

# ZIRCONIUM OXIDE

## ELECTRONIC GRADES

CAS NUMBER 1314-23-4



### GENERAL CHARACTERISTICS

MEL Chemicals zirconium oxides are dense, white powders of high chemical purity, which are manufactured by the calcination of chemically precipitated intermediates.

### APPLICATION

The E grade series of zirconium oxides has been designed to meet the raw material specifications of the electronic industry.

These grades are all of high purity, with controlled physical properties. At normal temperatures the crystal phase is monoclinic, but reversible inversion to the tetragonal phase takes place at about 1000°C, in the absence of other components.

If zirconium oxide is part of a lead zirconate titanate formulation, for example, the high reactivity of the E grade zirconium oxides optimizes zirconate phase formation, and results in products with consistent electronic properties and minimum rejects.

For dielectrics such as the barium titanates, and for many piezoelectric ceramics, E30 and E15 grades normally suffice.

Where a highly reactive zirconia is required, E101 grade, with high surface area and exceptionally low silica level, is recommended.

### HEALTH & SAFETY

Material Safety Data Sheets are available on request.

### TYPICAL PROPERTIES OF ELECTRONIC GRADES

Grade	ZrO <sub>2</sub> + HfO <sub>2</sub> *	SiO <sub>2</sub> (%)	TiO <sub>2</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	SO <sub>3</sub> (%)	Loss on ignition (1400°C)	Tamped bulk density (gcm <sup>-3</sup> )	Average particle size (µm)	Surface area (m <sup>2</sup> g <sup>-1</sup> )
E30	99	0.10	0.15	0.01	0.10	0.3	2.4	12	4
E15	99	0.10	0.15	0.01	0.10	0.5	2.0	0.8	5
E101	99	0.03	0.12	0.005	0.06	1.2	1.2	0.8	20

\*HfO<sub>2</sub> accounts for approximately 2wt% of this total.

### PACKAGING

E30/E15: 100 kg net weight in polythene-lined fibreboard drums with plastic lids.

Drum sizes may vary between products according to the bulk density.

E101: 50 kg net weight in polythene-lined fibreboard drums with plastic lids.

Drums may be palletised for tonne lots.

### AVAILABILITY

Individual orders can usually be supplied in blended lots of up to 6000 kg.

Other zirconium oxide grades may be available if the above prove unsuitable for a particular application.

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