
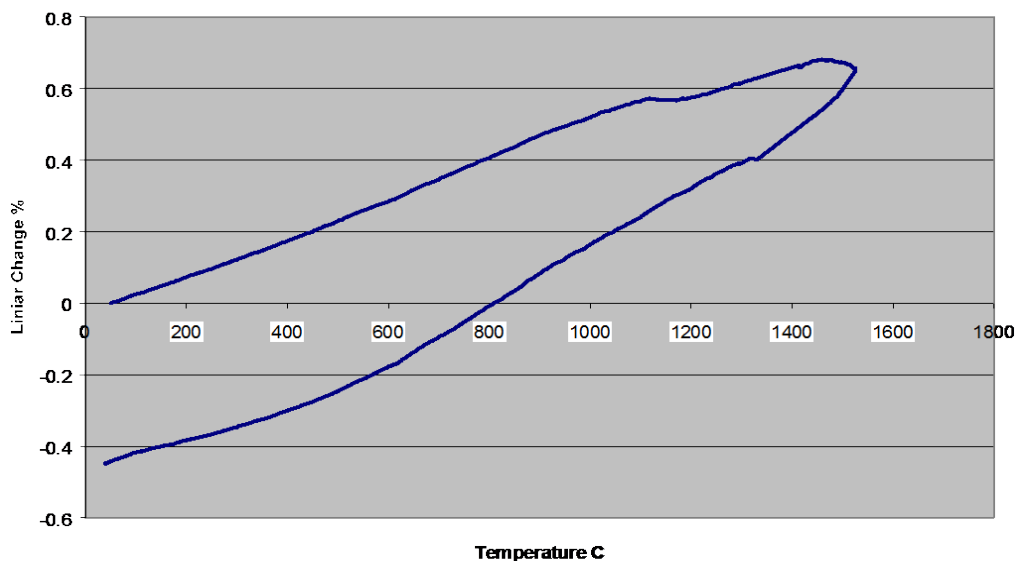


**Emhart Glass 311 - Material Technical Data Sheet**

|   |   |   |                                    |             |
|---|---|---|------------------------------------|-------------|
| <b>Mix ID:</b>  | <b>311</b>  |   |                                    |             |
| <b>Mix Name:</b>  | <b>Emhart Glass 311</b>                                   |   |                                    |             |
| <b>Type:</b>  | <b>Cast</b>   |   |                                    |             |
| <b>Application:</b>   | Emhart Glass 311 high alumina mix used for orifice rings. |   |                                    |             |
| <b>Typicals:</b>  | <b>Porosity:</b>  | <b>23%</b>                              | <b>Chemistry:</b>                  | <b>Wt.%</b> |
|  | <b>Bulk Density:</b>                                      | <b>2.6 g/cc</b>                         | <b>Al<sub>2</sub>O<sub>3</sub></b> | <b>91.0</b> |
|   |   |   | <b>SiO<sub>2</sub></b>             | <b>8.6</b>  |
|   | <b>Apparent Density:</b>                                  | <b>3.6 g/cc</b>                         | <b>ZrO<sub>2</sub></b>             | <b>.04</b>  |
|   |   |   | <b>Fe<sub>2</sub>O<sub>3</sub></b> | <b>.09</b>  |
|   | <b>MOR:</b>   | <b>2400 psi</b>                         | <b>NaO</b>                         | <b>N/A</b>  |
|   |   |   | <b>CaO</b>                         | <b>.02</b>  |
|   | <b>PCE:</b>   | <b>38</b>                               | <b>MgO</b>                         | <b>.23</b>  |
|   |   |   | <b>TiO<sub>2</sub></b>             | <b>.02</b>  |
|   | <b>Linear Thermal Expansion:</b>                          | <b>4.7 x 10<sup>-6</sup> (in/in/°C)</b> | <b>Other</b>                       | <b>0</b>    |

**Thermal Expansion Emhart 311**



All data is subject to reasonable deviations and not to be used for specification purposes.