



产品手册

PRODUCT MANUAL

 **中化学东华天业新材料有限公司**
中国化学 DONGHUA TIANYE NEW MATERIAL CO., LTD.

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中国化学



东华科技



东华天业





GREEN CHEMISTRY
COLORFUL ECOLOGY

绿色化学
多彩生态

企业简介 COMPANY PROFILE

Donghua Tianye New Materials Co., Ltd. is jointly invested and established by East China Engineering Science and Technology Co., Ltd.(ECEC), which is a subsidiary of China National Chemical Engineering Group Corporation Ltd.(CNCEC), and Xinjiang Tianye Co., Ltd.(TIANYE), among which ECEC holds 51% of the shares and TIANYE holds 49%. The company was established on March 18, 2021 and is located in Shihezi National High-tech Industrial Development Zone. It mainly engages in the research and development, production and sales of polyester biodegradable materials and related products. The Donghua Tianye PBAT project is a demonstration project for central and local cooperation to jointly promote green and high-quality development. It can extend the coal chemical industry chain and play an important demonstration role in the development, quality and efficiency improvement of the national biodegradable materials industry. The design and construction scale of the project is 500,000 tons/year. The first-phase 100,000-ton production device has been completed and put into operation in June 2022. Currently, the company uses PBAT synthetic high-efficiency catalysts with independent intellectual property rights to produce PBAT products that are comprehensively superior to national standards. The company also flexibly produces PBS, PBT and other related products. At the same time, through independent research and development, the company produces a variety of end products such as fully biodegradable dust-proof nets and mulch film.

中化学东华天业新材料有限公司由中国化学所属东华工程科技股份有限公司和新疆天业股份有限公司联合出资设立，其中东华科技占股51%，新疆天业占股49%。公司成立于2021年3月18日，地址位于石河子国家高新技术产业开发区，主要经营聚酯类生物降解材料及相关产品的研发、生产和销售。东华天业PBAT项目是央地合作共同推动绿色高质量发展的示范项目，可延伸煤化工产业链，对全国生物降解材料行业的发展、提质增效具有重要的示范作用。项目设计建设规模为50万吨/年，一期10万吨生产装置于2022年6月建成投产，目前公司采用拥有自主知识产权的PBAT合成高效催化剂，生产出全面优于国家标准的PBAT产品，同时可柔性化生产PBS、PBT等多种产品。同时，公司通过自主研发，生产全生物降解防尘网、地膜等多种终端制品。



书写绿色答卷
添彩大美中国

企业资质 QUALIFICATION



企业优势 BUSINESS ADVANTAGE

依托东华工程科技股份有限公司和新疆天业股份有限公司
Relying on ECCC and TIANYE

NO.1

技术研发优势
Technological research and development advantages

NO.2

严格品质控制
Strict quality control

NO.3

智慧运营
Smart Operations

NO.4

区位优势
Location advantage

NO.5

高效物流团队
Efficient logistics team

NO.6

专业服务团队
Professional service team

产业链规划

INDUSTRIAL CHAIN PLANNING

东华天业以PBAT/PBT为基础纵深发展,上游布局BDO、丁二酸等核心原料产业,实现产业链延伸;下游拓展改性制品,自主研发推广全生物降解地膜、防尘网,开发推广全生物降解膜袋类产品、日用品等多个终端产品,加速“BDO+PBAT合成+PBAT改性+PBAT制品”全产业链发展。同时,公司横向布局包括PBS、PBST、PBSA等一系列全生物降解材料集群的产业园基地。

Based on Donghua Tianye's PBAT/PBT, it develops in depth and deploys core raw material industries such as BDO and succinic acid upstream to realize the extension of the industrial chain. Expand modified products downstream, Develop and promote multiple end products such as degradable mulch films, degradable film bag products, and degradable daily necessities, and accelerate "BDO+PBAT synthesis+PBAT modification+PBAT products" Development of the entire industrial chain. At the same time, the horizontal layout includes a series of industrial park bases for biodegradable material clusters such as PBS, PBST, PBSA, etc.

技术与研发

TECHNOLOGY AND R&D

东华天业成立了全生物降解新材料技术创新中心,致力于催化剂的研发与评价、合成技术优化改进、副产物的精制提纯、新材料的后加工改性配方及工艺的研究等,开发出高端化、差异化、功能化的全生物降解新材料系列产品,全力打造具有国内一流的全生物降解新材料产业示范基地。

Donghua Tianye has established the biodegradable new material Technology Innovation Center, which is committed to the research and development and evaluation of catalysts, optimization and improvement of synthetic technology, refining and purification of by-products, and research on the modified formula and process of post-processing of new materials, etc., and has developed high-end, differentiated and functional fully biodegradable new material series products. Strive to build a domestic first-class fully biodegradable new material industry demonstration base.



PBAT 产品介绍

PBAT PRODUCT INTRODUCTION

东华天业致力可降解材料关键核心技术攻关和成果转化,创新生产工艺控制,自主研发稳定且高活性的绿色PBAT合成用高效催化剂配方。PBAT产品使用专有催化剂,采用德国进口的生产设备,通过分步酯化、两步缩聚工艺生产出来的,产品分子量分布均匀,力学性能优异,质量稳定。目前产品已通过国内外多项生物降解塑料标准认证检测。

Donghua Tianye is committed to the key core technology research and achievement transformation of degradable materials, innovative production process control, independent research and development of stable and highly active green PBAT synthesis efficient catalyst formula. PBAT products use proprietary catalysts, production equipment imported from Germany, and are produced through step-by-step esterification and two-step polycondensation processes. The product has a uniform molecular weight distribution, excellent mechanical properties, and stable quality. At present, the products have passed a number of biodegradable plastic standards certification tests at home and abroad.

PBAT特性

PBAT characteristics

环境友好型材料
Environmentally friendly materials

优异的力学性能和加工性能
Excellent mechanical properties and processing properties

优异的延展性
Excellent ductility

优异的抗老化性能
Excellent aging resistance

优异的生物降解性
Has excellent biodegradability

PBAT 产品指标

PBAT PRODUCT INDICATORS

指标名称 Properties	单位 unit	产品指标 Product Indicators
		DT10A
熔指 Melt Flow Index	g/10min	3-5
色相 Color	L	≥80
	A	≤3
	B	≤8
羧基 Carboxyl End Group	容量 Capacity	≤15
	电极 Electrode	≤20
熔点 Melting Point	°C	110-130
水分 Water Content	%	≤0.1
灰分 Ash Content	%	≤0.1
密度 Density	g/cm ³	1.23±0.03
断裂拉伸强度 Tensile Strength	MPa	≥15
断裂拉伸应变 Tensile Elongation	%	≥500

PBAT 应用领域

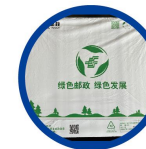
PBAT APPLICATION FIELDS

地膜、防尘网、购物袋、垃圾袋、电子产品包装袋、食品包装袋等。

Mulch Film, dust-proof nets, shopping bags, garbage bags, electronic product packaging bags, food packaging bags etc.



农林用品
Agriculture and forestry supplies
地膜、育苗袋等
Mulch film, seedling bags etc.



包装材料
Packaging Materials
胶带等
Tape etc.



建筑业、工业
Construction/Industrial
防尘网等
Dust-proof net etc.



包装袋
packaging bags
购物袋、快递袋等
Shopping bags, Courier bags etc.

PBT 产品介绍

PBT PRODUCT INTRODUCTION

东华天业通过创新的生产工艺控制技术,严格的质量管控体系,连续专线高产能生产,使PBT产品品质具有极佳的稳定性,可有效提升下游产品耐水解性能和热稳定性,大幅提高下游产品加工性能和机械性能,确保下游产品质量稳定。产品规格覆盖低粘度、中粘度、高粘度三个常用粘度规格等级,并可根据客户需求定制粘度规格。

Donghua Tianye adopts innovative production process control technology and strict quality control system, Continuous dedicated lines of high-capacity production makes PBT product quality extremely stable. It can effectively improve the hydrolysis resistance and thermal stability of downstream products, significantly improving the processing performance and mechanical properties of downstream products, ensure stable quality of downstream products. Product specifications cover three common viscosity specifications: low viscosity, medium viscosity, and high viscosity grades, and viscosity specifications can be customized according to customer needs.

PBT特性

PBT characteristics

- A** 优异的机械性能
Excellent mechanical properties
- B** 优异的吸水性能
Excellent water absorption
- C** 优异的电气性能
Excellent electrical properties
- D** 优异的耐化学性
Excellent chemical resistance
- E** 优异的可加工性能
Excellent machinability

PBT 产品指标

PBT PRODUCT INDICATORS

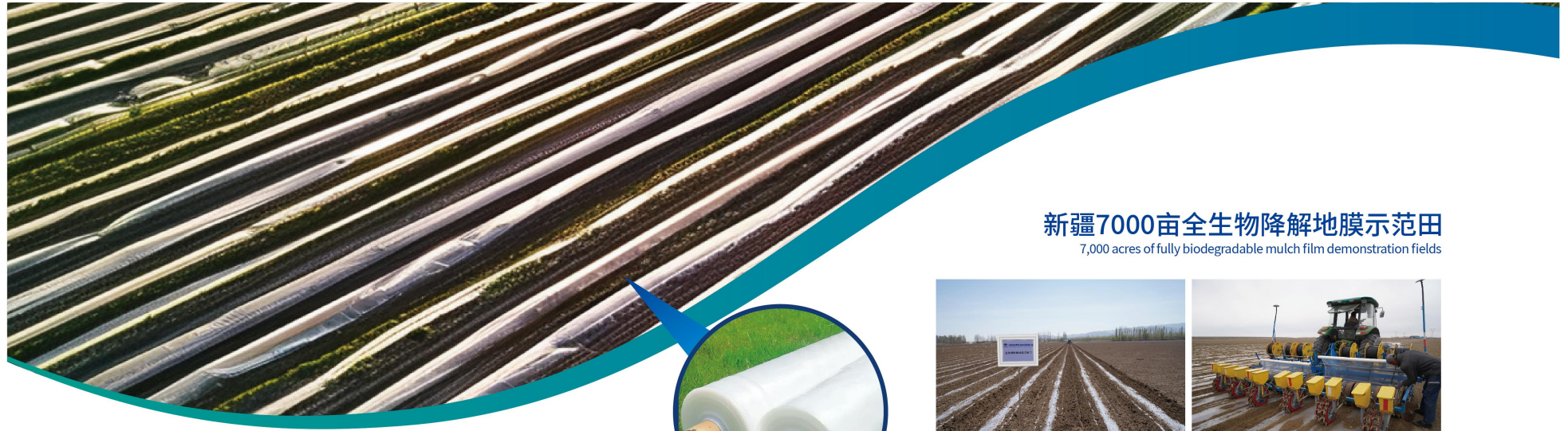
项目 Properties	单位 Unit	产品牌号 Product Indicators					
		色母或经增强改性后用于电子 电器行业和汽车行业工程塑料 Melt Flow Index/Masterbatch or reinforced modified for electronic and electrical industry and automotive industry engineering plastics				纺丝、高 级软毛刷 Spinning, high grade soft brush	光纤护套 管及工程 塑料领域等 Fiber optic casing and engineering plastic fields
		DT2083	DT2087	DT2090	DT2095	DT20100	DT20120
粘度 viscosity	dI/g	0.830 ± 0.015	0.870 ± 0.015	0.900 ± 0.015	0.950 ± 0.015	1.000 ± 0.015	1.200 ± 0.015
熔点 melting point	°C	223±2					
端羧基 Carboxyl End Group	mol/t	≤30					
色相L值 Color(L)	—	≥90					
色相b值 Color(b)	—	≤3					
水分 Water Content	%	≤0.2					
灰分 Ash Content	mg/kg	≤200					
百粒重 hundred-grain weight	g	2.2±0.2					
密度 Density	g/cm ³	1.28-1.32					
熔融指数 (250°C 2.16kg) Melt index(250°C 2.16kg)	g/10min	65-80	55-64	42-53	33-40	23-32	10-15
拉伸强度 Tensile strength	MPa	≥50					
断裂伸长率 Elongation at break	%	≥60				≥100	
缺口冲击强度 (悬臂梁) Notched impact strength (cantilever beam)	kJ/m ²	≥4					

PBT 应用领域

PBT APPLICATION FIELDS

广泛用于电器、汽车、航空航天、通讯、交通运输等工业领域。
It is widely used in industrial fields such as electrical appliances, automobiles, aircraft manufacturing, communications, home appliances, and transportation.





新疆7000亩全生物降解地膜示范田

7,000 acres of fully biodegradable mulch film demonstration fields



全生物降解地膜

FULLY BIODEGRADABLE MULCH FILM

以PBAT为基材进行改性,通过对不同助剂和填充物进行筛选搭配,调整加工工艺参数,自主研发出30余个可降解地膜配方,加工生产全生物降解农用薄膜产品,用于大田作物验证实验。2023年在八师石河子7000亩玉米、甜菜、花生等农作物上进行了生物降解地膜示范推广,实验结果良好。

Modify the PBAT material, use PBAT as the base material, and adjust the processing by screening and matching different additives and fillers. Process parameters, master its processing performance, independently developed more than 30 degradable agricultural film formulas, and processed and produced fully biodegradable agricultural films. Products for field crop verification experiments. In 2023, biological degradation was carried out on 7,000 acres of corn, sugar beets and peanuts plants experimental fields in Shihezi. The mulching film solution experiment was carried out and the results were good.

使用传统设备即可生产,在冲击、拉伸、撕裂方面达到使用要求。

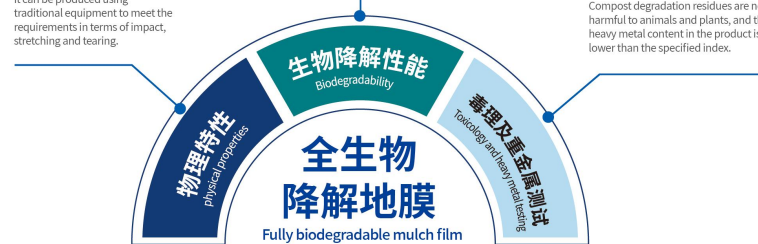
It can be produced using traditional equipment to meet the requirements in terms of impact, stretching and tearing.

堆肥条件下90天,生物降解率大于90%。

Under composting conditions for 90 days, the biodegradation rate is greater than 90%.

堆肥降解残留对动植物无危害,产品中重金属含量低于规定指标。

Compost degradation residues are not harmful to animals and plants, and the heavy metal content in the product is lower than the specified index.



规格 specification	厚度0.01毫米,宽度0.75米/1.45米/2.05米 Thickness 0.01 mm, width 0.75 m / 1.45 m / 2.05 m
颜色 color	白色 White
特点 Features	<ol style="list-style-type: none"> 1. 优异的耐湿热老化,耐辐照性能; 2. 优异的力学性能,纵向拉伸强度达40MPa以上; 3. 优异的阻隔性能,水蒸气透过量最低可达270g/(m².24h),有效实现保温保湿; 4. 诱导期2-6个月可调控。 <p>1. Excellent resistance to moisture and heat aging and radiation resistance; 2. Excellent mechanical properties, with longitudinal and transverse tensile strength of more than 40MPa; 3. Excellent barrier performance, water vapor transmission rate can reach as low as 270g/(m².24h), effectively achieve thermal insulation and moisturizing; 4. The induction period can be adjusted from 2 to 6 months.</p>
使用场景 Application	玉米、甜菜、花生等农作物。 Corn, sugar beets, peanuts and other crops.

全生物降解防尘网

FULLY BIODEGRADABLE DUST- PROOF NET

目前市面上“环保防尘网”、“绿色防尘网”绝大部分均为PP、PE等编织而成，在风吹日晒后裂开为塑料碎片难以回收，形成微塑料造成新的污染源，对环境造成二次污染。由于没有国家标准，市面上实际使用的防尘网多为2针~4针，目数没有达到防尘要求，在追求价格的同时容易忽视质量控制要求，没有起到真正的防尘效果，使用寿命也大大折扣。

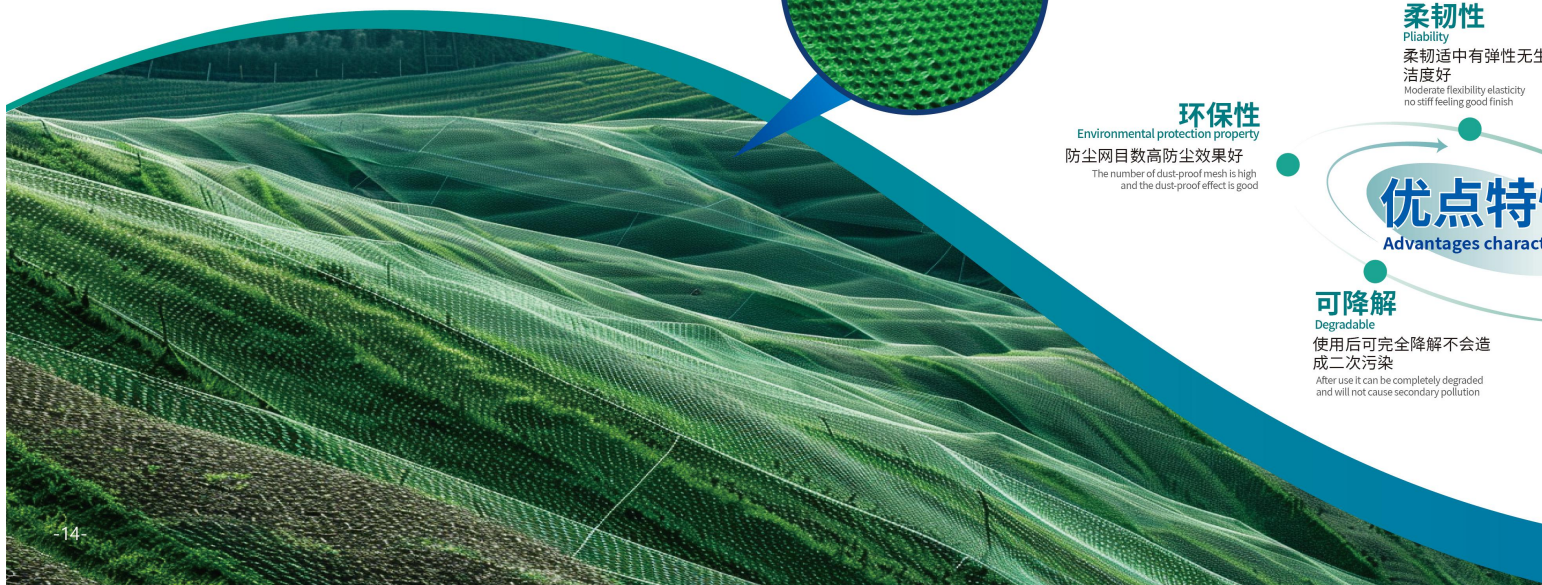
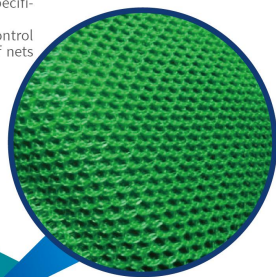
以东华天业生产的PBAT为主要原料，采用专用配方经过多元复合改性制成全生物降解防尘网专用改性树脂，使用专用设备得到全生物降解扁平丝，然后在全生物降解专用经编机上根据客户需要可编织出各种规格的全生物降解防尘网。

东华天业防尘网，坚持自己的企业标准Q/DHTY001-2024，对18道工序严格把关，全过程追求品质控制，确保生产出来的防尘网品质优异，真正起到防尘、环保的效果。

Most of the "environmental dust-proof nets" and "green dust-proof nets" on the market are woven from PP, PE, etc. After being exposed to wind and sun, they crack into plastic fragments that are difficult to recycle, forming microplastics and causing new sources of pollution, which also causes secondary pollution to the environment. Since there is no national standard, most dust-proof nets actually used on the market have 2 to 4 pins, and the number of meshes does not meet the dust-proof requirements. It is easy to overlook quality while pursuing price.

Quantity control requirements are not met, and the real dust-proof effect is not achieved, and the service life is greatly reduced. Using PBAT produced by Donghua Tianye as the main raw material, a special formula is used to undergo multi-complex modification to make a fully biodegradable modified resin for dustproof nets. Patented equipment is used to obtain fully biodegradable flat filaments, and then in a fully biodegradable special process The knitting machine can weave fully biodegradable dust-proof nets of various specifications according to customer's needs.

Donghua Tianye dust-proof nets adhere to their own corporate standards Q/DHTY001-2024, strictly control the 18 processes, and pursue quality control throughout the process to ensure that the dust-proof nets produced are of excellent quality and truly achieve dust-proof and environmentally friendly effects.



传统防尘网与全降解防尘网对照表

Comparison table between traditional dust filter and fully degradable dust filter

名称 Name	传统防尘网 Dust-proof net	全生物降解防尘网 Fully biodegradable Dust-proof net
材料 Material	PP、PA、PE 等 PP, PA, PE etc.	PBAT、PLA 等 PBAT, PLA etc.
幅宽 Width	4米/6米/8米 4m/6m/8m	4米/6米/8米 4m/6m/8m
目数 Mesh number	多为800~1500目 Mainly 800-1500 mesh holes	2000目 2000 mesh holes
防尘效果 Dust-proof effect	参差不齐, 多为2~4针, 效果一般 Overall no fixed quality standards, mainly 2-4 pins with less Dust-proof effects	好 good
降解性 Degradability	不可降解 non-degradable	全生物降解 Fully biodegradable
对土壤的危害 Harm to soil	有塑料污染 There is plastic pollution	无污染 No pollution
应用场景 Application scenarios	建筑工地、工矿企业、料场 Construction sites, industrial and mining enterprises, material yards	建筑工地、工矿企业、料场 Construction sites, industrial and mining enterprises, material yards
环保性 Environmental protection	治理扬尘, 但会造成二次环境污染 Control dust, but it will cause secondary environmental pollution	治理扬尘, 使用后完全降解, 不会造成环境污染 Control dust and completely degrade after use. Will not cause environmental pollution



PBAT 应用推广

PBAT APPLICATION PROMOTION

包装材料

PACKAGING MATERIALS

快递袋、购物袋、垃圾袋、食品包装袋等
COURIER BAGS, SHOPPING BAGS, GARBAGE BAGS, FOOD
PACKAGING BAGS ETC.

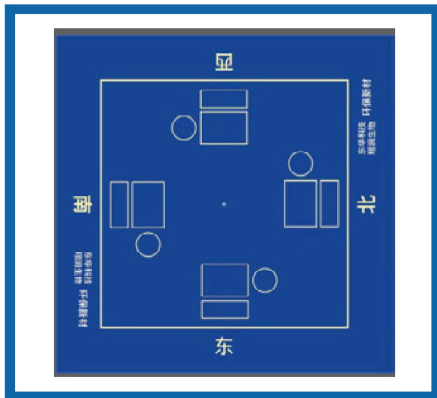
使用东华天业PBAT加工生产的2000万只中国邮政快递包装袋已投放市场
20 million China Express Mail Service (EMS) packaging bags processed and produced using Donghua Tianye
PBAT have been put on the market



文教用品

CULTURAL AND EDUCATIONAL SUPPLIES

户外大礼包、扑克牌、扑克垫
OUTDOOR GIFT PACKAGE, PLAYING CARDS, POKER MAT



PBAT 应用推广

PBAT APPLICATION PROMOTION

日用品

DAILY NECESSITIES

一次性餐具、手套、吸管等

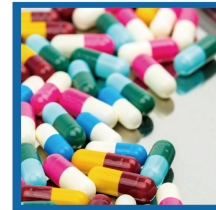
DISPOSABLE TABLEWARE, GLOVES, STRAWS ETC.



卫生用品

HYGIENE PRODUCTS

婴儿尿布、医用垫褥、女性卫生用品等
BABY DIAPERS, MEDICAL MATTRESSES, FEMININE HYGIENE
PRODUCTS ETC.



纺织用品

TEXTILE SUPPLIES

口罩、织物等
MASKS, FABRICS ETC.

PBT 应用推广

PBT APPLICATION PROMOTION

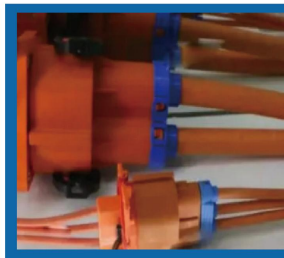
电器用品

空气炸锅、电灯灯罩、蒸汽熨斗等
ELECTRICAL APPLIANCE: AIR FRYER,
ELECTRIC LAMP SHADE, BOTTLE STEAM IRON, ETC.



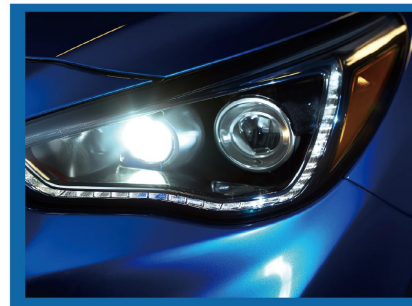
飞机用品

光缆外壳、电磁阀轴等。
AIRCRAFT SUPPLIES: OPTICAL CABLE SHELL, SOLENOID VALVE SHAFT, ETC.



PBT 应用推广

PBT APPLICATION PROMOTION

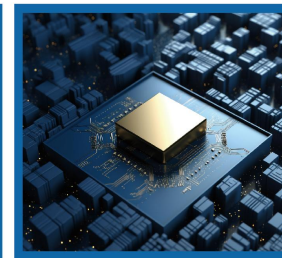


汽车用品

汽车点火线圈、无骨汽车雨刷、后视镜外壳等
AUTOMOTIVE SUPPLIES: CAR IGNITION COIL,
BONELESS CAR WIPERS, REARVIEW MIRROR SHELL, ETC.

通讯设备用品

手机壳、程控电话的集成模块、接线板，电动工具等
COMMUNICATION EQUIPMENT SUPPLIES, MOBILE PHONE CASES, INTEGRATED MODULES FOR PROGRAM-
CONTROLLED PHONES, WIRING BOARDS, POWER TOOLS, ETC.



CHEMISTRY

ECOLOGY

企业QHSE方针 QUALITY POLICY

以人为本 关爱环境
注重质量 规范管理
持续改进 顾客满意

People-oriented
Pay attention to quality
Continuous improvement

Caring for the environment
Standardize management
Customer satisfaction

绿色化学 多彩生态

GREEN CHEMISTRY

COLORFUL ECOLOGY