



## Technical Data Sheet

### G-Fire®

**G-Fire® panels have fire retarding feature thanks to the special substances used in its production. It does not form flame, smoke or drops and disables forming of toxic gases.**

It is a unique product having superior resistance against fire and fire spreading. Thanks to these distinctive features, it has advantageous usage in hospitals, business centers, lifts, public buildings and in mass transportation vehicles like, ships, trains, buses, etc.

| EN Classification |                 | VGF, HGF, CGF                                                                                                  |
|-------------------|-----------------|----------------------------------------------------------------------------------------------------------------|
| EN 438<br>3 / 4   | Thickness Range | 1,5mm - 20mm                                                                                                   |
|                   | Dimensions      | 940x2140mm / 1220x2440mm / 1300x2800mm<br>1300x3050mm / 1400x3660mm / 1540x3050mm<br>1540x3660mm / 1860x4200mm |

  
WATER  
REPELLANT

  
DRY HEAT  
RESISTANCE

  
SCRATCH &  
ABRASION  
RESISTANCE

  
LOW LIGHT  
REFLECTIVITY

  
HEAT & COLD  
RESISTANCE

  
EASY TO  
CLEAN

  
ULTRA COLOR  
INTENSITY

  
IMPACT  
RESISTANCE

  
RESISTANCE TO  
HOUSEHOLD  
CHEMICAL

| Characteristics                              | Test Method                                                                                                      | Test Value                                           | Required Value                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Thickness                                    | EN 438-2 section 5                                                                                               | According to the required thickness                  | $1.0 \leq t < 2.0$ mm : $\pm 0.15$ mm<br>$2.0 \leq t < 3.0$ mm : $\pm 0.20$ mm<br>$3.0 \leq t < 5.0$ mm : $\pm 0.3$ mm<br>$5.0 \leq t < 8.0$ mm : $\pm 0.4$ mm<br>$8.0 \leq t < 12.0$ mm : $\pm 0.5$ mm<br>$12.0 \leq t < 16.0$ mm : $\pm 0.6$ mm<br>$16.0 \leq t < 20.0$ mm : $\pm 0.7$ mm<br>$20.0 \leq t < 25.0$ mm : $\pm 0.8$ mm<br>$25.0 \leq t$ : According To Agreement customer / producer |
| Density                                      | ISO 1183 - 1                                                                                                     | 1.4 gr/cm <sup>3</sup>                               | Min. 1.35 gr/cm <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                        |
| Wear Resistance                              | EN 438-2 section 10<br>VGF, HGF, CGF                                                                             | IP = 185 Rev.<br>Wear Value = 485 Rev.               | Initial Point $\geq 150$ Rev.<br>Wear Value $\geq 350$ Rev.                                                                                                                                                                                                                                                                                                                                         |
| Scratch Resistance                           | EN 438-2 section 25<br>VGF, HGF, CGF                                                                             | 3 N<br>4 N                                           | Flat Surface Min. 2 N<br>Textured Surface Min. 3 N                                                                                                                                                                                                                                                                                                                                                  |
| Impact Resistance                            | EN 438-2<br>Big Ball section 21<br>VGF, HGF, CGF<br>$2.0 \leq t < 6.0$ mm<br>$t \geq 6.0$ mm                     | No Crack , 4.5 mm<br>No Crack , 3.5 mm               | 1400 mm height: no crack, 10 mm Max.<br>1800 mm height: no crack, 10 mm Max.                                                                                                                                                                                                                                                                                                                        |
| Resistance To Crazing<br>( 20 Hours @ 80°C ) | EN 438-2 section 24<br>VGF, HGF, CGF                                                                             | Level 4                                              | Min. level 4                                                                                                                                                                                                                                                                                                                                                                                        |
| Resistance to Dry Heat<br>at 180°C           | EN 438-2 section 16<br>VGF, HGF, CGF<br>Glossy Surface Finish<br>Other Surface Finish                            | Level 4<br>Level 5                                   | Min. level 3<br>Min. level 4                                                                                                                                                                                                                                                                                                                                                                        |
| Resistance to Water Vapor                    | EN 438-2 section 14<br>VGF, HGF, CGF<br>Glossy Surface Finish<br>Other Surface Finish                            | Level 4<br>Level 5                                   | Min. Level 3<br>Min. Level 4                                                                                                                                                                                                                                                                                                                                                                        |
| Resistance to Boiling Water                  | EN 438-2 section 12<br>$2.0 \leq t < 5.0$ mm<br>$t \geq 5.0$ mm<br>Glossy Surface Finish<br>Other Surface Finish | 2.2%<br>3.1%<br>0.55%<br>0.65%<br>Level 4<br>Level 5 | Max. 7% in weight<br>Max. 9% in thickness<br>Max. 3% in weight<br>Max. 6% in thickness<br>Min. Level 3<br>Min. Level 4                                                                                                                                                                                                                                                                              |

| Characteristics                                     | Test Method                          | Test Value                             | Required Value                     |
|-----------------------------------------------------|--------------------------------------|----------------------------------------|------------------------------------|
| Resistance to Cigarette Burn                        | EN 438-2 section 30<br>VGF, HGF, CGF | Level 4                                | Min. Level 3                       |
| Resistance to Staining                              | EN 438-2 section 26<br>VGF, HGF, CGF |                                        |                                    |
|                                                     | Group 1 + 2                          | Level 5                                | Min. level 5                       |
|                                                     | Group 3                              | Level 5                                | Min. level 4                       |
| Flatness                                            | EN 438-2 section 9<br>VGF, HGF, CGF  |                                        |                                    |
|                                                     | $2.0 \leq t < 6.0$ mm                | 1.23 mm                                | Max. 8 mm / 1 M length             |
|                                                     | $6.0 \leq t < 10.0$ mm               | 1.46 mm                                | Max. 5 mm / 1 M length             |
|                                                     | $t \geq 10.0$ mm                     | 1.87 mm                                | Max. 3 mm / 1 M length             |
| Light fastness                                      | EN 438-2 section 27<br>VGF, HGF, CGF |                                        |                                    |
|                                                     | Grey Scale                           | Level 5                                | Min. level 4                       |
| High Temp. stability 70°C                           | EN 438-2 section 17<br>VGF, HGF, CGF |                                        |                                    |
|                                                     | $2.0 \leq t \leq 5.0$ mm             | L : 0.22 mm<br>W : 0.35 mm             | L : Max. 0.4 mm<br>W : Max. 0.8 mm |
|                                                     | $t \geq 5.0$ mm                      | L : 0.18 mm<br>W : 0.23 mm             | L : Max. 0.3 mm<br>W : Max. 0.6 mm |
| Tensile Strength                                    | EN ISO 527 – 2<br>CGF                | 85 MPa                                 | Min. 60 MPa                        |
| Flexural Strength                                   | EN ISO 178<br>CGF                    | 110.7 MPa                              | Min. 80 MPa                        |
| Flexural Modulus                                    | EN ISO 178<br>CGF                    | 9854 MPa                               | Min. 9000 Mpa                      |
| Coefficient Of Linear Thermal Expansion<br>( COTE ) | ASTM D696-08 <sup>(3)</sup><br>CGF   | $6.0 \times 10^{-6}$<br>mm / mm °c     | ---                                |
| Total Volatile Organic Compound Emission            | ASTM D5116<br>CGF                    | < 0.010 mg/m <sup>2</sup> /hr          | < 0.5 mg/m <sup>2</sup> /hr        |
| Electrical Resistance                               |                                      |                                        |                                    |
| Rs ( 100v )<br>RH = 15% + 60%                       | DIN EN 61340-5-1&2<br>( 2001 )       | $R_s$ and $R_g > 1 \times 10^9 \Omega$ | ---                                |
| Rg ( 100v )<br>RH = 15% + 60%                       |                                      |                                        |                                    |

| Characteristics                                                                                                                                               | Test Method                                                                      | Test Value                                               | Required Value                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| Fire Classification                                                                                                                                           | <u>EN 13501-1</u>                                                                |                                                          |                                                          |
|                                                                                                                                                               | $3.0 \leq t < 5.9 \text{ mm}$                                                    | B S2 d0<br>TS 49515 ( 9.1.2009 )                         | B S2 d0<br>B S2 d0                                       |
|                                                                                                                                                               | $6.0 \leq t < 25.0 \text{ mm}$                                                   | B S1 d0<br>ERA - 14 095 ( 22.10.2014 )                   | B S2 d0                                                  |
|                                                                                                                                                               | <u>ASTM E 84 – 10</u>                                                            | Class A                                                  | Class A                                                  |
|                                                                                                                                                               | <u>BS 476 Part 7 : 1997</u>                                                      | Class 1                                                  | Class 1                                                  |
|                                                                                                                                                               | <u>DIN 5510-2:2009-05</u>                                                        |                                                          |                                                          |
|                                                                                                                                                               | 0.8 mm                                                                           | S4 ; SR2 ; ST2                                           | --                                                       |
|                                                                                                                                                               | 1.2 mm                                                                           | S2 ; SR2 ; ST2                                           | --                                                       |
| Smoke Density and Toxicity                                                                                                                                    | <u>NF P 92-501</u>                                                               |                                                          |                                                          |
|                                                                                                                                                               | 6 - 10 mm                                                                        | M1                                                       | M1                                                       |
|                                                                                                                                                               |                                                                                  |                                                          |                                                          |
| Smoke Density and Toxicity                                                                                                                                    | <u>CEN/TS 45545-2-2010</u>                                                       |                                                          |                                                          |
|                                                                                                                                                               | 1.2 mm                                                                           | R1 / HL2                                                 | --                                                       |
|                                                                                                                                                               | 8 mm                                                                             | R1 / HL2                                                 | --                                                       |
| Flammability of interior materials in passenger cars, Multipurpose Passenger Vehicles , Trucks and busses according to FMVSS 302 ( USA ) CMVSS 302 ( Canada ) | Horizontal Burning rate Test acc. To 95/28/EC Annex IV and ECE-R 118.01 Annex VI |                                                          |                                                          |
|                                                                                                                                                               | 2.5 mm                                                                           | Horizontal burning rate $\leq 0 \text{ mm/min}$          | Horizontal burning rate Max 100 mm/min                   |
|                                                                                                                                                               | Drop rate test acc. To 95/28/EC Annex V and ECE-R 118.01 Annex VII               |                                                          |                                                          |
| Flammability of interior materials in passenger cars, Multipurpose Passenger Vehicles , Trucks and busses according to FMVSS 302 ( USA ) CMVSS 302 ( Canada ) | 2.5 mm                                                                           | Material has not dropped and cotton wool is not inflamed | Material will not drop and cotton wool will not inflamed |
|                                                                                                                                                               |                                                                                  |                                                          |                                                          |

**Remarks :**

- @ VGF = Vertical Grade Flame Retardent Laminate
- @ HGF = Horizontal Grade Flame Retardent Laminate
- @ CGF = Compact Grade Flame Retardant Laminate
- @ Required Values Based on 438-3 & 4