时间	保鲜温度	损耗率
安徽水蜜桃	35天	2~5℃	≤5%
荔枝	50天	0~2℃	≤5%
龙眼	50天	4~6℃	≤2%
红毛丹	15天	0~5℃	≤1%
哈密瓜	7~20天	5~8℃ 早、中熟品种	≤1%
		3~5℃ 晚熟品种	
葡萄	40天	0~4℃	≤3%
草莓	45天	0~4℃	≤5%
樱桃	15天	0~2℃	≤1%
无花果	15天	0~2℃	≤2%
枇杷	95天	0~4℃	≤5%

品名	保鲜时间	保鲜温度	损耗率
山东黄杏	45天	0~5℃	≤2%
红心火龙果	15天	5~8℃	≤0.5%
新疆白杏	15天	0~5℃	≤1%
新疆红杏	20~30天	0~5℃	≤1%
新疆蟠桃	90天	0~4℃	≤5%
新疆冬枣	15天	0~4℃	≤1%
芒果	15天	10~12℃	≤1%
桔子	30天	0~4℃	≤1%
滴燕红桃	60天	0~4℃	≤5%
山楂	60天	0~4℃	≤2%

(Experimental data for reference only)

# "Lock fresh" fruit and vegetable bag -- Usage





**Day 55**

Chinese cabbage in  
the experiment



**Day 55**

Wheaten vegetable  
in the experiment



**After 60 days**

Celery preserved for  
60 days



**After 60 days**

Chinese cabbage  
preserved for 60  
days

# Customer test results (Yunnan customers) - Comparison of vegetables kept fresh for 50 days



General fresh keeping  
in cold storage

**VS**

"Lock fresh" bag preservation  
in cold storage

## Customer test results (Xinjiang customers) - preserved apricot for 45 days



# Customer test results (Jinhua customers) - sugarcane peeled for 19 days

ბგეიგჲ ჿოი ჶა გჲღჲ



"Lock fresh" fruit bag 19 days

**VS**

General fresh keeping bag  
Shelf life is only 3 days



# Customer test results (Guangxi customers) - litchi comparison of preservation for 20 days

comparison of preservation for 20 days



"Lock fresh"  
fruit bag

**VS**

General fresh  
keeping bag



## Customer test results (Shanghai Customer) - grapes kept fresh for 2 months



On the left is the grapes that are currently harvested and on the right is the grapes that have been kept fresh for 2 months

Grapes kept fresh for 2 months



# Customer test results (Shanghai Customer) - Comparison of strawberries stored for 40 days

COMPARISON OF STRAWBERRIES STORED FOR 40 DAYS



"Lock fresh"  
fruit bag

**VS**

General fresh  
keeping bag



## Customer test results (Shanghai Customer) - Phalaenopsis kept fresh for 8 days

Phalaenopsis kept fresh for 8 days



## Customer test results (Hubei customer)



Yichang customers keep blueberries fresh for 13 days



lotus sprout preserved for 3 days by Honghu customers

# “Lock fresh” products -- anti fog film for fresh fruits and vegetables

анти конденсационная пленка

- It has long-term preservation and antifogging function, which not only can obtain better preservation effect, but also does not need to drill holes for antifogging, so as to ensure the health and safety of fruits and vegetables
- “Lock fresh” anti-fog film include: box covering film ,pillow type packaging film, winding film It can be applied to the packaging process of automatic and semi-automatic packaging lines.
- It is especially suitable for business supermarket, e-commerce and other fields. It can be used for the packaging and preservation of vegetables, fruits, mushrooms, flowers, etc



# "Lock fresh" series fresh keeping products -- antifogging fruit box

antifogging fruit box

The berry packing box developed by the anti fog film for locking fresh fruits consists of a bottom box, an anti mechanical damage layer, a locking fresh layer, an upper cover and other multi-layer structures. Effectively solve the problems of mechanical damage, appearance fogging and preservation. It can be applied to strawberry, cherry, fig, arbutus, mulberry, Prunus mume, Xinjiang apricot and other fruits that are not resistant to storage and preservation, and can easily keep fresh for 15-30 days. It is suitable for the berry packaging demand of high-end super and high-end e-commerce.



"lock fresh" anti-fog film

VS

General fresh keeping film



# Strawberry anti fog, fresh-keeping and shockproof box

Suitable for e-commerce and supermarket



底盒



防震托



防雾保鲜膜



上盖



草莓防雾保鲜防震盒



## Keep-freshness" high barrier material



Chilled meat bag



Aquatic bag



Cooked food bag

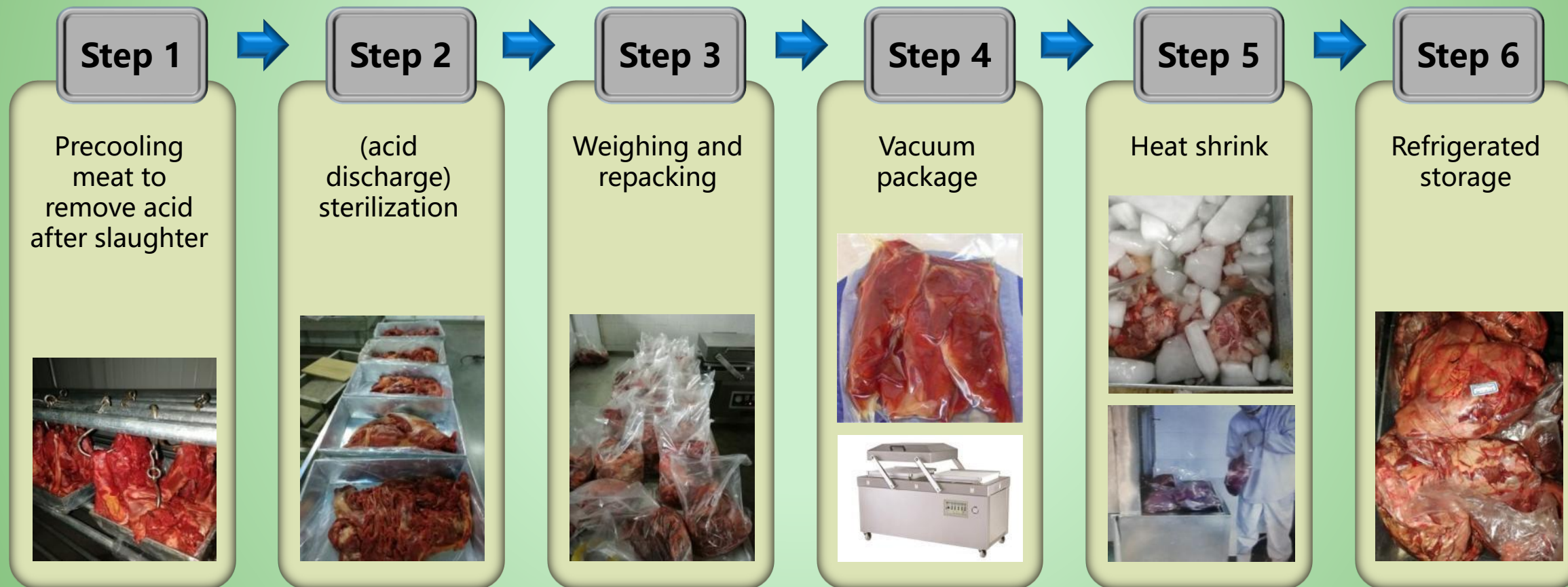


High-barrier modified atmosphere packaging  
(Box | Film)



# "Lock fresh" fresh keeping bag (chilled fresh meat) - Usage

ᠨᠠᠵᠢᠨᠠᠭ



## Customer test results - 15 day old hens



第15天

试验过程中的老母鸡

复命保鲜新材料

# Customer test results: preserved donkey meat for three months

months



## Customer test results (Hubei customers) - Comparison of 18 day cold fresh beef



## Statistics on the fresh-keeping period of "lock fresh" chilled meat bag

Types	Storage temperature	Preservation time
Pork	deposit (0±2°C)	25-45days
Mutton	deposit (0±2°C)	90days
Donky meat	deposit (0±2°C)	120days
Beef	deposit (0±2°C)	120days

Types	Storage temperature	Preservation time
Poultry (Chicken, duck and goose)	deposit (0±2°C)	10 -15days

# Fresh keeping experiment of aquatic products

新鲜水产品保鲜实验



## Statistics on the shelf life of "lock fresh" aquatic bag

Types	Handle	Storage temperature	Preservation time
Shellfish	Surface cleaning	deposit ( $0\pm 2^{\circ}\text{C}$ )	20-30days
Whole fish	Cleaning and evisceration	deposit ( $0\pm 2^{\circ}\text{C}$ )	30days
	Cleaning No guts removed	deposit ( $0\pm 2^{\circ}\text{C}$ )	15days
The flesh of fish	Surface cleaning, evisceration	deposit ( $0\pm 2^{\circ}\text{C}$ )	45-90days

# Fresh keeping experiment of cooked food



Types	Storage temperature	Preservation time
High temperature sterilization of various cooked foods	deposit (normal temperature)	18 months
Low temperature sterilization of various cooked foods	deposit (cold storage)	6 months



# Fresh keeping experiment of "lock fresh" modified atmosphere box

新鲜锁鲜实验



## Statistics on the shelf life of modified atmosphere box

### Chilled meat modified atmosphere box statistics of preservation period

Types	Storage temperature	Preservation time
Pork	deposit (10±2°C)	7-10 days
Beef	deposit (0±2°C)	10-15 days

### Cooked meat modified atmosphere box statistics of preservation period

Types	Storage temperature	Preservation time
virous cooked meat	deposit (10±2°C)	15 -20 days

# Introduction to Fuming Technology

## Fuming Technology Profile:

Shanghai Fuming New Material Technology Co., Ltd. focuses on cutting-edge technology in the field of physical preservation, with advanced technology, reliable products and comprehensive services, to meet the fresh needs of customers, and makes unremitting efforts to promote the upgrading of fresh industry and ensure food safety and health. Fuming technology adheres to the concept of creating value for customers, and is committed to the research, service of fresh-keeping technology and the development, production and sales of fresh-keeping new materials. At present, the company has the most complete category of physical fresh-keeping materials in the world, including vegetables, fruits, mushroom, fresh cut flowers, meat, aquatic products, cooked food and other categories.



# Strong R &D team

Its core R & D team is composed of 5 professors and doctors from famous universities at home and abroad, 1 overseas returnee, 5 masters in new materials, life science, food processing, physics, etc., moreover, it has carried out long-term technical cooperation with the expert team composed of dozens of professors and researchers from universities and caas.



理论研究课题组



生化研究课题组



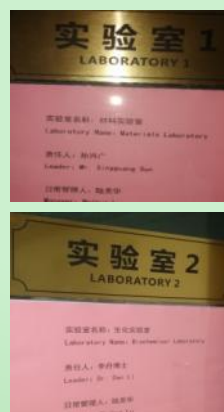
材料研究课题组



复命技术委员会



复命顾问团队

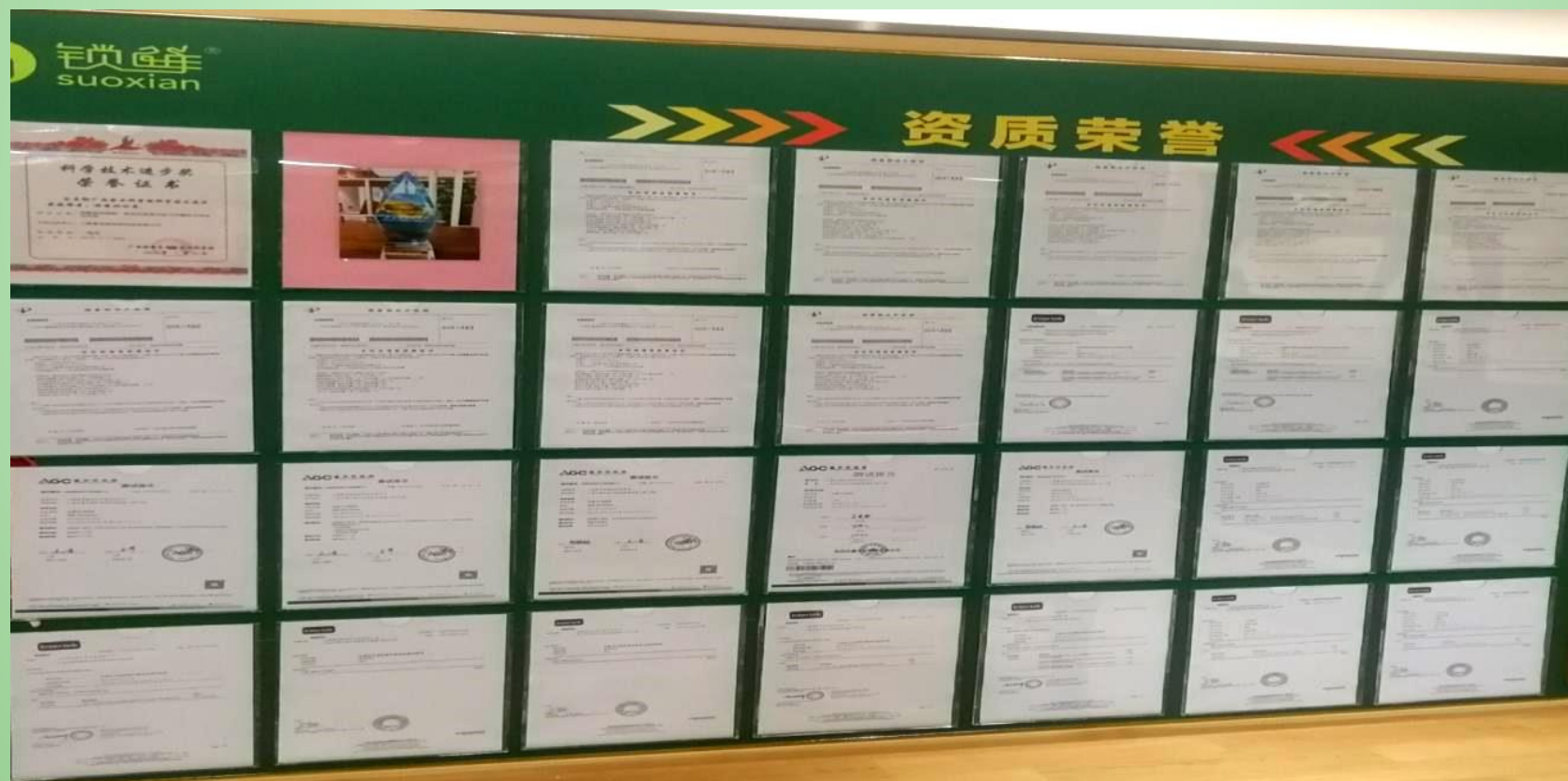


R & D Center

## R &D patents of Fuming Technology

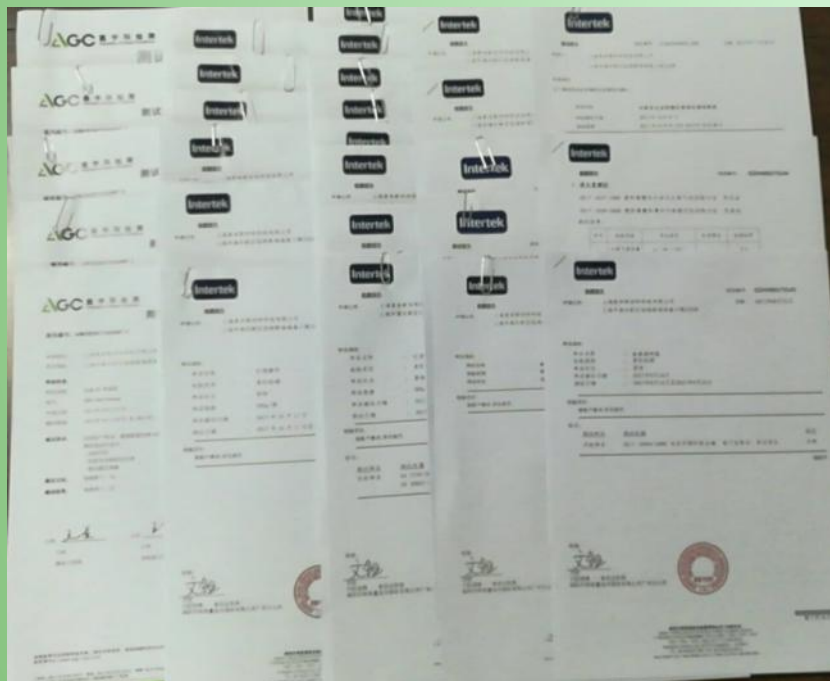
The company applied for more than 10 patents in 2018, and planned to apply for 15-20 patents in 2019, including 3-5 invention patents;

All products on the market are third-party test reports made in accordance with EU standards and national standards.



# High standard product testing

The safety test carried out in accordance with EU standards



# Cooperation with Guangxi Academy of Agricultural Sciences in the application of Fuming materials.





联合国工业发展组织

**杰出科学和技术奖**



中国外交部南南合作促进会

**上海地区会员单位**



# Media coverage

On December 15, 2017, the special report of China Green Times of State Forestry Administration revived scientific and technological achievements

## 新型保鲜膜可保鲜水果 90 天



普通保鲜袋保鲜 20 天后的情况



新型保鲜袋保鲜 20 天后的情况



右边为新东葡萄左边为保鲜 20 天的葡萄

本报讯 记者丁洪黄报道 在 0℃-5℃ 的情况下,水果保鲜长达 90 天,肉类保鲜长达 120 天,海鲜类保鲜长达 18 个月,这样的保鲜膜你见过吗?

最近,由上海复命新材料科技有限公司研发生产的新型保鲜膜实现了这种神奇功效。

据悉,这类新型保鲜膜目前已引起国内

10 多家农林业相关研究机构的兴趣,他们纷纷开始利用这类保鲜膜开展试验,并证实了保鲜膜的功效。

这类新型保鲜膜是系列产品,分别针对不同的保鲜对象设计,共有 4 个大类 40 个系列 500 多种产品。

据这一科技攻关项目的研究人员介绍,这类保鲜膜的最大突破是,根据细胞

膜仿生学研究的科技成果,设计制造出具有双向主动半透性的保鲜膜。目前市场上的保鲜膜尚不具备良好的保鲜功能,其中有部分产品具有单向半透性,保鲜效果有限。

新型保鲜膜目前已经通过完全独立的第三方测试。根据测试,生鲜水果、鲜切菜和生鲜叶菜保鲜 90 天损耗小于 8%,保鲜

60 天损耗小于 5%,失水小于 10%。肉类在 0℃-5℃ 下冷藏保鲜 120 天,与正常冷鲜肉的细菌群落相似度为 99.8%,营养指标、质量指标相似度为 99.98%。生物降解型保鲜膜原材料均为食用级,生态环保,降解彻底,大约在 60 天可以在土壤中完全降解;淡水降解型,10 分钟可在 40℃ 温水中溶解。

3 版 中国绿色时报

科教

### 滇金丝猴的生存智慧

滇金丝猴在自然环境中,有着丰富的生存智慧。它们善于利用地形和植被进行躲避天敌,同时也有着独特的社交行为。在食物短缺时,它们会表现出合作觅食的行为,这种智慧是它们在恶劣环境中生存下来的关键。

### 百名学者齐聚徽州 探讨绿色高职教育

近日,百名专家学者齐聚徽州,共同探讨绿色高职教育的发展路径。会议围绕绿色教育、产教融合等主题展开深入交流,旨在推动绿色教育在高职院校的普及,培养更多绿色技能人才。

### “稻”梦空间打造美丽乡村

通过“稻”梦空间项目,当地村民利用闲置房屋改造为特色民宿,吸引了大量游客,有效带动了乡村旅游的发展,实现了美丽乡村的打造。

### 盐池“沙漏县城”实现生态逆袭

曾经的盐池县因盐业而兴,也因盐业而衰。如今,通过生态修复和产业结构调整,盐池县实现了从“沙漏县城”到生态宜居之地的华丽转身。

### 中南林科大雷锋超市进驻湘西扶贫村

中南林业科技大学雷锋超市进驻湘西扶贫村,为当地村民提供平价优质商品,助力脱贫攻坚,体现了高校的社会责任担当。

# Media coverage

Oriental TV, Oriental Finance

东方卫视 20181209 上海：破解“保鲜密码”物理保鲜新材料揭开面纱

记者：陈慧莹

上海：破解“保鲜密码”物理保鲜新材料揭开面纱



东方财经 20181210 破解保鲜密码，物理保鲜新材料揭开面纱

记者：陈佳辰

破解保鲜密码，物理保鲜新材料揭开面纱



# Media coverage

新华社、科技日报、新闻晨报、浦东时报、东方城乡报、浦东电视台、上海日报、上海科技报、今日头条、东方网等数十家媒体报道复命产品

上海研发出物理保鲜新材料 可以大幅... 立即体验

上海·频道

### 上海研发出物理保鲜新材料 可以大幅度延长生鲜保鲜期

2019-10-08 15:30:55 浏览量: 795744

上海 | 要闻 来源: 新华社上海分社

新华社客户端上海10月8日电 (宋文祥) 水蜜桃可以保鲜35天, 小青菜可以保鲜60天.....上海最新研发出一种物理保鲜新材料, 可以大幅度延长生鲜保鲜期, 从而改进生鲜产业的生产经营和消费模式。

目前我国已经成为全球最大的蔬菜果品生产国, 但经过保鲜贮藏的果蔬比例较小, 且大部分采取化学保鲜的方式, 由于保鲜处理不好, 产品品质和安全受到很大损害, 致使果品的损耗率在20%至25%, 蔬菜的损耗率达30%, 全国果蔬每年的损耗量达上亿

新华社客户端 立即体验

科技日报 20181207 报道 新技术助力“鲜”生活 第一届农产品(食... 

新闻晨报20181208A3版 让生鲜品进入休眠状态临港一企业破解“... 

浦东时报20181210 4版 农产品(食品)物理保鲜新材料应用交... 

东方城乡报20181211A7版 亮相首次“农产品(食品)物理保鲜... 

东方网 20181210 解决蔬果保鲜痛点! 物理保鲜新材料可使绿叶... 

浦东电视台报道 临港助推企业研发成果转化 新材料填补保鲜领... 

临沂市农科院与上海复命新材料科技公司签署果菜保鲜研发战略... 

今日头条: 解决蔬果保鲜痛点! 物理保鲜新材料可使绿叶菜存放... 

今日头条: 临沂市农业“新六产”专班组团赴上海参加首届中国国际... 

## Cooperation

Signing ceremony with Guangxi Academy of Agricultural Sciences  
on October 26, 2018



# Cooperation

cooperation

2018.12.7与上海农科院联合举办第一届物理保鲜研讨会



## Cooperation

Seminar on strategic development of physical fresh keeping new materials held on March 22, 2019



乔勇进博士（左四，上海农科院保鲜中心主任）、段玉全博士（左五，中国农科院蔬果保鲜课题主任）、翟留栓博士（左七，中国农大教授研究生导师）、杨绍光博士（左八，南京大学教授博导）

# Cooperation

复命公司与上海农科院、广西农科院、临沂农科院等10余家农科院等建立了合作关系合作研究复命保鲜新材料在各种生鲜食品的应用；与南京大学、同济大学等高校合作建立了材料研发研发中心；临沂农业局等合作推广应用复命的产品；与京东生鲜、华信制药、金锣、得利斯、美的空调都建立了合作关系；





# Cooperation Market



# THANK YOU!



欢迎关注复命保鲜新材料公众号