



Celgard® High Performance Battery Separators

Celgard is a recognized leader among lithium battery material suppliers, with:

- **Unparalleled Product Availability**
Broadest Portfolio in the Separator Industry
- **Proven Performance and Reliability**
Over 30 Years of Experience in Separator Design, Manufacturing and Distribution
- **Technical Leadership & Expertise**
R&D Teams with Experience in Lithium Battery and Battery Separator Technology
- **Strong Global Presence**
Manufacturing Facilities in China, Korea, and the USA;
Sales and Technical Service Staff throughout Asia, Europe, and North America



Commercial Trilayer Products

Comparison of Typical Properties

Product	2340	2325	C500	C480	2320	C300	C250	C200	C212	M825	M824
Thickness; μm	38	25	25	21.5	20	20	18	17	16	16	12
JIS Gurley; seconds	780	620	515	320	530	560	500	450	435	460	425
Porosity	45%	39%	35%	50%	39%	36%	35%	35%	35%	39%	38%
PP Pore Size; μm	0.035	0.028	0.041	0.038	0.027	0.032	0.032	0.032	0.032	0.026	0.026
TD Shrinkage @ 90° C / 1 hour	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MD Shrinkage @ 90° C / 1 hour	<7.0%	<5.0%	<5.0%	<5.0%	<5.0%	<4.0%	<5.0%	<5.0%	<2.5%	<1.0%	<1.5%
Puncture Strength; grams	>550	>380	>320	>400	>360	>300	>300	>245	>220	>300	>225
TD Tensile Strength; kgf/cm^2	165	150	170	140	165	185	175	190	180	150	155
MD Tensile Strength; kgf/cm^2	1630	1700	1680	2195	2050	1800	1800	1900	2085	2100	2200

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Commercial Monolayer & Specialty Products

Comparison of Typical Properties

Product	Monolayer PP			Coated PP		Laminated to PP Nonwoven Fabric		Laminated & Coated
	2400	2500	A273	3400/ 3401	3500/ 3501	4550 PP/PE/PP	4560 PP	5550 PP
Thickness; laminated film; μm	-	-	-	-	-	110	110	110
Thickness; base film; μm	25	25	16	25	25	38	25	25
JIS Gurley; seconds	620	200	345	620	200	780	200	200
Porosity	41%	55%	40%	41%	55%	45%	55%	55%
PP Pore Size; μm	0.043	0.064	0.039	0.043	0.064	0.035	0.064	0.064
TD Shrinkage @ 90° C / 1 hour	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MD Shrinkage @ 90° C / 1 hour	<5.0%	<5.0%	<3.0%	<5.0%	<5.0%	<7.0%	<5.0%	<5.0%
Puncture Strength; grams	>450	>335	>300	>450	>335	>550	>335	>335
TD Tensile Strength; kgf/cm^2	140	135	130	140	135	165	135	135
MD Tensile Strength; kgf/cm^2	1420	1055	1600	1420	1055	1630	1055	1055

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A POLYPORE Company

ISO 9001 Certified.
ISO 14001 Certified.

CELGARD products meet
the requirements of the
EU RoHS directives.

