

Separator 2325 — Tri-Layer Microporous Battery Separator Roll

2325 隔膜 — 三层微孔电池隔膜卷材

PP/PE/PP · 25 µm · 100 mm × 10 m | for Li-ion / Na-ion / K-ion / Li-S cell research

Document No. / 文件编号	TDS-SEP-2325-R100-EN-CN	Version / 版本	v1.0
Model / 型号	2325	Issue Date / 发布日期	2026-09-11
Manufacturer / 制造商	LabCore Materials	Country of Origin / 产地	China
Product Line / 产品线	Battery Separator · Lab Consumables / 电池隔膜 · 实验耗材		

1. PRODUCT OVERVIEW 产品概述

LabCore Separator 2325 is a 25 µm trilayer PP/PE/PP microporous membrane supplied in laboratory roll format (100 mm wide × 10 m long). Manufactured by a dry-stretch process, it delivers a uniform pore structure, high chemical resistance and zero transverse-direction (TD) shrinkage. The PP/PE/PP architecture pairs oxidation-resistant polypropylene outer layers with a polyethylene inner layer that provides high-speed thermal-shutdown protection, making the membrane suitable for multi-chemistry battery research.

LabCore 2325 隔膜为 25 µm 三层 PP/PE/PP 微孔膜，以实验室卷材形式供货（宽 100 mm × 长 10 m）。采用干法拉伸工艺制造，孔隙结构均匀、耐化学性强、横向（TD）零收缩。PP/PE/PP 三层结构以抗氧化聚丙烯（PP）为外层、聚乙烯（PE）为内层（提供高速热关闭保护），适用于多种电池体系的研究。

2. APPLICATIONS 应用领域

- Lithium-ion (Li-ion) cell research — coin cell (CR2016 / CR2025 / CR2032), cylindrical (18650 / 26650) and pouch formats
锂离子电池研究 —— 扣式（CR2016 / CR2025 / CR2032）、圆柱（18650 / 26650）及软包电池
- Sodium-ion (Na-ion) and potassium-ion (K-ion) battery research
钠离子（Na-ion）与钾离子（K-ion）电池研究
- Lithium-sulfur (Li-S) cell prototyping
锂硫（Li-S）电池原型开发
- Supercapacitor separators
超级电容器隔膜
- Custom electrochemical test cells (Swagelok-type, T-cell, flow cell)
定制电化学测试池（Swagelok 型、T 型池、流动池）
- Electrode material evaluation and electrolyte compatibility studies
电极材料评测与电解液兼容性研究

3. KEY FEATURES 产品特性

- Tri-layer PP/PE/PP composite** — dry-stretch microporous structure with a highly uniform pore distribution
PP/PE/PP 三层复合 —— 干法拉伸微孔结构，孔径分布高度均匀
- Zero TD shrinkage** ($\leq 0\%$ @ $90\text{ }^{\circ}\text{C}$ / 1 h) — reduces internal short-circuit risk and preserves dimensional integrity at elevated temperature
横向 (TD) 零收缩 ($\leq 0\%$ @ $90\text{ }^{\circ}\text{C}$ / 1 h) —— 降低内短路风险，高温下保持尺寸完整性
- PE inner layer for thermal shutdown** — high-speed pore-closing for safety-critical cell designs
PE 内层热关闭 —— 高速闭孔，适用于安全关键型电池设计
- Oxidation-resistant PP outer layers** — stable cycling and trickle-charge performance
抗氧化 PP 外层 —— 循环与涓流充电性能稳定
- High porosity (39 %)** — consistent ion transport with balanced mechanical strength
高孔隙率 (39 %) —— 离子传输一致，兼顾机械强度
- Excellent chemical resistance** — resistant to acids, alkalis and most common electrolyte solvents
优异耐化学性 —— 耐酸、耐碱及大多数常用电解液溶剂
- Roll format — cut to any diameter** — punch discs from $\varphi 10\text{ mm}$ up to $\varphi 95\text{ mm}$ as required
卷材形态 —— 可按需冲切 $\varphi 10\text{ mm}$ 至 $\varphi 95\text{ mm}$ 任意直径圆片

4. PRODUCT IDENTIFICATION & AVAILABLE SKUS 产品标识与可选规格

SKU	Configuration / 规格	Format / 形态
SEP-2325-R100	2325 · 25 μm · PP/PE/PP · 100 mm × 10 m	Laboratory roll / 实验室小卷
SEP-2325-R400	2325 · 25 μm · PP/PE/PP · 100 mm × 400 m	Master roll · quotation / 大卷 · 询价

Pre-cut $\varphi 18\text{ mm}$ discs of the same 2325 membrane are available separately in 500 / 1000 / 5000-piece packs (SKU series SEP-2325-D18). Custom widths (60 / 85 / 120 mm) and custom disc diameters are available on request.
同款 2325 膜的预切 $\varphi 18\text{ mm}$ 圆片另行供货 (500 / 1000 / 5000 片装, SKU 系列 SEP-2325-D18)。可定制宽度 (60 / 85 / 120 mm) 及定制圆片直径。

5. TECHNICAL PARAMETERS 技术参数

Parameter / 参数	Value / 数值	Unit / 单位
Material / 材质	PP/PE/PP trilayer microporous membrane 三层 PP/PE/PP 微孔膜	—
Thickness / 厚度	25 ± 2	μm
Width / 宽度	100 ± 0.2	mm
Length (roll) / 长度 (卷)	10	m
Porosity / 孔隙率	39 ± 5	%
Air Permeability (Gurley, JIS) / 透气度 (Gurley, JIS)	620 ± 75	s/100 cc
Pore Size, PP (avg. dia.) / 孔径 (PP, 平均)	0.028	μm
TD Thermal Shrinkage @ $90\text{ }^{\circ}\text{C}$ / 1 h / 横向热收缩	≤ 0	%
MD Thermal Shrinkage @ $90\text{ }^{\circ}\text{C}$ / 1 h / 纵向热收缩	≤ 5	%
Puncture Strength / 穿刺强度	≥ 380	g

Parameter / 参数	Value / 数值	Unit / 单位
Tensile Strength, MD / 抗拉强度 MD	≥ 1700	kgf/cm ²
Tensile Strength, TD / 抗拉强度 TD	≥ 150	kgf/cm ²
Storage Temperature / 储存温度	25 ± 3	°C
Storage Humidity / 储存湿度	30 – 70	% RH

Values are typical test values from the manufacturer's datasheet. Thickness, porosity, Gurley and shrinkage are the primary acceptance parameters; tolerances apply to production lots and are subject to final confirmation.
数值为制造商检测的典型值。厚度、孔隙率、透气度与热收缩为主要验收参数；公差适用于生产批次，以最终确认函为准。

6. ROLL FORMAT & DISC YIELD REFERENCE 卷材形态与圆片产出参考

Each 100 mm × 10 m roll can be punched into discs of any diameter up to 95 mm. Nominal yield per roll:
每卷 100 mm × 10 m 可冲切至最大 φ95 mm 的任意直径圆片。单卷名义产出如下：

Disc Diameter / 圆片直径	Approx. Yield / 约产出	Typical Cell / 典型电池
φ16 mm	≈ 500 pcs / roll	CR2016 / CR2025
φ18 mm	≈ 390 pcs / roll	CR2032 / 18 mm test cells
φ19 mm	≈ 350 pcs / roll	CR2032 (Φ19 mm)
φ24 mm	≈ 220 pcs / roll	Larger coin / custom cells

Yield is nominal and depends on punch size, spacing and edge trim. One 10 m roll typically covers 6–12 months of standard laboratory use.
产出为名义值，取决于冲切尺寸、间距与边料损耗。一卷 10 m 通常可满足常规实验室 6–12 个月的使用。

7. PACKAGING & SHIPPING 包装与运输

- Vacuum-sealed roll, protected by bubble wrap / foam and an outer carton
真空密封卷材，气泡膜 / 缓冲材料防护，外加纸箱
- Not classified as dangerous goods — standard shipping applies
非危险品，可走常规运输
- Dispatch within 3–5 business days of order confirmation
订单确认后 3–5 个工作日发货
- Shipped from overseas warehouses (US / Europe / UK / Japan / South Korea) for qualifying orders; bulk orders quoted for factory dispatch
符合条件的订单自海外仓（美国 / 欧洲 / 英国 / 日本 / 韩国）发货；批量订单可报工厂直发

8. STORAGE & HANDLING 储存与使用

- Store sealed at 25 ± 3 °C and 30–70 % RH; avoid direct sunlight and high humidity
密封储存于 25 ± 3 °C、30–70 % RH；避免阳光直射与高湿
- Keep the roll in its original vacuum bag until use; once opened, reseal after each use or transfer to an equivalent dry container
使用前保持原真空包装；开封后每次使用后重新密封，或转入等效干燥容器
- Handle with clean gloves or cleanroom tweezers; avoid hand contact with the membrane surface
佩戴洁净手套或使用洁净镊子操作；避免手部直接接触膜面
- For laboratory research use only — not for finished consumer batteries
仅供实验室研究使用，不用于成品消费电池

9. QUALITY, COMPLIANCE & DISCLAIMER 质量、合规与免责声明

Quality. Every production lot is inspected for thickness, width, porosity, air permeability (Gurley) and thermal shrinkage against the acceptance parameters in Section 5. Lots failing verification are not released.

质量。 每个生产批次均按第 5 节验收参数检验厚度、宽度、孔隙率、透气度（Gurley）与热收缩。未通过验证的批次不予放行。

Compliance. This document describes a PP/PE/PP microporous membrane by its generic construction and industry model code only. It does not reference, and is not affiliated with, any third-party brand or trademark. Model numbers (e.g. 2325) are generic industry specification codes.

合规。 本文件仅以通用结构与行业型号代号描述该 PP/PE/PP 微孔膜，不涉及亦不隶属于任何第三方品牌或商标。型号数字（如 2325）为行业通用规格代号。

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