

September 6, 2017

## HIRAOKA HG SERIES HEAT SHIELD Physical Properties

| Test Items                                   | HG102-SHS  | HG212-SHS  | HG313-SHS  | HG412-SHS  | Unit               | Test Method                  |
|--|------------|------------|------------|------------|--------------------|------------------------------|
| Width  | 2040       | 2040       | 2040       | 2040       | mm                 | ASTM D 751                   |
|  | 80.3       | 80.3       | 80.3       | 80.3       | inch               |                              |
| Total Mass                                   | 800        | 940        | 1080       | 1470       | g/m <sup>2</sup>   | ASTM D 751                   |
|  | 23.6       | 27.7       | 31.9       | 43.4       | oz/yd <sup>2</sup> |                              |
| Thickness                                    | 0.63       | 0.75       | 0.9        | 1.2        | mm                 | ASTM D 751                   |
|  | 24.8       | 29.5       | 35.4       | 47.2       | mil.               |                              |
| Tensile Strength<br>(Cut Strip) Warp<br>Fill | 3100       | 5100       | 6100       | 8300       | N/5cm              | ASTM D 751                   |
|  | 2800       | 5200       | 5900       | 7000       |                    |                              |
|  | 354        | 582        | 697        | 948        | lbs/inch           |                              |
|  | 320        | 594        | 674        | 799        |                    |                              |
| Tear Strength<br>(Trapezoid) Warp<br>Fill    | 160        | 400        | 670        | 950        | N                  | ASTM D 751                   |
|  | 160        | 400        | 670        | 900        |                    |                              |
|  | 36         | 90         | 151        | 214        | lbs                |                              |
|  | 36         | 90         | 151        | 202        |                    |                              |
| Tear Strength<br>(Trapezoid) Warp<br>Fill    | 300        | 630        | 1100       | 1300       | N                  | DIN 53363                    |
|  | 300        | 630        | 1000       | 1200       |                    |                              |
| Adhesion                                     | 100        | 130        | 140        | 150        | N/5cm              | ASTM D 751                   |
|  | 11         | 15         | 16         | 17         | lbs/inch           |                              |
| Light Transmission                           | 2.7        | 2.7        | 2.7        | 2.7        | %                  | ISO 9050                     |
| * Infrared reflectance                       | 85<        | 85<        | 85<        | 85<        | %                  | ISO 9050                     |
| Temperature<br>Resistance                    | -40 / +70  | -40 / +70  | -40 / +70  | -40 / +70  | °C                 | ASTM D2136<br>MSAJ/M-03-2003 |
|  | -40 / +158 | -40 / +158 | -40 / +158 | -40 / +158 | °F                 |                              |
| Flame Retardancy                             | B-s2,d0    | B-s2,d0    | B-s2,d0    | C-s2,d0    | EN13501-1          |                              |
|  | meet       | meet       | meet       | meet       | NFPA-701           |                              |
|  | meet       | meet       | meet       | meet       | ASTM E-84          |                              |

The above data reflects average measured values.

\*Measurement was made according to ISO 9050(780~2100nm).