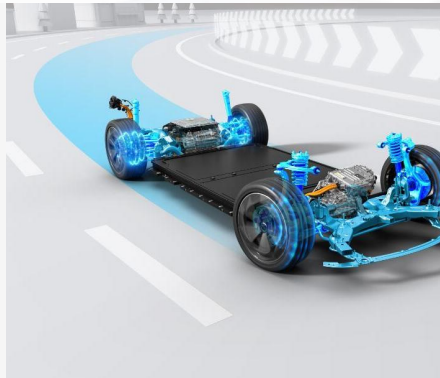


Suzhou Shincell New Material Co.,Ltd

Committed to sustainable foaming technology



Company Profile

Suzhou SHINCELL New Material Co., Ltd was established in March 2019, focusing on the research and development of high-performance and light-weight polymer foaming technology.

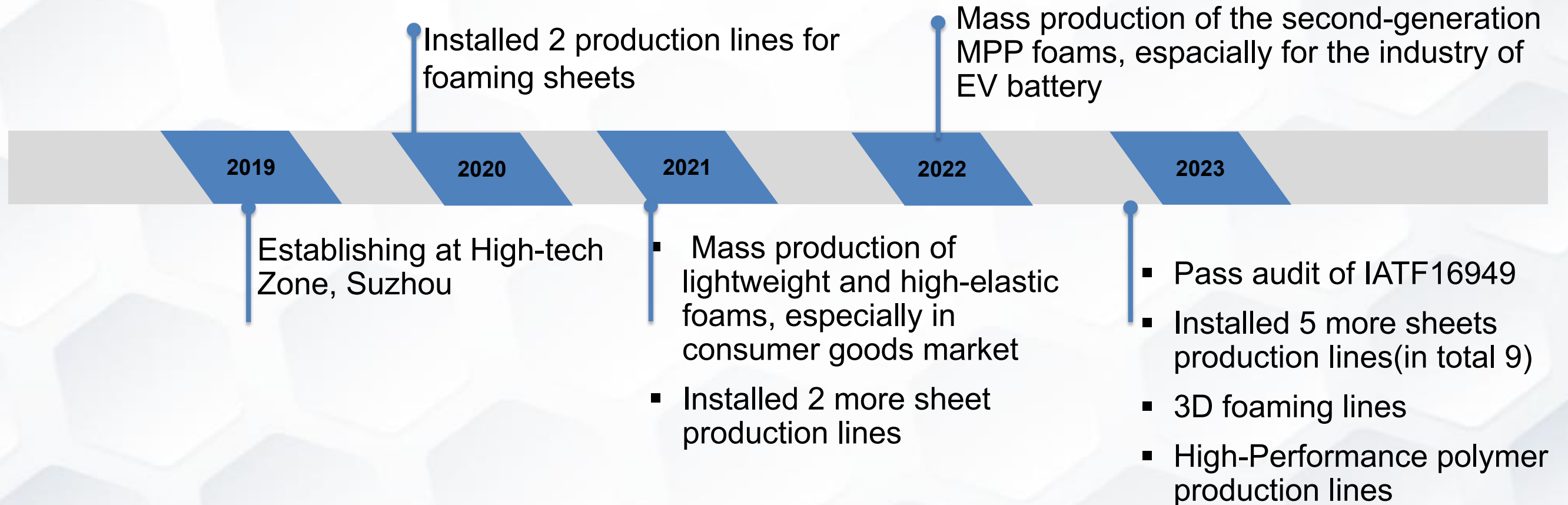
Up to now, we have over 150 employees, facilities is over 20,000 square meters, 60 million RMB of actual capital utilized; 9 polymer microporous foam production lines with capacity of 2660 sheets/day (by2023).

The company's core equipment and key foaming technology are independently developed with completely IP (intellectual property).

With 12 invention patents and 7 utility model patents; R&D center & analysis and testing center right onsite.

ISO 14001 environmental management system certification, ISO 9001 quality management system and IATF16949 certification.

1. Milestones

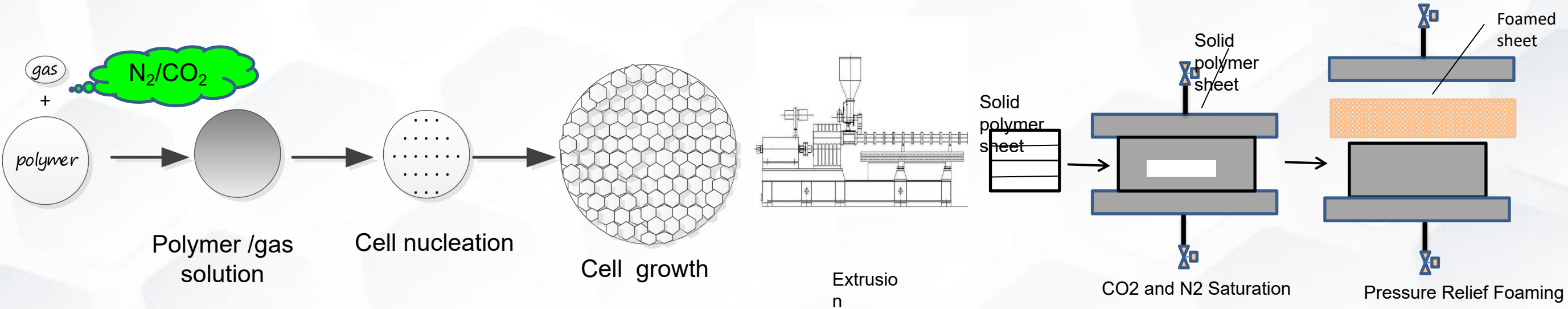


2. Unique advantage - Intellectual Property

- Various Patents (more than 20 patents), including PCT patent, applied across the foaming process, machinery and tooling.
- FTO (Freedom To Operate) assessment obtained from the law firm without infringement, against the patent existed in the key regions globally.



2.1. Physical foaming mechanism



Part of foaming capabilities:



Microcellular sheets Foaming



3D Block Foaming

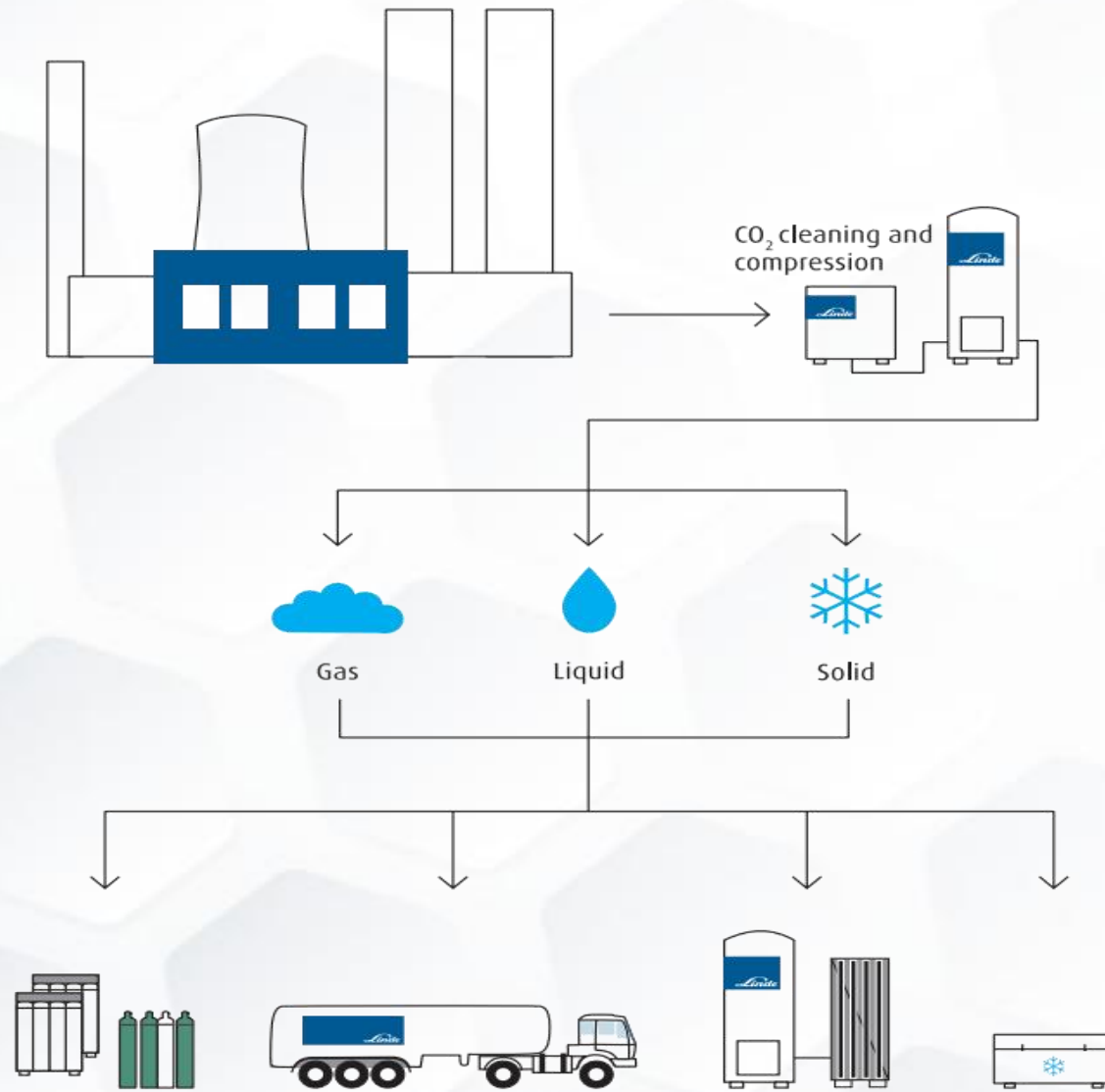


Beads Foaming Water-free



Semi-continuous
Rolls Foaming

Carbon footprints – CO₂ (N₂)



- CO₂ is captured, cleaned and compressed from waste products of chemicals production by Linde AG
- No extra CO₂ is produced in Shincell foaming process .



Shincell's facility

2.2. Manufacturing process



Adding raw material



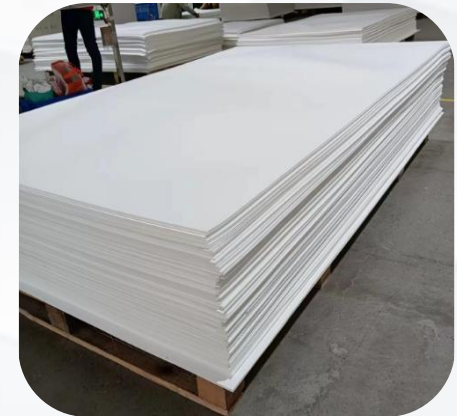
Extrusion



Solid sheets



Molded foam machines



Foamed sheets



CO2/N2 Gas



Clean & Green - No Ingredients

2.3. Recyclability



Smash



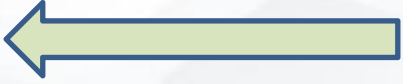
Fusion



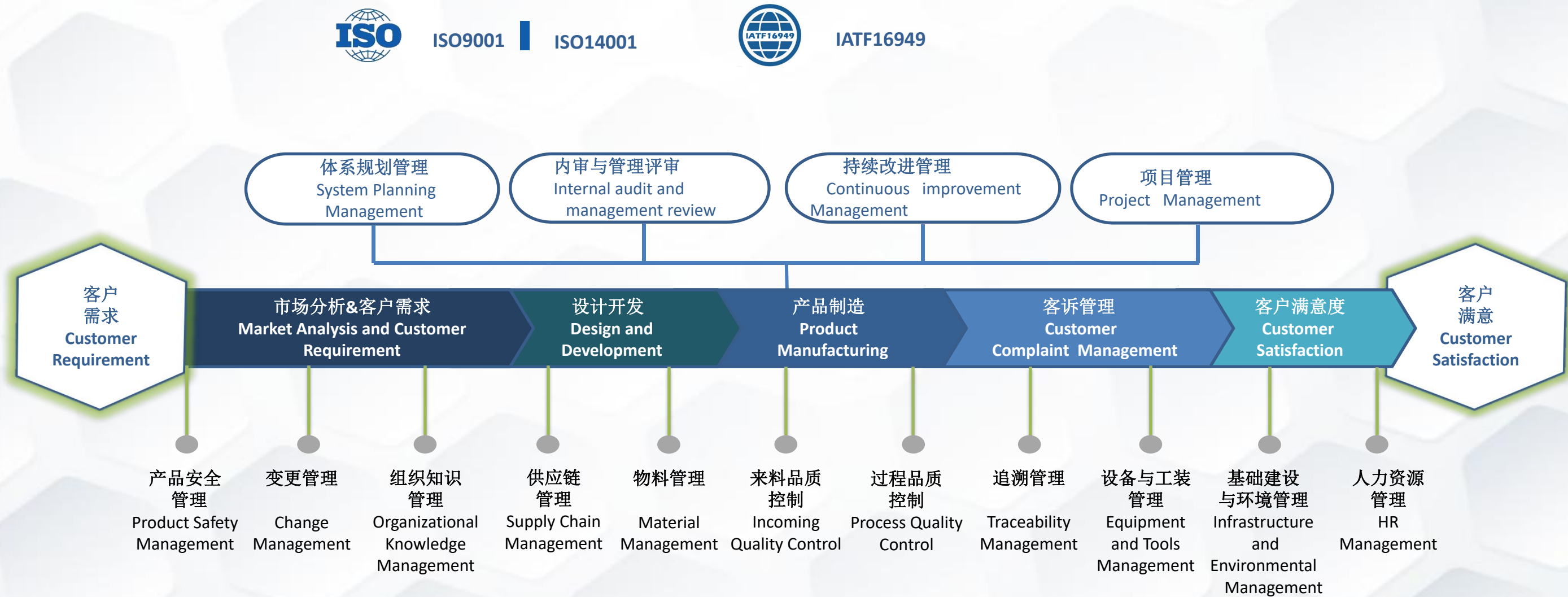
**Pelleting /
Compounding**



Extrusion & Foaming



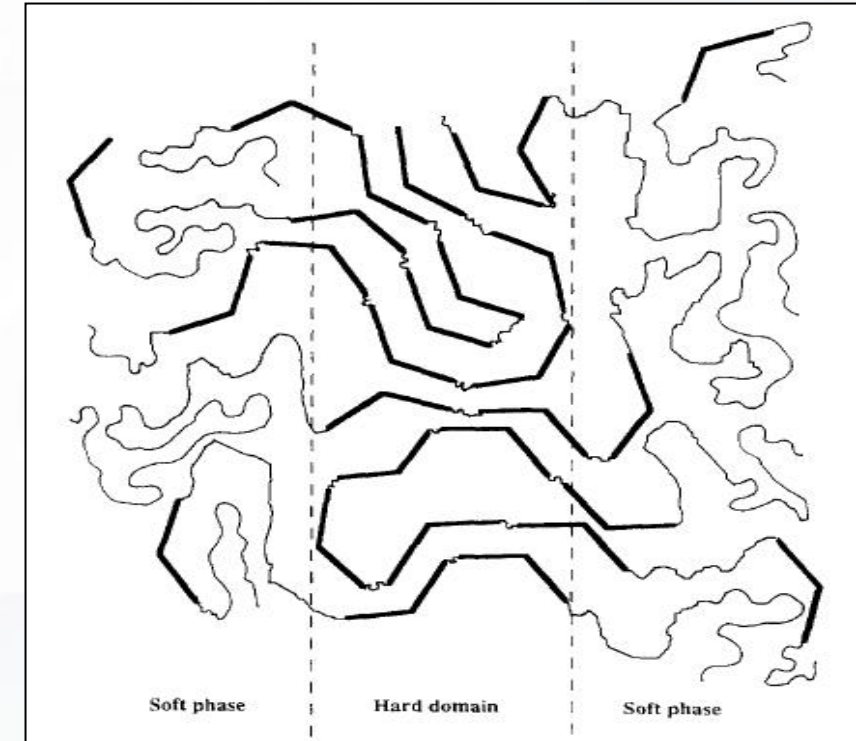
3. Quality Management System



4. Typical Foaming Polymers

- M-TPU
- Aliphatic TPU (A-TPU)
- M-TPEE
- M-PEBAX(Bio-Based)

The micro-structural phase separation of hard segment and soft segment contributed to the high performance



Hard segment (HS) domains dispersed in a soft segment (SS) matrix.

Physical & Supercritical foaming:

- High energy return, lightweight and long-lasting cushioning.
- No smell, no additional chemicals, foamed by N₂/CO₂.
- No crosslinking enables recyclability
- Bio-based version is also available, Content up to 44%
- Recyclable, low temperature resistant



5. Products Information

Cold Resistance of SCF Foam

Tg: Glass Transition Temperature

The lower the Tg value, the better the cold resistance

MATERIAL	Raw Material Supplier	Tg Value
PEBAX(Bio-Base)	Arkema	-35.8℃
TPU	BASF / HUNTSMAN	-49℃
TPEE	DUPONT	-50℃

5.1. MTPU Sheet

检验项目 Test Item	测试方法 Test Method	单位 Unit	M-TPU12	M-TPU16	M-TPU20
密度density	ASTM D3574	g/cm3	0.12±0.02	0.16±0.02	0.20±0.02
硬度hardness	Shore C	C	23±4	27±4	36±4
拉伸 Tensile Strength	ISO 1798:2008	MPa	3.6	4.0	4.4
伸长率 Elongation at Break	ISO 1798:2008	%	280	320	360
撕裂强度（裤型） Method A Tear (Trouser Test)	ISO 8067:2008	N/cm	32	42	52
撕裂强度（直角） Method B Tear (Angle Test)	ISO 8067:2008	N/cm	82	96	110
落球回弹 Ball Resilience	ASTM D3574	%	63-69	62-68	60-66
压缩形变 Compression set	ASTM D395	%	29	27	25
耐黄变 Sun Test	ASTM D1148	/	4	4	4

5.2.Aliphatic TPU Sheet

Test item 检测项目	Test Method 测试方法	Unit 单位	ATPU06	ATPU07	ATPU09	ATPU10
Density 密度	ISO 845:2006	g/cm3	0.06±0.02	0.07±0.02	0.09±0.02	0.10±0.02
Hardness 硬度	SATRA TM 205-16	Shore C	27±4C	30±4C	37±4C	40±4C
Tensile Strength 拉伸	ISO 1798:2008	MPa	2.29	2.56	3.44	3.44
Elongation at Break 伸长率	ISO 1798:2008	%	159.26	181.88	150.22	150.22
Method A Tear Trouser Test 撕裂强度（裤型）	ISO 8067:2008	N/cm	17.75	24.03	34.26	34.26
Method B Tear Angle Test 撕裂强度（直角）	ISO 8067:2008	N/cm	40.25	46.62	52.16	52.16
Ball Resilience 落球回弹	ASTM D3574	%	80	80	80	80
Compression SET 永久压缩	ASTM D395	%	24	22	20	20
Sun Test 耐黄变	ASTM D1148	/	4.5	4.5	4.5	4.5

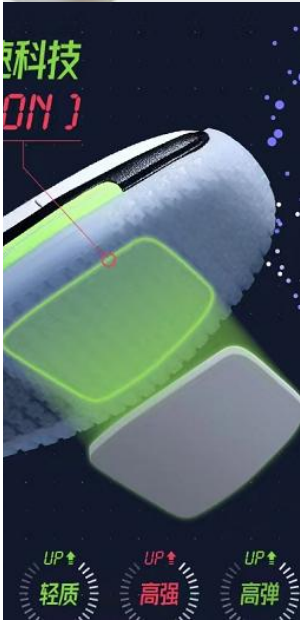
5.3. MTPEE Sheet

检验项目 Test Item	测试方法 Test Method	单位 Unit	M-TPEE12	M-TPEE14	M-TPEE16
密度 Density	ISO 845:2006	g/cm ³	0.12±0.02	0.14±0.02	0.16±0.02
硬度 Hardness	SATRA TM 205-16	Shore C	34±4C	40±4C	45±4C
拉伸 Tensile Strength	ISO 1798:2008	MPa	2.8	3.6	4.0
伸长率 Elongation at Break	ISO 1798:2008	%	280	320	360
撕裂强度（裤型） Method A Tear (Trouser Test)	ISO 8067:2008	N/cm	35	45	55
撕裂强度（直角） Method B Tear (Angle Test)	ISO 8067:2008	N/cm	95	110	120
落球回弹 Ball Resilience	ASTM D3574	%	72	67	67
压缩形变 Compression Set	ASTM D395	%	23	19	19

5.4. M-Pebax Sheet

检验项目 Test Item	测试方法 Test Method	单位 Unit	M-PEBAX07
密度 Density	ISO 845:2006	g/cm³	0.07±0.02
硬度 Hardness	SATRA TM 205-16	Shore C	35±4C
拉伸 Tensile Strength	ISO 1798:2008	MPa	2
伸长率 Elongation at Break	ISO 1798:2008	%	150
撕裂强度（裤型） Method A Tear (Trouser Test)	ISO 8067:2008	N/cm	15
撕裂强度（直角） Method B Tear (Angle Test)	ISO 8067:2008	N/cm	60
落球回弹 Ball Resilience	ASTM D3574	%	75
压缩形变 Compression Set	ASTM D395	%	38

6. Footwear Applications

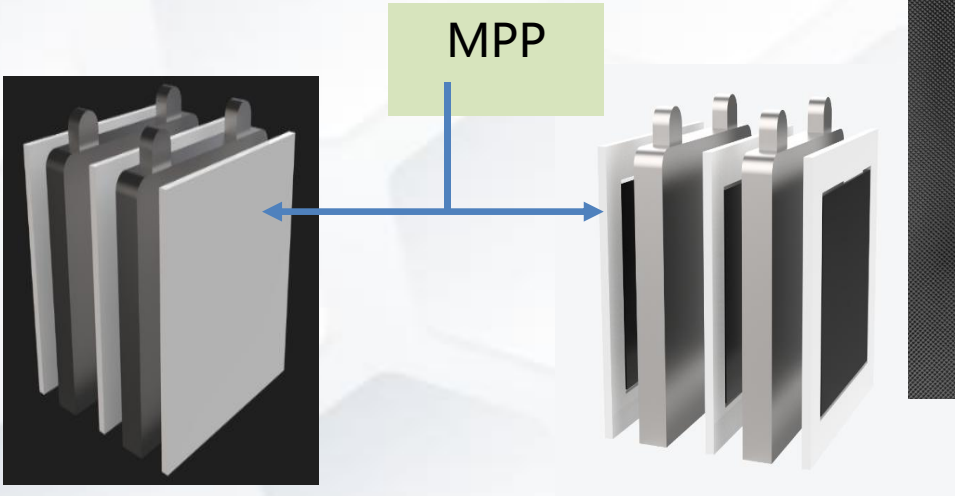


7. EV -Battery Applications

Electronic Chip Application



The Real part -MPP



Backplate - MPP



Backplate - MPP

7. Customers & Partners



Q&A