Zirconium Tungstate

INTRODUCTION

Zirconium Tungstate is a complex oxide that exhibits the unusual property of contracting, rather than expanding, as its temperature rises from near absolute zero to its decomposition-temperature near 1050 K (780°C). Throughout this range, Zirconium Tungstate has cubic symmetry, so that its thermal expansion is the same in any direction. Near 428 K (155°C), Zirconium Tungstate undergoes a second-order phase transformation to a disordered phase of higher symmetry, called β-Zirconium Tungstate to distinguish it from the α-phase, the form stable below 428 K. When compressed at room temperature, α-Zirconium Tungstate transforms to the denser orthorhombic γ polymorph. This phase persists at atmospheric pressure, but is known to revert to the α-form when heated, beginning around 125°C.

TYPICAL COMPOSITION

<table>
<thead>
<tr>
<th>Element</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al</td>
<td>&lt;200</td>
</tr>
<tr>
<td>Fe</td>
<td>&lt;200</td>
</tr>
<tr>
<td>Hf</td>
<td>&lt;100</td>
</tr>
<tr>
<td>Si</td>
<td>&lt;400</td>
</tr>
<tr>
<td>Ti</td>
<td>&lt;100</td>
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</tbody>
</table>

FORMULA

ZrW₂O₈

DESCRIPTION

A fine white to pale green powder

PARTICLE SIZE

D50: 16 microns

BULK DENSITY

Approximately 5072-5355 kg/m³

PACKAGING

Double plastic bags inside metal drums or polyethylene containers polyethylene jars inside metal drums or polyethylene containers

Phase Purity: (α + γ) > 80%

HANDLING

Zirconium tungstate is inert. Avoid personal contact and dust generating conditions. Store in a dry location away from combustibles. See MSDS for further information.