

PCR TOPCIRCLE™ PRODUCT MANUAL

NINGBO TOPCENTRAL NEW MATERIAL CO., LTD

PCR
GENERAL
PLASTIC
[TcycleGP™]

PCR
ENGINEERING
PLASTIC
[TcycleEP™]

PCR
SPECIAL ENGINEERING
PLASTIC
[TcycleSP™]



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Catalog

Company Profile	01
Company Honor	02
Company History	04
Customized Material Solutions	05
PCR General Plastic (TcycleGP™)	06
PCR Engineering Plastic (TcycleEP™)	16
PCR Special Engineering Plastic (TcycleSP™)	26



Company Profile

Ningbo Topcentral New Material CO., Ltd is a high-tech company focusing on green low-carbon functional materials, bio-based & degradable materials, modification research and technical service of new materials. We have been committed to providing system solutions of new materials integrating R&D and innovation, test analysis, production and manufacturing, sales and technical services etc., which jointly promotes sustainable development of high-value circulatory economy industrial chain and contributes to the bright future of mankind.

Strong Research And Development Team

A highly educated, experienced and innovative talent team have converged in Topcentral®. More than 60% Topcentral's employees have bachelor degree or above. The R&D personnel have accounted for the total number of staff 43%. The core researchers in Topcentral® have obvious professional and academic advantages in the fields of plastic recycling economy, new materials, etc. Meanwhile, they have rich industrial experience and carry out industry-university-research cooperation with Chinese Academic of Science, Tianjin University, Zhejiang University and Zhejiang University Ningbo Institute of Technology and other domestic universities to devote to break the key technical bottlenecks of the circular economy materials and keep providing the productions and the technical services with low-carbon & high quality.

Professional Quality Management System

Topcentral® strictly follows ISO9001 quality management system, ISO14001 environment management system, ISO45001 Occupational Health And Safety Management System Certification to establish a comprehensive quality management system, which carries out the total quality control of procurement & storage of raw materials, organizing production, test and storage to guarantee the product quality. The quality department is consisted by the professional staffs with the professional skills and strong sense of responsibility. The laboratory has advanced, professional testing environment and instrument & equipment. All of these ensure that the data is real, exact and reliable. All the efforts are the key to the quality reliability.

In the future, Topcentral® covers nine categories of sustainable products, innovative technologies and integrated services.

- | | | |
|---|--|--|
| 01 Recyclable and innovative plastics and technology | 02 New material modification and technology | 03 Biobased materials and biodegradable technology |
| 04 Highly sophisticated, products design and service | 05 Special composites and technology | 06 New functional, materials design and customization |
| 07 IP authorization, cooperation and integrated Services | 08 Whole industry chain, design innovation and new business model | 09 Intelligent equipment and cloud data service |

Our Vision

Be a Functional Platform By Innovation of AI , Science Technology and Talent for Win-Win.



Company History

2019.12

2020

2021.7

2021.9

2021.12



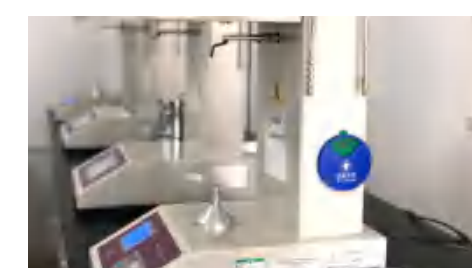
2019.12

Ningbo Topcentral New Materials Co., Ltd. was established.
Topcentral® is guided by “goals, efficiency and value”, adheres to the business philosophy of “sustainable”, and works with the principle of “broaden sources, reduce expenditure and high efficiency”.



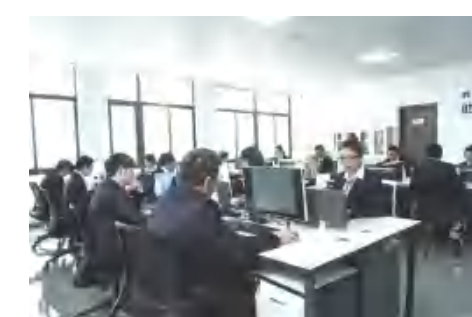
2021

Included in the
“National Science and
Technology Small and
Medium-sized Enterprises”



2021.9

Included in the “Specialized, Refined,
Characterized and Novel Small and Medium-sized
Enterprises of Zhejiang Province”



2021.12

Awarded "National
High-tech Enterprise”

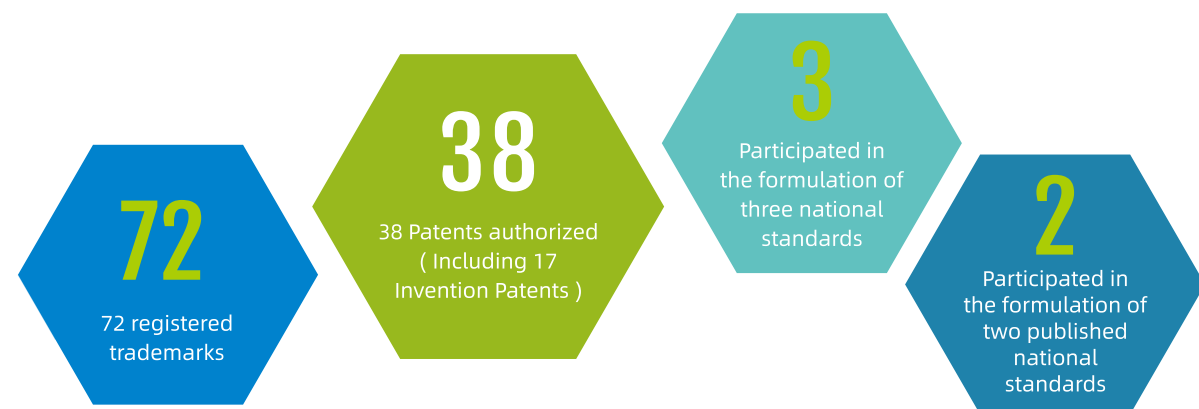


2021.12

Awarded the Postdoctoral Workstation
of Zhejiang Province



Qualification



Topcentral® has certificated by International Quality System Certification (ISO9001), International Environmental Management System Certification (ISO14001) and Occupational Health And Safety Management System Certification (ISO45001). Related products have passed Global Recycled Standard (GRS) certification, SCS Global certification, UL2809 and ITE certification, UL OBP certification, TUV PCR certification. Organizational carbon footprint, product carbon footprint, organizational carbon neutrality, product carbon neutrality by TUV.



Customized-Design Material Solutions

Customized-Design Solution Characteristics



Material solutions with customized performance can be provided according to the product and technical requirements specified by customers;



Customized SCM solutions can be provided according to customer oriented sources or supply chain management requirements;



According to customer requirements for carbon footprint, LCA and traceable management, we can carry out customized carbon footprint and LCA solutions for the entire industrial chain, upgrade and apply the latest blockchain technology solutions according to actual needs, and provide customized Zero-Carbon products and services (FreeCBO2®);



A complete set of certification solutions can be provided for customer with specific regulations and management certification.



According to customer requirements, we can develop and design the back-end applications of plastic products and provide the product terminal output solutions that meets the needs of consumers. (Example: high-performance and traceable electric toothbrush made of 100% PCR ABS[IBISS™] FreeCBO2® Zero-Carbon material; high-performance and traceable hand sanitizer bottle made of 100% OBP PCR PET [OceanPET®] FreeCBO2® Zero-Carbon material;)



Comprehensively designed, customized, systematic and innovative solutions can be carried out according to customization requirements.



Customized products can achieve "Zero" Carbon emission design and innovative applications [cradle-to-gate];



PCR
General
Plastic
[TcycleGP™]

PCR
Engineering
Plastic
[TcycleEP™]

PCR
Special Engineering
Plastic
[TcycleSP™]

PCR Topcircle™

PCR General-Purpose Plastics[TcycleGP™]

➔ [PCR Acrylonitrile Butadiene Styrene, IBISS™ rABS]

PCR Polyacrylonitrile-Butadiene-Styrene (IBISS™ rABS) is a recycled post-consumer product (sources including but not limited to appliances, communications equipment, tubing, sheet, coils, consumer electronics, etc.), pretreated and standardized Plastic particles prepared by processes such as granulation and modification. According to different recycling sources and quality grades, we design sorting and screening, technological innovation breakthroughs, performance re-optimization and high-quality automated production and processing to provide customers with Extrusion and injection grade IBISS™ rABS granules. The company's products cover different sources of emulsion method and bulk method, and can provide different colors including but not limited to natural color, black, gray, white and so on. It can meet the different application needs of customers in the industry, and can provide a full range of customized system solutions and innovative solutions according to the special requirements of customers.



IBISS™ rABS General Series

Grade Name	Melt Index g/10min	Notched IZOD ImpactKJ/m²	Appearance	Certification	Application	Characteristic
rABS-N115CG	15~25	≥15	High Gloss Natural	UL2809/GRS	Modification, Injection	High Gloss
rABS-NE115B	10~20	≥14	Natural	UL2809/GRS	Modification, Injection	Matte
rABS-N115BD	10~20	≥15	Natural	GRS	Modification, Injection	Matte

IBISS™ rABS Functional Innovation Series

Grade Name	Melt Index g/10min	Notched IZOD ImpactKJ/m²	Appearance	Certification	Application	Characteristic
rABS-N120E	35~50	≥18	Natural	UL2809/GRS	Modification, Injection	Excellent Flowability
rABS-N135A	4~10	≥30	Natural	GRS	Modification, Injection	Excellent Impact
rABS-N128MT	25~35	≥12	Natural	GRS	Modification, Injection	High Modulus
rABS-N115LV	15~25	≥15	Natural	GRS	Modification, Injection	Low VOC
rMABS-T170C	20~30	≥10	Transparent	GRS	Injection	Transparent
rABS-N315F	15~25	≥15	Natural	UL2809/TUV/GRS	Modification, Injection	FDA
rABS-N315BF	15~25	≥15	Natural	GRS	Modification, Injection	BPA FREE
mABS-AB915	20~30	≥15	Natural	GRS	Modification, Injection	Antibacterial Anti-coronavirus



IBISS™ rABS Customized Series

Grade Name	Melt Index g/10min	Notched IZOD ImpactKJ/m²	Appearance	Certification	Application	Characteristic
rABS-IT2012BL	20~30	≥12	Black	UL2809 ITE/GRS	Modification, Injection	ITEcycle®
rABS-IT2010GL	10~20	≥10	Grey	UL2809 ITE/GRS	Modification, Injection, Extrusion	ITEcycle®
rABS-HA2012BL	20~30	≥12	Black	GRS	Modification, Injection	Appcycle™
rABS-HA1510GL	10~20	≥10	Grey	GRS	Modification, Injection	Appcycle™
rABS-BP2014NL	20~30	≥14	Natural	GRS	Modification, Injection	Oceancycle® OBP
rABS-BP2010BL	10~20	≥10	Black	GRS	Modification, Injection	Oceancycle® OBP

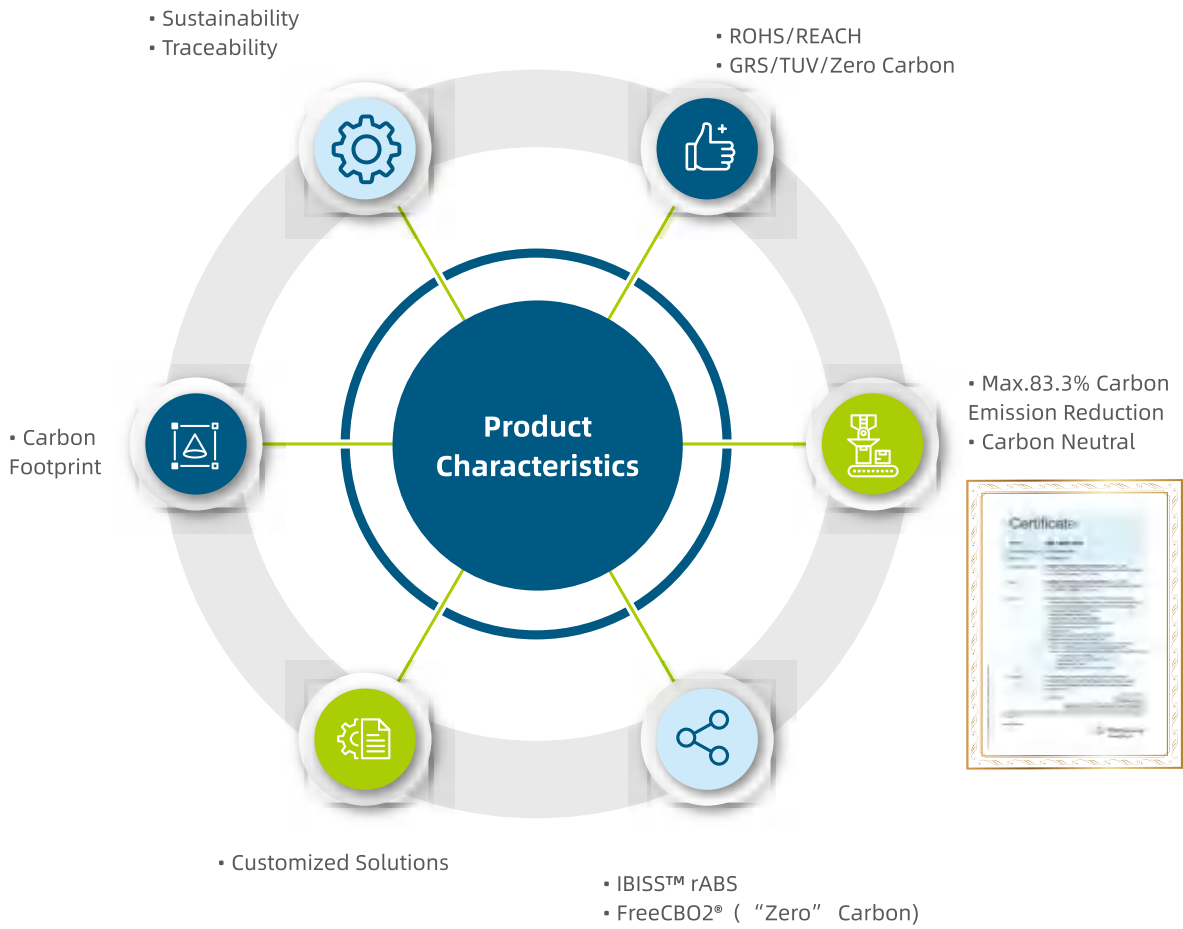
IBISS™ FreeCBO2® “Zero” Carbon Series

Grade Name	Melt Index g/10min	Notched IZOD ImpactKJ/m²	Appearance	Certification	Application	Characteristic
rABS-N115CG	15~25	≥15	Natural High Gloss	UL2809/TUV/GRS	Modification, Injection	FreeCBO2®
rABS-N120B	10~20	≥20	Natural	UL2809/TUV/GRS	Modification, Injection, Extrusion	FreeCBO2®
rABS-B112CG	15~30	≥12	Black High Gloss	UL2809/TUV/GRS	Modification, Injection	FreeCBO2®
rABS-BP18N	6-16	≥15	Natural Matte	UL2809/TUV/GRS	Modification, Injection, Extrusion	FreeCBO2®

Product Brands

TC Post-Consumer Recycled®, FreeCBO2®, IBISS™, ITEcycle®, Appcycle™, Oceancycle®;

Product Characteristics



Product Application

The products are suitable for deep processing modification granulation, extrusion molding, injection molding, and can be widely used in various product parts as Home appliances, Electrical appliances, Automotives, Packaging, and Daily chemical products.



➔ [PCR Polypropylene , Ploypoy™ rPP]

Recycled Polypropylene (Ploypoy™ rPP) was produced through recycling post-consumer products, pretreatment, standardized granulation and other technological processes. According to different recycling sources and quality grades, special classification method, technological innovation and high-quality automatic processing were applied to produce high products. Extrusion grade, injection molding grade and blow molding grade rPP particles can be provided. The colors include but not limited to natural color, black and white, which can meet the different application needs of customers. We also can provide all-round customized system solutions and innovative solutions according to the special requirements of customers.



Ploypoy™ rPP Typical Product

Typical Grade	MFI, g/10min	Tensile Strength (MPa)	IZOD Notched Impact Strength, (KJ/m²)	Appearance	Certification	Application
rPP-W120A	1~4	≥25	≥5	Natural Color, Translucent	GRS	Blow Molding, Extrusion
rPP-W160A	4~8	≥25	≥5	Natural Color	GRS/TUV	Extrusion、Injection
rPP-W115TA	12~18	≥20	≥5	Natural Color	GRS	Injection
rPP-W130TA	30~50	≥25	≥3	Natural Color	GRS	Masterbatch Carrier
rPP-W125T(B)	20~30	≥20	≥6	Natural Color	GRS	Injection
rPP-BP26	2~10	≥20	≥3	Black	GRS/OBP	Injection

Product Brands

TC Post-Consumer Recycled®, Topcircle®, Ploypoy™, Oceancycle®, FreeCBO2® (“Zero” Carbon) ;

Product Application

The products can be used to blow molded products such as cosmetic bottle body, extruded film / plate, various injection molded parts and other fields.



rPP-W120A



rPP-W160A



PP-W130TA

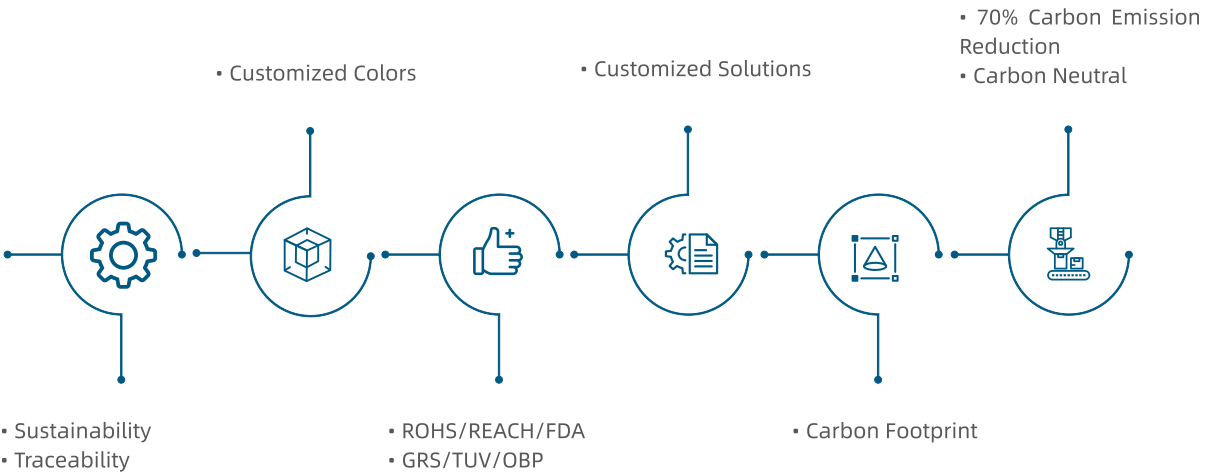


rPP-W125T(B)



rPP-BP26

Product Characteristics



➔ [PCR Polyethylene, Poisye™ rPE]

Recycled Polyethylene (Poisye™ rPE) was produced through recycling post-consumer products, pretreatment, standardized granulation and other technological processes. According to different recycling sources and quality grades, special classification method, technological innovation and high-quality automatic processing were applied to produce high products. Blow molding grade, extrusion grade and injection molding grade rPE particles can be provided. The colors include but not limited to natural color, black and white, which can meet the different application needs of customers. We also can provide all-round customized system solutions and innovative solutions according to the special requirements of customers.



Poisye™ rPE Typical Product

Typical Grade	MFI, g/10min	Tensile Strength (MPa)	IZOD Notched Impact Strength, (KJ/m²)	Appearance	Certification	Application
rHDPE-W105A	0.1~1	≥20MPa	≥30KJ/m²	Natural Color	GRS/TUV	Blow Molding, Extrusion
rHDPE-W180A	5~10	≥20MPa	≥4KJ/m²	Natural Color	GRS	Injection
rHDPE-M140	2~6	≥18MPa	≥5KJ/m²	Specified Color	GRS	Injection
rLDPE-W210A	0.5~3	≥10MPa	≥30KJ/m²	Natural Color	GRS	Blow Molding, Extrusion
rPE-BP06	1~6	≥18MPa	≥3KJ/m²	Specified Color	GRS/OBP	Injection, Extrusion

Product Brands

TC Post-Consumer Recycled®, Topcircle®, Poisye™, Oceancycle®, FreeCBO2® (“Zero” Carbon) ;

Product Characteristics



Product Application

Products can be used in hollow containers, extruded pipes, injection molded products, films and some other fields according to different MFI.



rHDPE-W105A



rHDPE-M140



rLDPE-210A



rHDPE-BP06





➔ [PCR General Purpose Polystyrene, Gipurpose™ rGPPS]

Recycled General Purpose Polystyrene (Gipurpose™ rGPPS) was produced through pretreatment, produced through pretreatment, granulation and other technological processes. According to different recycling sources and quality grades, we design classification and screening, technological innovation breakthroughs, performance re-optimization and high-quality automatic production and processing. We can provide customers with extrusion grade and injection grade rGPPS particles, including natural color transparent and specified colors, etc. To satisfy the different application needs of customers, we can provide a full range of customized system solutions and innovative solutions according to the special requirements of customers.



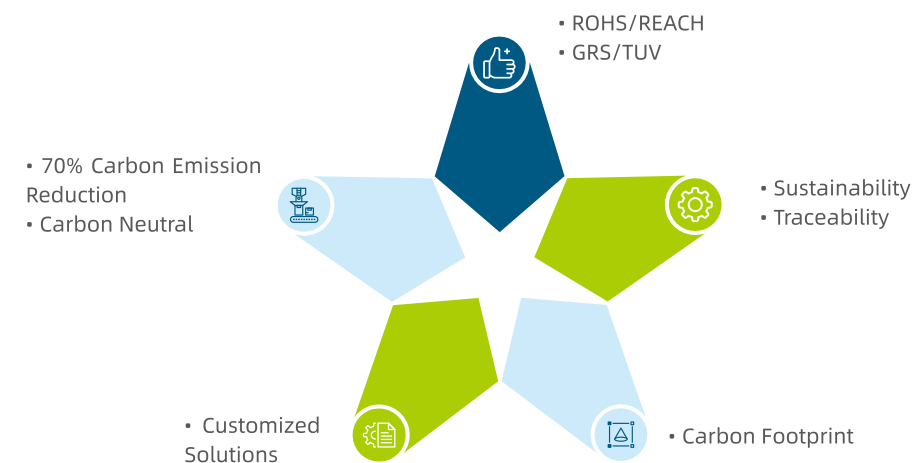
Gipurpose™ rGPPS Typical Product

Grade Name	Melt Index g/10min	Notched IZOD Impact KJ/m ²	Appearance	Certification	Application
rGPPS-T301	3~8	≥3	Transparent	GRS	Injection, Compounding, Extrusion
rGPPS-T303	5~10	≥2.5	Transparent	GRS	Injection, Compounding

Product Brands

TC Post-Consumer Recycled®, Topcircle®, Gipurpose™, FreeCBO2®;

Product Characteristics



Product Application

Products can be used to modification processing, injection molding, extrusion, and produce different plastic products such as electrical appliances, daily necessities, etc.



PCR Engineering Plastic [TcycleEP™]



➔ [PCR Polycarbonate, PCR PC®]



PCR PC® General Series

Typical Grade	MFI, g/10min	Notched Impact Strength J/m	Color Appearance	Certification	Typical Application	Product Features
PC-T15	15-20	≥700	Colorless and Transparent	GRS	Injection Molding, Modification	Appearance black spots, transparency and high impact resistance
PC-T20	20-25	≥600	Colorless and Transparent	GRS	Injection Molding, Modification	Appearance black spots, transparency and flow processing
PC-T25	25-30	≥100	Colorless and Transparent	GRS	Injection Molding, Modification	Appearance black spots, transparency and fluidity
PC-T50	50~60	≥100	Colorless and Transparent	GRS	Injection Molding, Modification	Appearance black spots, transparency and superhigh fluidity
PC-T80	60-80	≥80	Colorless and Transparent	GRS	Injection Molding, Modification	Appearance black spots, transparency and superhigh fluidity
PC-WB01	6~12	≥700	Blue Transparent	GRS/UL	Injection Molding, Extrusion, Modification	Color stability and high impact resistance
PC-WB02	12-18	≥500	Blue Transparent	GRS/UL	Injection Molding, Modification	Blue Color, Cost Economic
PC-WB03	15~25	≥300	Dark Transparent	GRS/UL	Injection Molding, Modification	Dark Color, Cost Economic



PCR Polycarbonate (PCR PC® rPC) is a recycled post-consumer product (sources include but not limited to drinking water buckets, transparent sheets, lamp cover, transparent container, lens, CD/VCD/DVD disks, etc.), which is manufactured by the technological process of pre-treatment, standardized pelletized and modified etc. According to different recycling sources and quality grades, Topcentral could provide customers with extrusion and injection grade PCR PC® particles. Our products cover different molecular, color and properties and customized products can be provided according to the specific requirements of customers, including extrusion, blow molding, injection molding, Compounding, etc.



PCR PC® Functional Innovation

Typical Grade	MFI, g/10min	Notched Impact Strength J/m	Color Appearance	Certification	Typical Application	Product Features
PC-BG105	17~25	≥110	Black, High Gloss	UL2809/GRS	Injection Molding、Modification	High Gloss Appearance
PC-T103AR	12-18	≥700	Transparent	GRS	Injection Molding	Compliance With Toy Regulations
PC-FT315	12~16	≥700	Transparent	GRS	Injection Molding	FDA

PCR PC® Customized Series

Typical Grade	MFI, g/10min	Notched Impact Strength J/m	Color Appearance	Certification	Typical Application	Product Features
PC-IT3020BTL	15~21	≥500	Black	UL2809 ITE/GRS	Injection Molding、Modification	ITEcycle®
PC-2010BK	20~30	≥100	Black	UL2809/GRS	Injection Molding、Modification	Autocycle







PCR PC® FreeCBO2® Zero Carbon Series

Typical Grade	MFI, g/10min	Notched Impact Strength J/m	Color Appearance	Certification	Typical Application	Product Features
PC-T103A	12~18	≥600	Transparent	UL2809/TUV/GRS	Injection Molding、Extrusion、Modification	FreeCBO2®
PC-T105A	15~25	≥600	Transparent	UL2809/TUV/GRS	Injection Molding、Modification	FreeCBO2®
PC-T108A	70~80	≥100	Transparent	UL2809/TUV/GRS	Injection Molding、Modification	FreeCBO2®
PC-T60A	50~60	≥100	Transparent	UL2809/GRS	Injection Molding、Modification	FreeCBO2®
PC-WB101A	4.0~10.0	≥600	Transparent Blue	UL2809/TUV/GRS	Injection Molding、Extrusion、Modification	FreeCBO2®
PC-GT02A	12~20	≥500	Transparent Blue	UL2809/GRS	Injection Molding、Modification	FreeCBO2®

Product Brands

TC Post-Consumer Recycled®, Topcircle®, FreeCBO2® (“Zero” Carbon) , PCR PC® , ITEcycle®;

Product Characteristics

- 
 - Sustainability
 - Traceability
- 
 - Carbon Footprint
- 
 - Customized Solutions
- 
 - ROHS/REACH/FDA
 - GRS/TUV/UL2809/ITE/Zero Carbon
- 
 - PCR PC®
 - FreeCBO2® (“Zero” Carbon)
- 
 - Max 91.8% Carbon Emission Reduction
 - Carbon Neutral



Product Application

Products can be used for compounding, injection molding, extrusion, and produce different plastic products such as modified, switch, electrical equipment shell, lampshade, toy, etc.



➔ [PCR Polyethylene Terephthalate, TC-Rester® rPET]

Based on post-consumer bottles, recycled polyethylene terephthalate (TC-Rester® rPET) products contain rPET flakes after pre-treatment and TC-Rester® rPET pellets after extrusion. According to different recycled source and quality classification, we design specific sorting process, innovate technological breakthrough, optimize product performance and realize automatic processing. The TC-Rester® rPET pellets can be applied to extrusion, cast PET film, biaxially oriented PET film, blow molding and injection, etc. The rPET series cover the product brands with low viscosity, medium viscosity, and high viscosity. The products comply with RoHS/REACH and are certified by GRS/SCS Global/UL/TUV. In addition, some of them pass FDA tests. Meanwhile, the OceanPET® series of products, including ocean-bound plastic and ocean plastic, can be provided to satisfy customer requirements. The system innovation solutions can be designed according to the customers’ special requirements.



TC-Rester™ rPET General Series

Typical Grade	rPET-AFK	rPET-BFK	rPET-PCR78AP	rPET-PCR70A	rPET-PCR75A
Product Trademark	Lakecycle®	Lakecycle®	TC-Rester®	TC-Rester®	TC-Rester®
Intrinsic Viscosity (dL/g, 25°C)	0.73~0.8	0.70~0.76	0.65~0.84	0.70±0.02	0.75±0.02
Moisture (%)	≤1.20	≤1.50	≤0.40	≤0.40	≤0.40
PVC Content(ppm)	≤100	≤200			
Polyolefin Content(ppm)	≤50	≤50			
Appearance	White Transparent Flakes	Blue and White Transparent Flakes	White Transparent Pellets	White Transparent Pellets	White Transparent Pellets
Certificate	GRS	GRS	GRS/UL 2809/TUV/ “Zero” Carbon and carbon footprint certificate	GRS	GRS
Product Features	High Purity, Low Metal Content	Highly Cost Effective	FreeCBO2®	High Purity, Good Flowability	Good Toughness
Application	Spinning, Granulation, Degradation	Spinning, Granulation, Degradation	Spinning, Compounding, Extrusion/Injection	Spinning, Film (Cast film, Biaxially Oriented Film, Etc)	Compounding, Extrusion, Injection



TC-Rester® rPET Fuctional Series

Material Brand	rPET-PCR80A	rPET-PCR84A	rPET-F80A (FDA grade)
Product Trademark	TC-Rester®	TC-Rester®	TC-Rester®
Intrinsic Viscosity (dL/g, 25°C)	0.80±0.02	0.84±0.02	0.60-0.80
Moisture (%)	≤0.40	≤0.40	≤0.40
Appearance	White Transparent Pellets	White Transparent Pellets	White Transparent Pellets
Certificate	GRS/UL 2809	GRS/TUV	GRS/UL2809/TUV
Product Features	Medium-high Viscosity	High Viscosity	Pass FDA Test
Application	Compounding, Extrusion, Injection	Compounding, Extrusion, Injection	Spinning, Film (Cast Film, Biaxially Oriented Film, Etc), Extrusion/Injection

Oceancycle® OceanPET® rPET Customized Series









Material Brand	rPET-Ocean78A (Ocean Grade)	rPET-BP78A (OBP Grade)	rPET-S78A
Product Trademark	OceanPET® & Oceancycle®	OceanPET® & Oceancycle®	OceanPET®
Intrinsic Viscosity (dL/g, 25°C)	0.60-0.75	0.60-0.80	0.65~0.8
Moisture (%)	≤0.40	≤0.40	≤0.40
Appearance	White Transparent Pellets	White Transparent Pellets	White Transparent Pellets
Certificate	GRS/OP/Carbon Footprint Certificate	GRS/OBP/Carbon Footprint Certificate	GRS/UL 2809
Product Features	Ocean Recycling FreeCBO2®	Ocean-bound Recycling FreeCBO2®	Specific Recycled Source and Application
Application	Spinning, Compounding, Extrusion, Injection, Degradation	Spinning, Compounding, Extrusion, Injection, Degradation	Spinning, Compounding, Extrusion, Injection, Degradation

Product Brands

TC Post-Consumer Recycled®, Topcircle®, FreeCBO2®, TC-Rester®, OceanPET®, Textcycle®, Oceancycle®, Lakecycle®, Ocean Partner®;



Product Characteristics

- 
 - Sustainability
 - Traceability
- 
 - ROHS/REACH/FDA
 - GRS/SCS Global/UL2809/TUV
- 
 - High purity and transparent;
 - Extremely low blackspot content and b value;
- 
 - OP/ OBP
 - Ocean Partner®
- 
 - Carbon Footprint
- 
 - “Zero” Carbon
- 
 - Customized Solutions
- 
 - Max77.7% Carbon Emission Reduction
 - Carbon Neutral



Product Application

The rPET series contain product brands with low viscosity (0.70 dL/g)、medium viscosity (0.75 dL/g and 0.8 dL/g) and high viscosity (0.84 dL/g). And intrinsic viscosity of 0.85dL/g-1.1dL/g is available in 2023. The series of products can be applied to film, sheet, packaging containers and chemical fibers, etc.



PET film



PET sheets



PET fibers



PET bottles

➔ [PCR Nylon6, Nairong™ rPA6]

Recycled Nairong™ rPA6 was prepared through pretreatment and standardized granulation modification based on post consumption recycled fishing net silk, automobile, low-voltage electrical appliances and so on. Natural color and black products, and customized products such as oceanbound nylon 6 can be provided (Oceancycle®). Products can be used in injection molding, compounding, spinning, extrusion and some other fields. All-round customized system solutions and innovative solutions also can be provided according to special requirements




Nairong™ rPA6 Typical Products

Typical Grade	rPA6-S22N	rPA6-S240N	rPA6-S280N	rPA6-6BG
R.V., 25°C	2.4~3.2	2.2~2.8	3.0~3.8	/
IZOD Impact Strength, (kj/m2)	5	5	6	7
Tensile Strength, (MPa)	55	55	60	100
Flexural Strength (MPa)	85	85	90	200
Appearance	Natural Color	Natural Color	Natural Color	Black
Certification	GRS/UL2809/OBP	GRS/UL2809/OBP/TUV	GRS/UL2809/OBP/TUV	GRS/UL2809
Characteristic	Oceancycle® FreeCBO2®	Oceancycle®	Oceancycle®	High Performances and Cost-effectiveness
Application	Compounding, Spinning, Injection	Compounding, Spinning, Injection, Extrusion	Compounding, Spinning, Injection	Injection


Product Brands

TC Post-Consumer Recycled®, Topcircle®, Nairong™ , FreeCBO2®, Oceancycle®, Ocean Partner®;


Product Characteristics




- Sustainability
- Traceability




- ROHS/REACH/FDA
- GRS/UL2809/TUV/OP/OBP/FreeCBO2® /Carbon footprint certification
- Ocean Partner® plan.




- Variety Colors




- High Purity
- Good Surface and color




- Carbon Footprint




- “Zero” Carbon
- Oceancycle®
- FreeCBO2®



- Customized Solutions



- Max 92.3% Carbon Emission Reduction
- Carbon Neutral



Product Application

Can be used in down-stream compounding and various mechanical parts, also can be used in injection molding, spinning, and so on.



➔ [PCR Nylon66, Nairong® rPA66]

Recycled Nairong® rPA66 was prepared through pretreatment and standardized granulation modification. Natural color and black products, and customized products can be provided. Products can be used in injection molding, compounding, spinning and some other fields. All-round customized system solutions and innovative solutions also can be provided according to special requirements



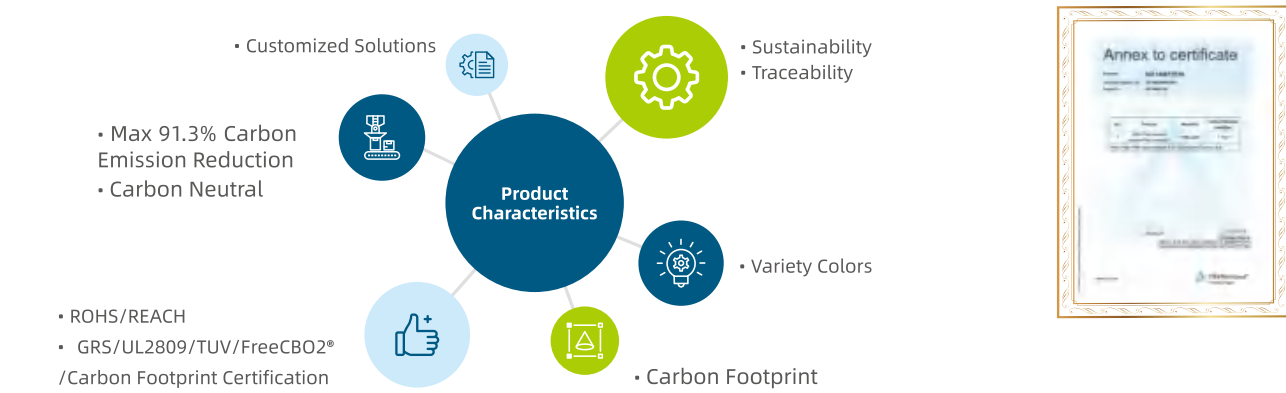
Nairong™ rPA66 Typical Products

Typical Grade	rPA66-A22N	rPA66-A240N	rPA66-A260N	rPA66- A6BG
R.V., 25°C	2.7~3.3	2.5~3.1	3.0~3.8	/
IZOD Impact Strength, kj/m2	5	5	5	7
Tensile Strength, MPa	60	55	65	100
Flexural Strength, MPa	90	85	95	200
Appearance	Natural Color , Control Black Pot	Natural Color	Natural Color, Strictly Control Black Pot	Black
Certification	GRS/UL2809	GRS/UL2809/TUV	GRS/UL2809	GRS/UL2809
Characteristic	FreeCBO2®			
Application	Compounding, Injection	Compounding, Injection	Compounding, Injection, Spinning	Injection

Product Brands

TC Post-Consumer Recycled®, Topcircle®, Nairong™ , FreeCBO2® (“Zero” Carbon Products) ;

Product Characteristics



Product Application

The products can be used in down-stream compounding and various mechanical parts, also can be used in injection molding, spinning, and so on.



rPA66-A22N



rPA66-A240N rPA66-A260N



rPA66- A6BG

➔ 【PCR Poly (ethylene terephthalateco-1,4-cylclohexylene dimethanol),
PeiTgi™ rPETG】

Recycled poly (ethylene terephthalateco-1,4-cylclohexylene dimethanol (PeiTgi™ rPETG) pellets is origin from post-consumer bottles or sheets and is granulated by extrusion after pre-treatment. According to different recycled source and quality classification, we design specific sorting process, innovate technological breakthroughs, optimize product performance and realize automatic processing. The rPETG pellets can be applied to extrusion, blow molding and injection, etc. The different application requirements of customers can be satisfied. The systematic and innovative solutions can be designed and provided according to the specific customers’ needs.

PeiTgi™ rPETG Typical Products

Product Brand	rPETG-T104A	rPETG-T304A
Tensile Strength (MPa)	≥40	≥40
Elongation At Break (%)	≥30	≥30
Flexural Strength (MPa)	≥60	≥60
Flexural Modulus (MPa)	≥1400	≥1400
Impact Strength (KJ/m2)	≥4	≥4
Transparency (%)	≥70	≥70
Appearance	Transparent Pellets	White Transparent Pellets
Application	Injection, Extrusion, Blow Molding	Injection, Extrusion, Blow Molding

Product Brands

TC Post-Consumer Recycled®, Topcircle®, PeiTgi™, FreeCBO2® (“Zero” Carbon Products);

Product Characteristics



- Sustainability
- Traceability



- RoHS /REACH
- GRS/Carbon Footprint Certification



- Carbon Footprint



- Good Chemical Resistance and Processability,
- Excellent Mechanical Properties



- Low Impurities / Black Spots



- Customized Solutions



- 80% Carbon Emission Reduction
- Carbon Neutral

Product Application

The rPETG pellets is 100% PCR pellets. These series possess high purity and excellent mechanical properties. They can be applied to packaging, sheets, and film, etc.



PETG bottles



PETG sheets



PETG film

➔ 【Recycled Polybutylece Terephthalate, PuBiT™ rPBT】

PuBiT™ rPBT is prepared from recycled waste through recycling, pretreatment, and standardized granulation. According to different recycling sources and quality levels, with the help of design classification and screening, technological innovation breakthroughs, performance re-optimization and high-quality automatic production, we can provide customers with injection-grade PBT recycled particles, including natural color, black and specified colors, and can provide customized services for material properties and system solutions.



PuBiT™ rPBT Typical Product







Grade Name	Melt Index g/10min	Intrinsic Viscosity	Appearance	Characteristic	Application
rPBT-N150	40~65	0.9~1.0	Natural	Pure Resin, Black Spot Control	Injection/Compounding
rPBT-B160	50~80	0.85~0.95	Black	Pure Resin	Injection
rPBT-B150	30~70	0.8~0.95	Black	Pure Resin	Injection/Compounding
rPBT-B130GF	30~50	-	Black	30%GF	Injection/Compounding



Product Brands

TC Post-Consumer Recycled®, Topcircle®, PuBiT™, FreeCBO2® (“Zero” Carbon Products)

Product Characteristics

- 
 - Sustainability
 - Traceability
- 
 - Good Chemical Resistance
 - Excellent Mechanical Properties
 - High Purity
 - Less Black Spots
- 
 - Customized Solutions
- 
 - Carbon Footprint
- 
 - 80% Carbon Emission Reduction
- 
 - RoHS /REACH
 - GRS/Carbon Footprint Certification

Product Application

The product is suitable for deep processing, like modified granulation and direct injection molding. It can be used for various injection molding parts such as home appliances, electrical appliances, and daily chemical products.



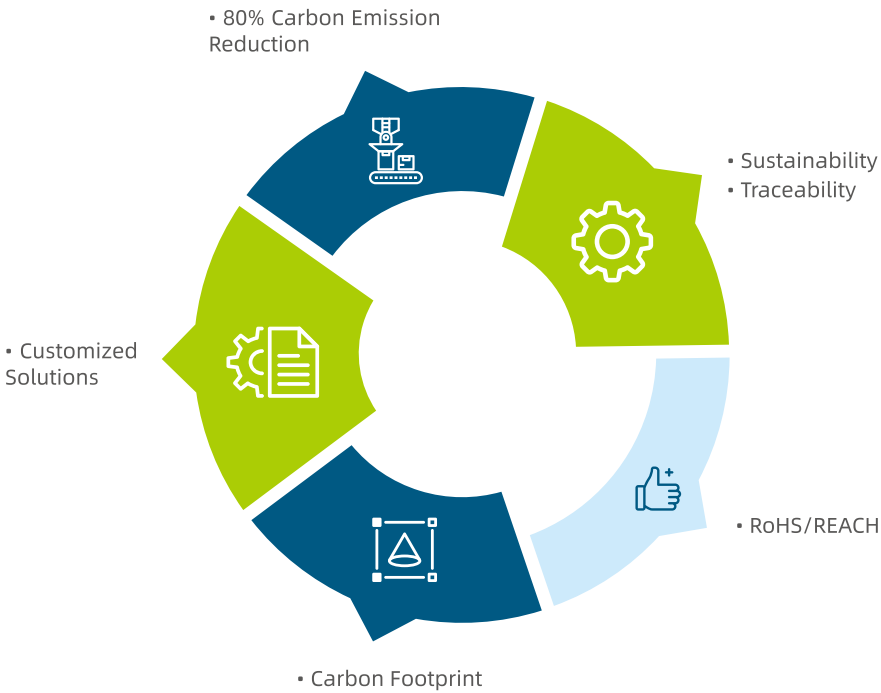
RiPEI™ rPEI Typical Products

Typical Grade	rPEI-106A/B	rPEI-108A/B
MFI, 330°C,2.16Kg	3~6	3~6
IZOD Notched Impact Strength, KJ/m²	6	6
Tensile Strength, MPa	100	90
Flexual Strength, MPa	110~150	110~150
Appearance	Amber/Dark	Amber/Dark
Certification	GRS	GRS
Application	Compounding, Injection, Extrusion	Compounding, Injection, Extrusion

Product Brands

TC Post-Consumer Recycled®, Topcircle®, RiPEI™, FreeCBO2® (“Zero” Carbon Products) ;

Product Characteristics



PCR Special engineering plasticss [TcycleSP™]

➔ PCR Polyetherimide [PCR PEI, RiPEI™ rPEI]

Recycled Polyetherimide (RiPEI™ rPEI) is recycled form recycled products produced through pretreatment, standardized granulation and other technological processes. According to different recycling sources and quality grades, special classification method, technological innovation and high-quality automatic processing were applied to produce injection molding grade rPEI particles. The products is natural color with little yellow or brown, can meet the different application needs of customers. We also can provide all-round customized system solutions and innovative solutions according to the special requirements of customers.



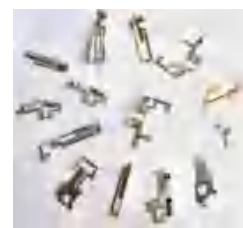
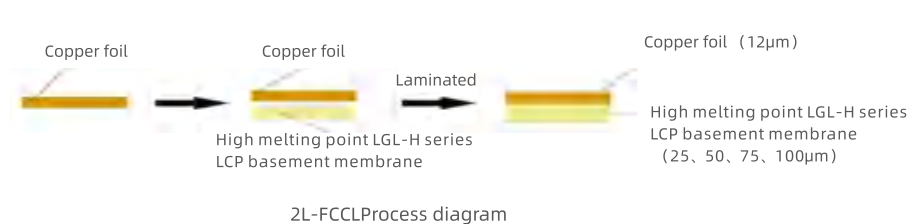
Product Application

Can be used in extrusion molding and injection molding. High grade products can be used to make various injection molded parts.



→ [PCR Thermoplastic Liquid Crystalline Polymer ,Lacypee™ rLCP]

Recycled thermoplastic liquid crystalline polymer (Lacypee™ rLCP) has good heat resistance, thermal processability, solvent resistance, dimensional stability and low dielectric constant. It is widely used in the fields of electronics, aerospace, automobile, mechanical and chemical industry, medical treatment and so on. The global annual production capacity of LCP is about 75000 tons, and most of its applications are concentrated in electronic and electrical fields, such as connectors for computers and communication equipment. Topcentral® aims at the recycling of 5G communication electronic equipment in the future, and develops recycled products for rLCP recycling. Through the strict production process control, the whole industry chain traceability of products can be realized, and relevant data and certification such as carbon footprint and carbon emission accounting can be provided.



→ PCR Polysulfone [PCR PSU, Parsuie™ rPSU]

Recycled polysulfone (Parsuie™ rPSU) is an amorphous polymer compound containing sulfone group and aromatic group in the molecular main chain, slightly amber transparent or translucent. According to different synthetic monomers, there are three kinds of common polysulfone have been commercialized, bisphenol A polysulfone (PSU), polyarylsulfone (PASf) and polyethersulfone (PES). The global apparent consumption of polysulfone is about 90000 tons per year, and the market is expected to reach the valuation of US \$70 billion. It will grow at a compound annual growth rate of 3.8% from 2018 to 2025. Topcentral® adheres to the recycle of rPSU, strives to realize the whole industrial chain traceability of products, and provides relevant data and certification such as carbon footprint and carbon emission accounting. We are willing to work with all enterprises committed to the development of low-carbon materials to promote the recycling of polysulfone and promote the low-carbon sustainable development of relevant industries.



JOIN US

**Achievements Share,
Acknowledgements Respect.**



Your joining injects new vitality to us.

We will keep providing you with unlimited development career and possibilities

Topcentral® will fulfill future mission with you: Activate Human Better Life

Jointly realize the priority development strategy of the enterprise: Talent for Win-win



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