

### Product Name & Description

Celgard® S2010

20µm Trilayer Microporous Membrane (PP/PE/PP)

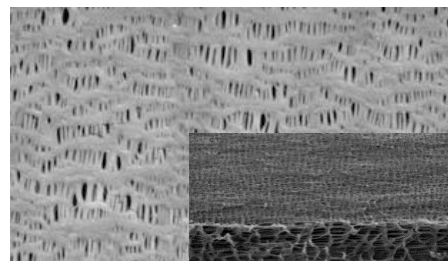
### Primary Applications

**High Power** Lithium-Ion Battery Systems:

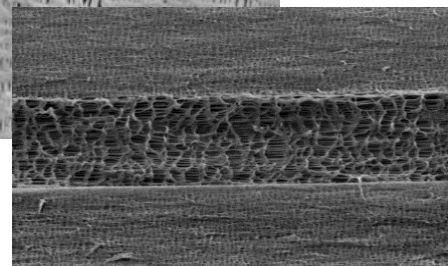
Automotive EDV, ESS

### Product Benefits

- Designed for improved high-speed cell winding and coating ability
- Reduced post compression spring back to aid in efficient can insertion
- Enhanced TD characteristics for improved puncture performance
- Highest porosity enhances rate performance relative to other Celgard® PP/PE/PP products
- Ultra low electrical impedance
- PP outer layer provides high temperature melt integrity, oxidation resistance; PE inner layer provides high speed shutdown feature



SEM images for illustrative purposes only



### 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                 | 20            |
| Gurley (JIS)                                  | Seconds            | 200           |
| Porosity (Calculated)                         | %                  | 54            |
| TD Shrinkage @ 105°C / 1 Hour (typical)       | %                  | 0             |
| MD Shrinkage @ 105°C / 1 Hour (typical / max) | %                  | 2.5 / 6.0     |
| TD Tensile Strength (typical / min)           | Kg/cm <sup>2</sup> | 110 / 75      |
| MD Tensile Strength (typical / min)           | Kg/cm <sup>2</sup> | 2050 / 1600   |
| Puncture Strength (typical / min)             | Grams Force (gf)   | 400 / 320     |

### 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

Fax: +1 704-720-5211

#### China

*Manufacturing & Distribution*

Celgard (Shanghai) Materials Technology Co., Ltd.

Building 2, 180 North Ruying 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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Fax: +33 3 55 03 59 03

#### Korea

*Sales & Technical Service*

Phone: +82 41-905-6001

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*Sales & Technical Service*

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#### Japan

*Sales & Technical Service*

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#### India & South Asia

*Sales & Technical Service*

Phone: +91 80 4256 1104

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