

## Ideal CFD Curves for Battery Pad Applications: PORON® 4701-30 Very Soft

| PROPERTY   | TEST METHOD  | VALUE                        |                               |
|--|--|------------------------------|-------------------------------|
| <b>PHYSICAL</b>                                      |  |                              |                               |
| Density, kg /m <sup>3</sup> (lb. / ft <sup>3</sup> ) | ASTM D3574-95, Test A  | 240 (15)                     | 320 (20)                      |
| Tolerance, %   |  | ± 10                         |                               |
| Thickness, mm<br>(inches)                            |  | 1.3 – 3.0<br>(0.051 - 0.118) | 0.85 – 3.0<br>(0.033 - 0.118) |
| Tolerance, %   |  | ± 10                         |                               |
| Standard Color (Code)                                |  | Black (04)                   |                               |
| Compression Force Deflection,<br>Range kPa (psi)     | 0.51 cm/min (0.2" / min). Strain Rate<br>Force Measured @ 25% Deflection   | 7 - 35 (1.0 - 5.0)           | 21 - 55 (3.0 - 8.0)           |
| Typical kPa (psi)                                    | Force Measured @ 20% Deflection  | 19.4 (2.8)                   | 34.1 (4.9)                    |
|  | Force Measured @ 25% Deflection  | 21.6 (3.1)                   | 38.3 (5.6)                    |
|  | Force Measured @ 30% Deflection  | 24.1 (3.5)                   | 42.9 (6.2)                    |
|  | Force Measured @ 40% Deflection  | 30.7 (4.4)                   | 55.2 (8.0)                    |
|  | Force Measured @ 50% Deflection  | 42.1 (6.1)                   | 77.6 (11.3)                   |
|  | Force Measured @ 60% Deflection  | 68.3 (9.9)                   | 136.0 (19.8)                  |
|  | Force Measured @ 70% Deflection  | 149.0 (21.7)                 | 345.0 (50.1)                  |
| Hardness, Durometer, Shore O<br>Shore A              | ASTM D2240-97  | < 3<br>< 3                   | 8<br>5                        |
| Compression Set, % max.                              | ASTM D3574-95 Test D @ 23°C (73°F)   | 2                            |                               |
|  | ASTM D3574-95 Test D @ 70°C (158°F)  | 10                           |                               |
|  | ASTM D3574-95 Test J/Test D<br>Autoclaved 5 hrs @ 121°C (250°F)            | 5                            |                               |
| Dimensional Stability, % max. change                 | 22 hrs @ 80°C (176°F) in a Forced-Air Oven                                 | ± 1                          |                               |
| Tensile Strength, min. kPa, (psi)                    | ASTM D3574-75 Test E   | 138 (20)                     | 207 (30)                      |
| Tensile Elongation, % min.                           | ASTM D3574-75 Test E   | 100                          | 100                           |
| Tear Strength, kN/m (pli) min                        | ASTM D264-91 Die C   | 0.2 (1)                      | 0.5 (3)                       |
| <b>ELECTRICAL AND THERMAL</b>                        |  |                              |                               |
| Dielectric Constant, K' ("DK")                       | ASTM D150 Measurements at 22°C (72°F)<br>Relative Humidity 50% for 24 hrs. | 1.75                         |                               |
| Dielectric Strength, kN/m (volts/mil)                | ASTM D149-97A  | 1969 (50)                    |                               |
| Dissipation Factor, tan D ("DF")                     | ASTM D150-98   | 0.05                         |                               |

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| <b>ELECTRICAL AND THERMAL</b>                                    |   | 240 (15)  | 320 (20)     |
| Volume Resistivity, ohm-cm (ohm-in)                              | ASTM D257-99  | 3 x 10 <sup>11</sup> (1.18 x 10 <sup>11</sup> )                               |              |
| Surface Resistivity, ohm/sq.                                     | ASTM D257-99  | 6 x 10 <sup>11</sup>  |              |
| Thermal Conductivity, W/m-C (BTU-in./hr/ft <sup>2</sup> -F)      | ASTM C518-98  | -   | 0.076 (0.53) |
| Coefficient of Thermal Expansion                                 |   | 2.3 - 3.1 x 10 <sup>-4</sup> in./in./°C (1.3-1.7 x 10 <sup>-4</sup> in/in/°F) |              |
| <b>TEMPERATURE RESISTANCE</b>                                    |   |   |              |
| Recommended Constant Use, max.                                   | SAE J-2236  | 90°C (194°F)  |              |
| Recommended Intermittent Use, max.                               |   | 121°C (250°F)   |              |
| Embrittlement  | ASTM D746-98  | -51°C (-60°F)   |              |
| Cold Flexibility   | MIL-P-12420D 1991 @ -40°C (-40°F)                                     | PASS  |              |
| <b>FLAMMABILITY AND OUTGASSING</b>                               |   |   |              |
| Flammability, mm (inches)<br>[Without PET Carrier]               | UL 94HBF <sup>‡</sup> (File E20305) (Pass ≥)                          | 4.8 (0.188)   | 2.4 (0.093)  |
|  | FMVSS 302 (Pass ≥)  | 2.5 (0.059)   | 1.6 (0.062)  |
|  | CSA Comp HBF (File 188149) (Pass ≥)                                   | 4.8 (0.188)   | 2.4 (0.093)  |
| Fogging  | SAE J-1756 3 hrs @ 100°C (212°F)                                      | Pass  |              |
| Outgassing, Total Mass Loss (TML) %                              | ASTM E595-93 24 hrs @ 125°C (257°F)<br>@ <7 kPa (1.02psi)             | 0.8   |              |
| Outgassing, Collected Volatile Condensable Materials (CVCM) %    |   | 0.1   |              |
| Outgassing, Water Vapor Regain (WVR) %                           |   | 0.2   |              |
| <b>ENVIRONMENTAL</b>   |   |   |              |
| Gasketing and Sealing  | UL JMST2 (Consisting of UL50 and UL508)<br>CAN/CSA – C22.2 No. 94-M91 | File MH15464<br>File 188149   |              |
| Water Absorption, High Humidity Exposure, % Weight Gain, Typical | AMS 3568-95   | 2   |              |
| Water Absorption, Immersion Testing, % Weight Gain, Typical      | ASTM D570-95  | 12  | 9            |
| UV Resistance  | ASTM G53-96   | Good  |              |
| Ozone Resistance   | GM 4486P-95   | Pass  |              |
| Corrosion Resistance   | AMS 3568-91   | Pass  |              |
| Mildew/Bacteria Resistance                                       | ASTM G21  | Good  |              |
| Staining   | ASTM D925   | No Stain  |              |

\*\*Products available as unsupported, PET supported, or tacky surface.

\*\*Thickness availability may vary by construction type – contact your local sales or customer service representative

Notes:

‡Designed to meet UL 94 HBF based upon 2022 test criteria. As of 2023 items with nominal density ≥ 15.6lb/ft<sup>3</sup> (250kg/m<sup>3</sup>) are no longer eligible to be tested for UL 94 HBF but remain equivalent.

- - Represents testing not available at this time.
- All metric conversions are approximate.
- Additional technical information is available.
- Typical values should not be used for specification limits

To order PORON materials, please contact our Sales Specialists at 860.928.3622 or via email at EMS\_CT\_cust\_serv@rogerscorporation.com



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