

HSCC  **恒申**

Company Brochure
Polyamide 6 Product Brochure

EMEA region

Always, All ways
恒尽所能

We bring together the capabilities,
partnering with our customers to innovate
and inspire what's next.



TABLE OF CONTENTS

HSCC	3
Polyamide 6 Product Portfolio	8
◦ Alphamid®	9
◦ HE series	11
◦ EcoLactam®	13



HSCC Group is a multinational industrial company with chemicals, chemical fibers and new materials as core business. HSCC is taking the lead to complete the full integration of Polyamide 6 industrial chains and realizing green and intelligent manufacturing systems in the Chemical Fiber Business Sector, High end and low carbon footprint in the Chemicals Business Sector, and innovation and diversified development in the New Materials Business Sector.

Founded in

1984

Total revenue

€10 billion⁺

Subsidiary companies

70⁺

Listed company

H-Tech New Materials (000782)

Company employees

13000⁺

Over 13000 employees in the company

Ranking

279th

Among the China Top 500 Enterprise



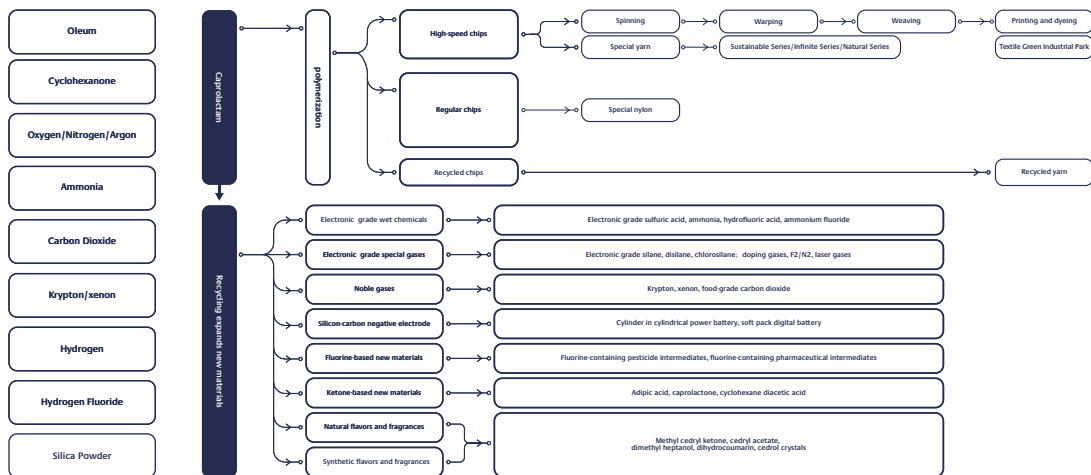
SYNC QUALITY

Cooperative Quality

Focusing on the industry and excelling in its core business, HSCC centers on the caprolactam industry, vertically extending the upstream and downstream industrial chains to build the world's largest and most comprehensive integrated polyamide industrial base. Through horizontal expansion, HSCC accelerates independent innovation and establishes a national high-end fine chemical and new materials industrial base.

4 Production Bases | 100⁺ Customers in 100+ countries and regions

28 Manufacturing centers



SYNC SOLUTION

HSCC is committed to establishing a global standard for collaborative technology innovation. We are dedicated to staying updated with changes in industry demand and coordinating both the upstream and downstream segments of the industrial chain. Additionally, we engage in R&D with our customers, aiming to bring more development possibilities to the industry.

- Cyclohexanone**
 Hydranone® phenol process
 Cyclohexane degassing process
- Caprolactam**
 HPO plus® technology
- Ammonium sulfate**
 Ammonium sulfate large particle technology
- Industrial gas**
 Airliquide technology
- Polyamide**
 Inventa VK tubular reaction technology
- Electronic Gases**
 The world's only ion implanted gas filling and storage technology
- Wet electronic chemicals**
 Multiple moderate evaporation purification technology

Top 5 global R&D centers

- Global R&D Center
- Netherlands Caprolactam Technology R&D Center
- Liheng Polymer R&D Center
- HSCC Product R&D Center
- H-Tech Enterprise Technology Center

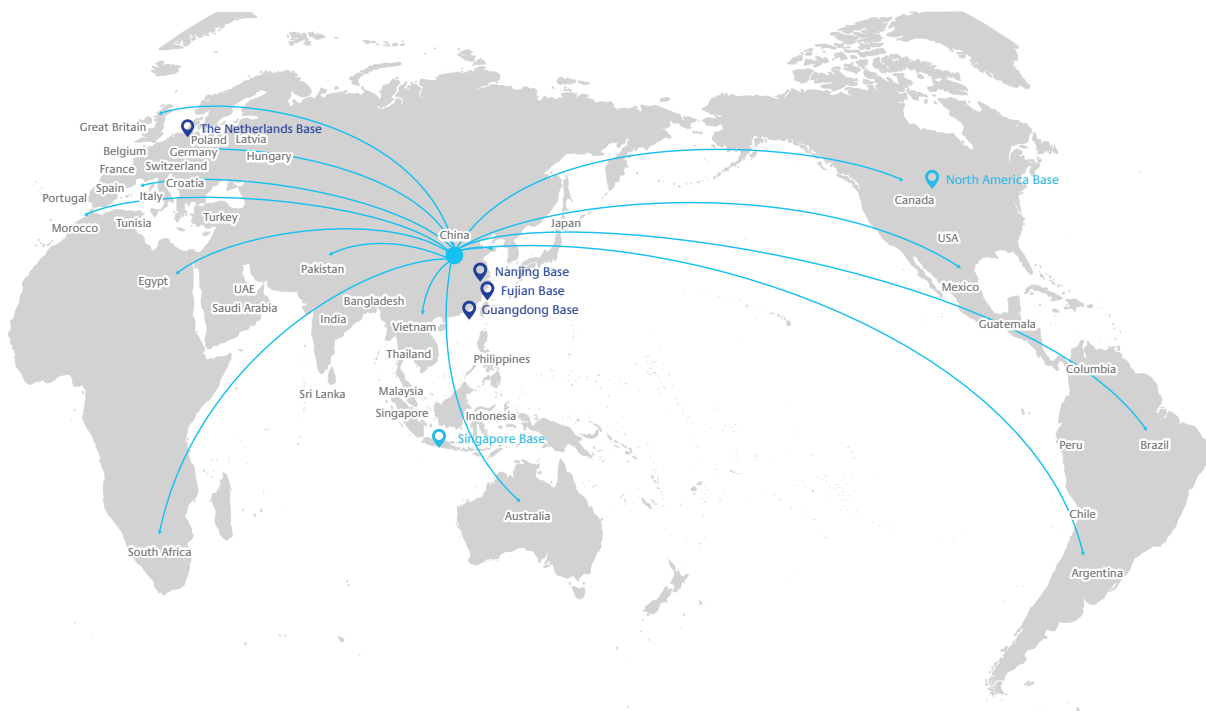
- Post-Doctoral Research Center
- National high-tech enterprises
- National differentiation Nylon 6 Product Development Base
- The Ministry of Industry and Information Technology "5G"+ Typical application scenarios of industrial Internet Key Industry Practice Enterprises

SYNC FORWARD

Cooperation

Cooperation is the cultural cornerstone of HSCC's sustainable development. From individual to collaboration, we encourage sharing, communication, and teamwork, uphold an open and inclusive attitude, and are committed to creating a win-win environment.

Worldwide
9000+ sales network



- 📍 Countries with sales
- 📍 Countries with a company base
- 📍 Countries with an office overseas

SYNC FUTURE

Working together to build a brighter future

We are committed to continuously enhancing value chain collaboration and resilience through product and technology innovation, ensuring a sustainable future for consumers.

Responsible consumption and production

Economically affordable clean energy

Decent work and economic growth

National Green Factory

Climate Action

Good health and well-being

Cooperation 合作
是我们对合作伙伴同创
Our commitment to partners for win-win

Industry, innovation and infrastructure

Partnership to promote goal achievement

€38 million⁺
Accumulated donation of 38 million Euro

基金会发展论坛
新任轮值主席
恒申慈善基金会
HIGHSUN FOUNDATION
中国基金会发展论坛

PRODUCT PORTFOLIO

Polyamide 6

EMEA region

In the EMEA region our high-end polyamide 6 products are used within the automotive, industrial, packaging and carpet/yarn industries for a wide range of applications. The Alphamid® range of high viscosity polyamide 6 products is processed amongst others into food packaging making food lasts longer reducing waste. Our HE series polyamides are used for engineering plastics compounds to provide lighter, more resistant and more durable materials for the industrial and automotive industry. The carpet/yarn industry is using HE series polyamide 6 as its high-quality results in a good and consistent production process resulting in high quality end products.

As a leading global manufacturer of caprolactam and polyamide 6, we introduce a new range of low carbon footprint (CFP) polyamide 6 products which sets a new benchmark in ultra-low CFP materials, called EcoLactam®. Our EcoLactam® IMPACT polyamide 6 products have a world class carbon footprint (CFP) of only 3.75 kg CO₂-eq/kg polyamide 6* achieved by continuous process improvement. This is accomplished via significant N₂O emission and energy consumption reductions and by applying our proprietary HPO® and Hydranone® technology, while keeping the excellent performance and quality at the same high level.



* Carbon footprint data of our products are the result of a calculation model certified by an independent authority and is based on primary data for scope 1 & 2 and some scope 3 emissions. Where primary data for scope 3 emissions are not available generic data from external databases are used.

Alphamid®

Polyamide 6

Alphamid® provides excellent gas, flavor, and aroma barrier properties, as well as high mechanical strength and outstanding thermoforming capabilities. These inherent attributes of polyamide 6, combined with HSCC's HPO+ caprolactam technology, make Alphamid® an excellent choice for film applications and packaging. Alphamid® can be extruded alone or in combination with other polymers, such as polyethylene, polypropylene, or EVOH. It offers specific grades that can be processed using either cast or blown film production methods, in monolayer or coextruded films, and in non-oriented film.

Alphamid® fully complies with EU food contact regulations.

Product Portfolio

Alphamid® polyamide 6 is available in medium and high viscosity grades, with or without lubrication and/or nucleation.

Grade	Application	Viscosity	Additive Package
Alphamid® A133	BOPA, Monofilament, Cable coating, Engineering plastics	3,3	-
Alphamid® A133L	BOPA, Monofilament, Cable coating	3,3	Lubricant
Alphamid® A133LN	Cast film	3,3	Lubricant & Nucleant
Alphamid® A136	Blown film, Cast film, Engineering plastics	3,6	-
Alphamid® A136L	Blown film, Cast film, Stock shapes	3,6	Lubricant
Alphamid® A136LN	Blown film, Cast film, Sausage casing	3,6	Lubricant & Nucleant
Alphamid® A140	Blown film, Cast film, Engineering plastics	4,0	-
Alphamid® A140L	Blown film, Cast film, Stock shapes	4,0	Lubricant
Alphamid® A140LN	Blown film, Cast film, Sausage casing	4,0	Lubricant & Nucleant
Alphamid® A225B	Injection Molding, Engineering plastics	2,5	Lubricant & Nucleant

Main application areas



Polyamide 6 Sausage casings



Polyamide 6 Meat packaging



Polyamide 6 Cheese packaging

Alphamid®

Polyamide 6

Material Handling

Alphamid® film grades are supplied dry and ready to process. Material taken from original containers will have a moisture content of <0.06%. During processing, the inner liner of (large) containers must be closed tightly. If the material is transported using pneumatic suction conveyors, the liner should be secured tightly around the suction pipe to limit moisture absorption from ambient air. Material from opened or damaged containers, as well as recycled waste such as edge trim, must be dried in a desiccant dryer at approximately 75°C to 80°C before processing. The recommended dew point is -30°C to -40°C. Experience has shown that a drying time of 8 to 10 hours is usually sufficient to achieve an acceptable moisture level. Avoid drying temperatures above 80°C due to the risk of oxidative damage (for example, yellowing). Possible defects from material containing too much moisture (0.1%) include holes, bubbles, fluctuations in film thickness, foaming, and hydrolytic degradation.

Screw Recommendations

- Standard single-flight, three-section screws.
- Better results can be obtained by using high-performance screws equipped with shearing and mixing sections, or barrier screws.
- The screw length should be at least 24D, and preferably 28-33D, to guarantee optimum plasticizing and conveying with the high through-put rates of film extrusion (D = screw diameter).
- A three-section screw should have a compression ratio (the ratio of flight depth in the feed section to flight depth in the metering section) of 3:1 to 4:1.
- Screw length section (L: overall length of screw):
 - Feed section: 0.25 to 0.30 x L
 - Compression section: 0.15 to 0.25 x L
 - Metering section: 0.40 to 0.55 x L

	Cast Extrusion	Blown Extrusion
Feed Section	210-240°C	210-240°C
Compression Section	240-260°C	235-245°C
Metering Section	250-265°C	245-250°C
Die	250-265°C	235-240°C
Melting Temperature	255-265°C	245-250°C

HE series

Polyamide 6

HSCC HE series polyamide 6 utilizes advanced polymerization technology, stable production conditions, and high-quality caprolactam from the group's industrial chain, which ensures consistent product quality and diversification. The product offers high stability, excellent strength and fluidity, and strong plasticity, resulting in processed products with enhanced flame retardancy, wear resistance, and oxidation resistance.

Due to its unique properties, the HSCC HE series polyamide 6 is widely applied in automotive, electrical and electronics, home appliances, industrial connections, construction and installation, furniture, the sanitary industry, and mechanical engineering.

Product Portfolio

Grade	Application	Viscosity
HE2500	Engineering Plastics Compounding & Bulk Continuous Filament (BCF) yarn	2,5
HE2700	Engineering Plastics Compounding & Bulk Continuous Filament (BCF) yarn	2,7

Material Specific Properties

Properties	Test standard	HE2500	HE2700
RSV in 96% Sulfuric Acid	ISO 307-2019	2,480 ± 0.07	2,700 ± 0.07
Moisture content (ppm)	ISO 15512:2019	< 600	< 600
Amino end group (mmol/kg)	GB/T 38138-2019	46 ± 4	46 ± 4
Extractable (%)	ISO 6427:2013	<0.6	<0.6
Melt mass-flow rate (g/10min)	ISO 1133-1:2011	37,7	20,9

Product Certifications and Compliances

RoHS Directive

Meets the limit requirements of the amended Directive (EU) 20/863 of Annex II of the EU ROHS2011/65/EU.

CHCC

The product has passed the CHCC test and certification of children's products.

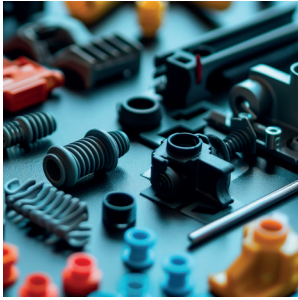
EN71-3

Complies with the specifications and standards of toy products in the EU market.

HE series

Polyamide 6

Main application areas



Engineering plastic compounds for automotive applications (injection molding)



Engineering plastic compounds for E&E applications (injection molding)



Bulk Continuous Filament (BCF) yarn for carpet applications

HSCC HE series polyamide 6 grades are used extensively for injection molding applications in the automotive, electrical & electronic, construction as well as furniture industry. The product range includes grades from low to medium viscosity grades for nearly all engineering plastics applications.

Polyamide 6 for Engineering Plastics



Application in the automotive industry



Application for electric & electronic industry



Applications in industrial & consumer Goods

HSCC HE series polyamide 6 grades are used in nearly all fields of spinning. Due to their outstanding properties and being a cost-effective solution, our HE series polyamide 6 grades are imperative to spinning products like BCF, Monofilaments and Multifilaments.

Polyamide 6 for Engineering Plastics



Application in BCF yarns for the carpet industry



Application in Monofilament



Application in Multifilament

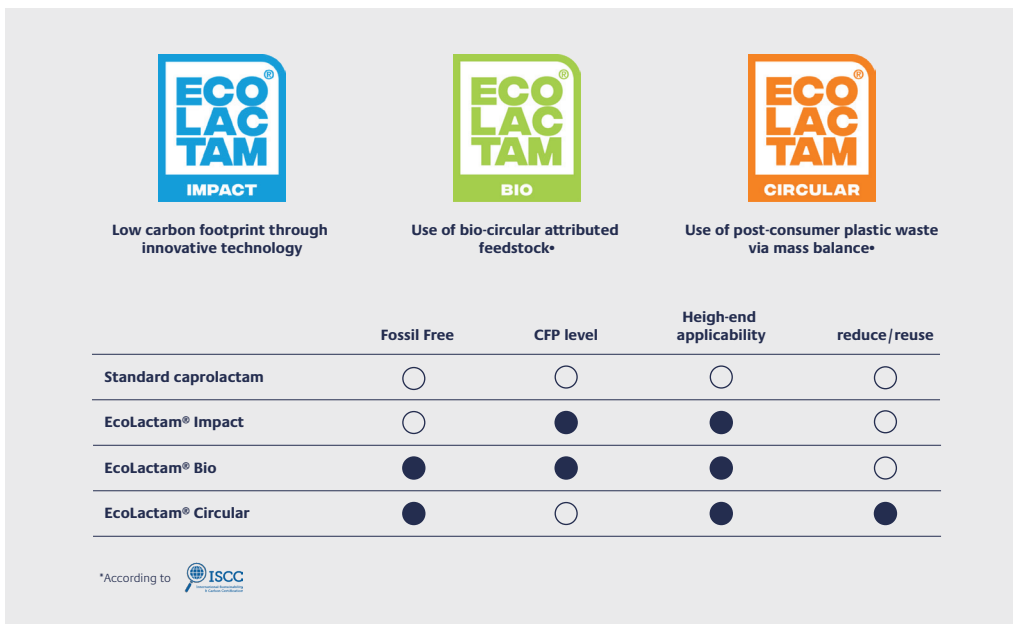
EcoLactam®

Polyamide 6



Decarbonize your nylon with EcoLactam®

As the world's largest producer of nylon, we have taken on the responsibility of investing in reducing our environmental impact. This commitment led to the launch of EcoLactam® polyamide 6, a product family of sustainable grades. Companies that prioritize low-carbon footprint materials contribute to a greener future for the planet while also enhancing their reputation and retaining the loyalty of environmentally conscious customers.



EcoLactam® IMPACT polyamide 6 is HSCC's polyamide with a world-class carbon footprint (CFP) of only 3.75 kg CO₂-eq/kg of polyamide 6*. This significant reduction in CFP was achieved through continuous process improvements, the abatement of emitted greenhouse gases (GHG), reductions in energy consumption, and our proprietary HPO® and Hydranone® technologies in our caprolactam facilities. With this improvement, we can proudly state that the carbon footprint of EcoLactam® IMPACT polyamide 6 is up to 70% lower than that of regular polyamide 6 produced on an industrial scale. By optimizing our process rather than modifying the product itself, we have ensured that quality remains uncompromised. EcoLactam® IMPACT polyamide 6 is available with a full Life Cycle Assessment (LCA), including a critical review assessment by an independent third party.

Grade	Application	Viscosity
EcoLactam® IMPACT 224B	Engineering Plastics Compounding & Bulk Continuous Filament (BCF) yarn	2,4
EcoLactam® IMPACT 227B	Engineering Plastics Compounding & Bulk Continuous Filament (BCF) yarn	2,7

*Carbon footprint data for our products are the result of a calculation model certified by an independent authority and are based on primary data for Scope 1 and 2 emissions, as well as some Scope 3 emissions. Where primary data for Scope 3 emissions are not available, generic data from external databases are used.

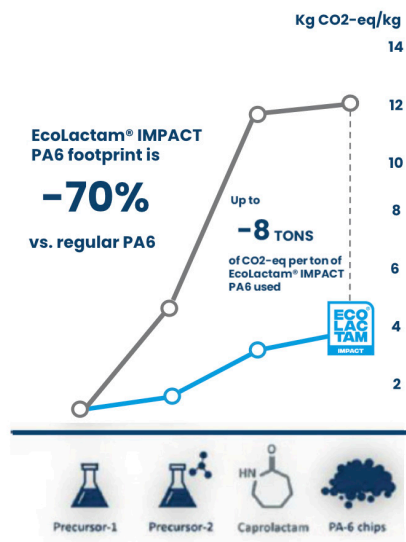
EcoLactam®

Polyamide 6



Cumulative carbon footprint from base chemicals to final polyamide 6 chips

Given the relatively high share that caprolactam has in the total footprint of polyamide 6 production, our EcoLactam® IMPACT caprolactam is the solution needed to significantly reduce the footprint of our EcoLactam® IMPACT polyamide 6 products.



Certified Life-Cycle Assessment

A significant aspect of the sustainability claim for brands and manufacturers is the reduction of their carbon footprint. Life Cycle Assessment (LCA) is a methodology for assessing and quantifying environmental impact. Key categories include climate change (global warming potential), resource depletion, water and land use, human health, biodiversity, and ecotoxicity.

Given the relatively high share that caprolactam has in the total cradle-to-gate footprint, EcoLactam® is the solution needed to significantly reduce the footprint from the very beginning of the production process. EcoLactam® has had its LCA validated by Intertek in accordance with the principles and requirements of ISO 14040/44.

The EcoLactam® product family was developed with a focus on the process, feedstocks, and utilities used. The selection of technology and feedstocks directly reduces the footprint of EcoLactam® and, in parallel, benefits nylon garments made with it. When produced on a large scale, EcoLactam® has a substantial and positive impact on the environment. This is the impact that truly matters.

**Together
we make it happen**



Scan the QR code for more information
or see below to contact us directly.

Fibrant BV, Mauritslaan 49, 6129 EL Urmond, The Netherlands

✉ ask.us@fibrant52.com

🌐 www.fibrant52.com

