



### 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  $\beta$ -Zirconium Tungstate to distinguish it from the  $\alpha$ -phase, the form stable below 428 K. When compressed at room temperature,  $\alpha$ -Zirconium Tungstate transforms to the denser orthorhombic  $\gamma$  polymorph. This phase persists at atmospheric pressure, but is known to revert to the  $\alpha$ -form when heated, beginning around 125°C.

#### TYPICAL COMPOSITION

Table 1. Typical chemistry (on as-received basis ppm except where noted. Nominal purity 99.5% (Zr+Hf))		
Element		Analysis
Al	Aluminum	<200
Fe	Iron	<200
Hf	Hafnium	<100
Si	Silicon	<400
Ti	Titanium	<100

#### FORMULA

ZrW<sub>2</sub>O<sub>8</sub>

#### DESCRIPTION

A fine white to pale green powder

#### PARTICLE SIZE

D50: 16 microns

#### BULK DENSITY

Approximately 5072-5355 kg/m<sup>3</sup>

#### PACKAGING

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

Phase Purity: ( $\alpha$  +  $\gamma$ ) > 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.