

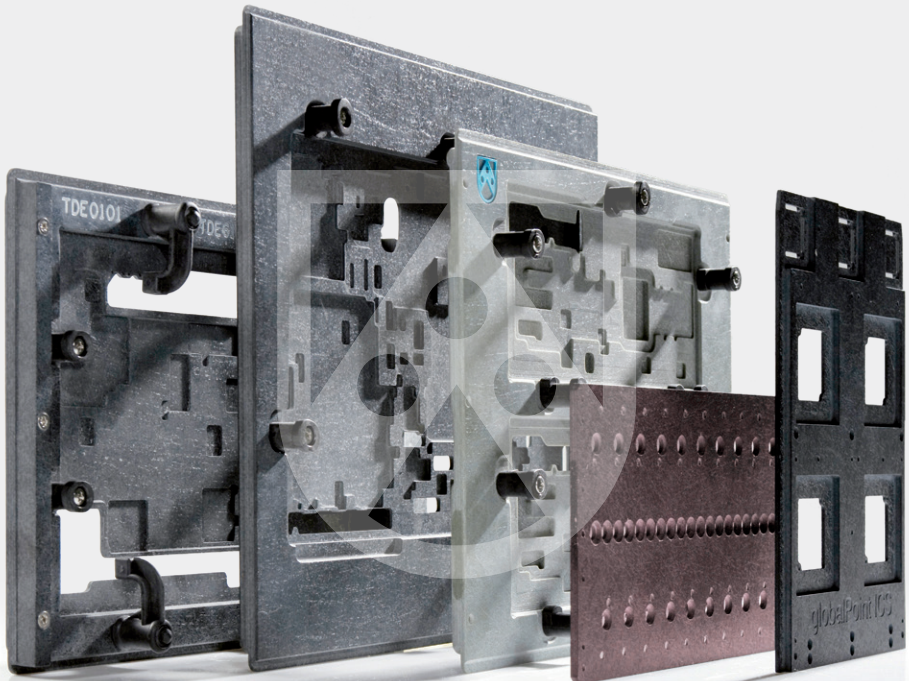
Durostone®

## PCB Solder Pallet Materials

High performance composite materials specifically designed for the PCB assembly process



Electronics

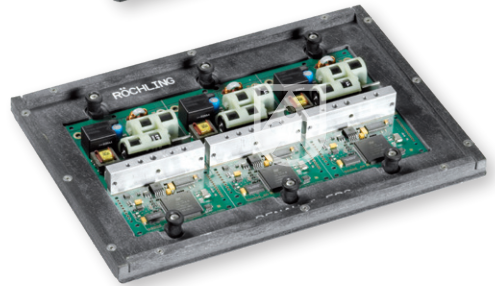
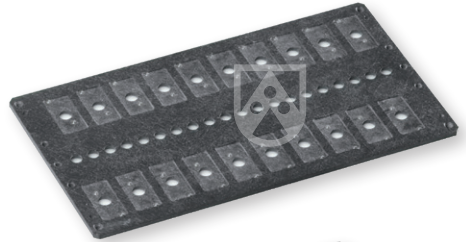


# PCB Solder Pallet Materials

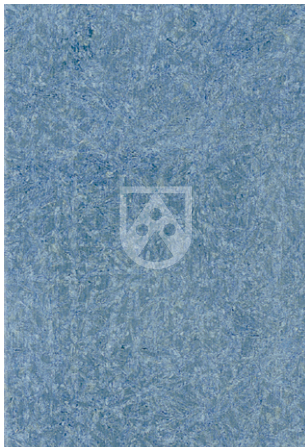


Durostone® materials have been developed for all procedures within the PCB assembly process. There are three main grades which are suitable for use in the SMT reflow and wave soldering processes, **Durostone® CHP760, CAS761 and CAG762**. These materials offer the following features:

- Excellent mechanical properties at elevated temperatures in both the wave soldering and SMT reflow processes.
- Low thermal conductivity.
- Excellent machining properties enabling the manufacture of complex design solder pallets.
- Good resistance to chemicals used in modern fluxes.



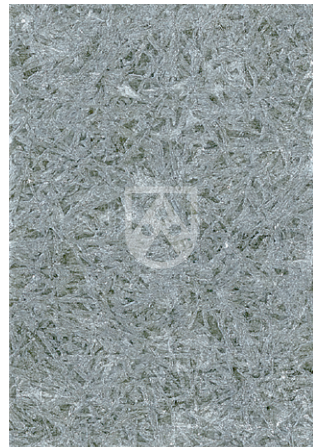
**CHP760**



**CAS761**



**CAG762**



# Harsh environments

In the wave soldering process, a combination of flux, temperature and process cycle time can result in a reduced lifespan of standard solder pallet materials.

The solution is **Durostone® WGR781**, a woven glass laminate which has been specifically formulated to withstand extreme temperatures and aggressive fluxes.

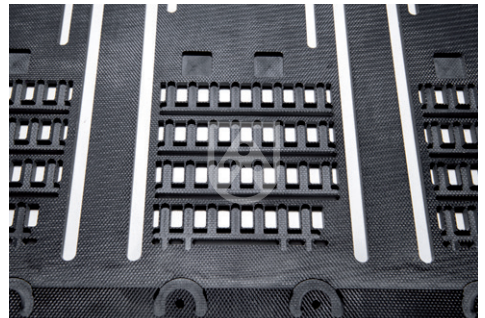
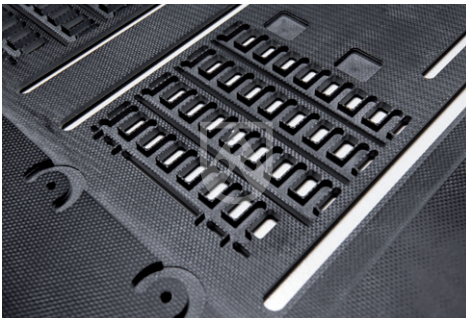
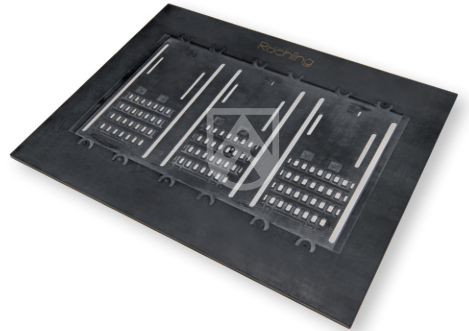
Fluxes containing halides or halogen activators can reduce a material's lifespan but Durostone® WGR781 is designed for a very high cycle repetition. The woven glass reinforcement ensures that the flux does not penetrate the solder pallet surface and expose fibres.

The resin used to produce Durostone® WGR781 can operate at a continuous temperature of 280 °C. The material also displays excellent mechanical properties and provides the necessary dimensional stability at elevated temperatures in the wave soldering process.

Due to the improved material properties, the use of titanium inserts can often be eliminated, depending on the application conditions.

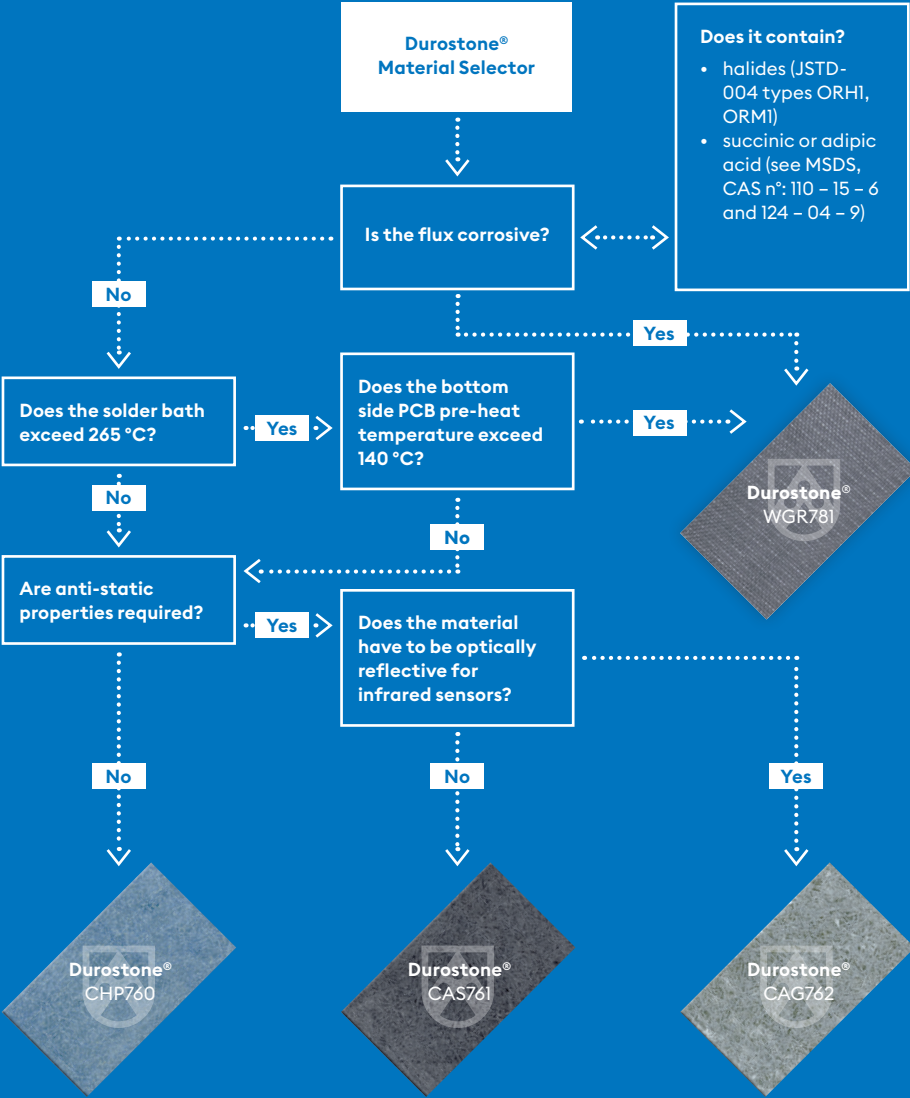
Durostone® WGR781 has excellent machining properties, with thin wall thicknesses possible.

## WGR781



# Material Selector

The following flow chart enables the correct choice of material grade depending on the process parameters.





# Technical Data

|   |           | CHP760                   | CAS761                            | CAG762                            | WGR781                            |
|---|-----------|--------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Grade   |           | Standard                 | Anti-Static                       | Anti-Static<br>Optical            | Flux Resistant                    |
| Colour  |           | Blue                     | Black                             | Grey                              | Black                             |
| Glass reinforcement   |           | Glass mat                | Glass mat                         | Glass mat                         | Woven glass                       |
| Density (g/cm <sup>3</sup> )  |           | 1.85                     | 1.85                              | 1.85                              | 1.85                              |
| Flexural Strength   | @ 23 °C   | 360                      | 360                               | 360                               | 400                               |
| 3 point support (MPa)   | @ 150 °C  | 180                      | 180                               | 180                               | 300                               |
|   | @ 185 °C  | -                        | -                                 | -                                 | -                                 |
|   |           |                          |                                   |                                   |                                   |
| Modulus of Elasticity (MPa)   | @ 23 °C   | 18,000                   | 18,000                            | 18,000                            | 26,000                            |
|   | @ 150 °C  | 9,000                    | 9,000                             | 9,000                             | 24,000                            |
|   | @ 185 °C  | -                        | -                                 | -                                 | -                                 |
| Water Absorption (%)  |           | < 0.20                   | < 0.20                            | < 0.20                            | < 0.10                            |
| Coefficient of Linear Expansion<br>(10 <sup>-6</sup> /K) between 30 °C and 200 °C |           | 13                       | 11                                | 11                                | 13                                |
| Thermal Conductivity (W/m <sup>2</sup> K)   |           | 0.25                     | 0.25                              | 0.25                              | 0.30                              |
| Maximum Operating<br>Temperature (°C) 10 – 20 seconds                             |           | 300                      | 300                               | 300                               | 320                               |
| Standard Operating<br>Temperature (°C)  |           | 260                      | 260                               | 260                               | 280                               |
| Surface Resistivity (ohms)  |           | 10 <sup>12</sup>         | 10 <sup>5</sup> – 10 <sup>9</sup> | 10 <sup>5</sup> – 10 <sup>9</sup> | 10 <sup>5</sup> – 10 <sup>9</sup> |
| Chemical Resistance   |           | Good                     | Good                              | Good                              | Excellent                         |
| Sheet Size (mm)   |           | 2,440 x 1,220            | 2,440 x 1,220                     | 2,440 x 1,220                     | 2,440 x 1,220                     |
| Thickness' available (mm)   |           | 3, 4, 5, 6,<br>8, 10, 12 | 3, 4, 5, 6,<br>8, 10, 12          | 3, 4, 5, 6,<br>8, 10, 12          | 5, 6, 8, 10*                      |
| Thickness Tolerance   | 3 mm      | -0/+0.10                 | -0/+0.10                          | -0/+0.10                          | -                                 |
|   | 4 – 12 mm | -0/+0.20                 | -0/+0.20                          | -0/+0.20                          | -0/+0.20                          |
| Flatness Tolerance<br>(for a panel size of 300 x 300 mm)                          |           | 0.20                     | 0.20                              | 0.20                              | 0.30                              |
| Parallelism (mm)  |           | 0.10                     | 0.10                              | 0.10                              | 0.10                              |

- All the values are average values.
- Material is considered as not electrostatic dissipative (ESD) if more than 5 measurements / m<sup>2</sup> are insulative (10<sup>12</sup> Ω). According to JEDEC standard JESD625B, a static dissipative material is a material having a surface resistance between 10<sup>4</sup> and 10<sup>11</sup> Ω.
- Cosmetic defects are not considered as non-conformities. Due to the nature of glass fiber composite, the colour repartition is not guaranteed.
- \* Other sizes available on request.

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