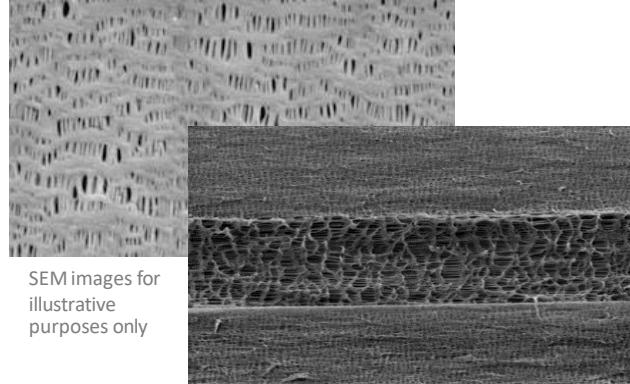


#### Product Name & Description

Celgard® 2318  
18µm Trilayer Microporous Membrane (PP/PE/PP)



SEM images for  
illustrative  
purposes only

#### Primary Applications

**High Energy** Lithium-Ion Battery Systems; especially  
those that require additional safety advantages

#### Product Benefits

- Zero TD shrinkage reduces internal shorting
- Uniform pore structure with high chemical & thermal stability
- Medium porosity provides excellent energy performance with low self-discharge
- PP outer layer provides high temperature melt integrity, oxidation resistance
- PE inner layer provides high-speed shutdown features

#### Packaging

Please contact your Celgard representative for more information on product roll lengths and slit widths.

#### Technical Data (Typical Properties)

Basic Film Properties	Unit of Measure	Typical Value
Thickness	µm	18
Gurley (JIS)	Seconds	520
Porosity (Calculated)	%	39
TD Shrinkage @ 105°C / 1 Hour (typical)	%	0
MD Shrinkage @ 105°C / 1 Hour (typical / max)	%	2.0 / 8.0
TD Tensile Strength (typical / min)	Kg/cm <sup>2</sup>	130 / 100
MD Tensile Strength (typical / min)	Kg/cm <sup>2</sup>	2250 / 1500
Puncture Strength (typical / min)	Grams Force (gf)	430 / 340

At the Center of Membrane Innovation

### Manufacturing Locations

#### United States

*Headquarters, Manufacturing and R&D at Charlotte*  
13800 South Lakes Drive  
Charlotte, North Carolina  
28273 United States  
Phone: +1 704-588-5310  
Fax: +1 704-588-5319

*Manufacturing and R&D at Concord*  
390 Business Boulevard  
Concord, North Carolina  
28027 United States  
Phone: +1 704-720-5200  
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#### China

*Manufacturing & Distribution*  
Celgard (Shanghai) Materials Technology Co., Ltd.  
Building 2, 180 North Riying Road,  
China (Shanghai) Pilot Free Trade Zone,  
Pudong New District, Shanghai, 200131 China  
Phone: +86 (21) 5028 0001

### Sales Offices

#### Europe, Middle East & Africa (EMEA)

*Sales & Technical Service*  
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#### China

*Sales & Technical Service*  
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Fax: +86 21 3813 9911

#### Japan

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Fax: +81 3-6891-3769

#### India & South Asia

*Sales & Technical Service*  
Phone: +91 80 4256 1104  
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