

NS6130-02-270

YTTRIA STABILIZED ZIRCONIA Nanoparticles

Quick Facts

Product	:	Yttria Stabilized Zirconia Nanoparticles
Stock No	:	NS6130-02-270
CAS	:	114168-16-0
Molecular Formula	:	ZrO_2 - Y_2O_3
Form	:	Powder

Purity
99.9%

Technical Specification

Molecular Weight	Density	Melting Point	APS
349.03g/mol	5.87g/cm ³	~2700°C	30-45nm

Yttria Stabilized Zirconia is a ceramic in which the cubic crystal structure of zirconium dioxide is made stable at room temperature by an addition of yttrium oxide. There is a significant volume change associated with the monoclinic-tetragonal transition, which can cause problems when processing the material. Substituting some of the zirconium ions for yttrium stabilizes the cubic phase of the material, which is normally only formed at very high temperatures (>2690 °C) over a wide temperature range. This allows sintered zirconia products to be created, and also makes the material a conductor of O²⁻ ions. This conductivity increases with temperature, and with yttrium dopants concentration up to a maximum at around 8 mol% yttria.



Application

- ✓ For its hardness and chemical inertness (e.g., tooth crowns)
- ✓ As a refractory (e.g., in jet engines)
- ✓ As a thermal barrier coating in gas turbines
- ✓ As an electro ceramic due to its ion-conducting properties

ZrO_2 - Y_2O_3
APS 30-45nm



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