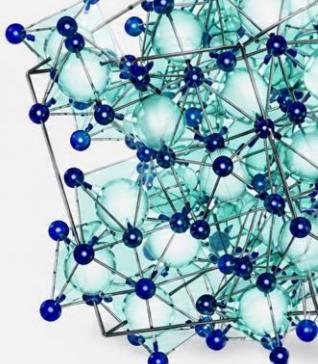
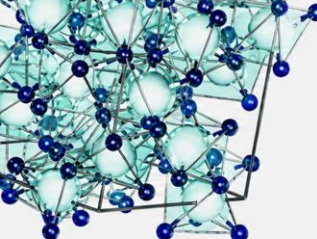
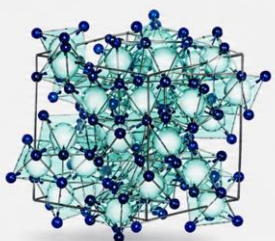




Yttrium Oxide



PRODUCT IN FOCUS



Yttrium oxide

INTRODUCTION

Yttrium oxide (Y_2O_3), also known as yttria, is an air-stable, odorless white powder. It is a highly stable, chemically inert ceramic with a very high melting point. It is insoluble in water but readily dissolves in most strong acids. Increasing the specific surface area and porosity of Y_2O_3 can further improve its relevant physical and chemical properties.

MANUFACTURE

Yttrium oxide (Y_2O_3) is commonly synthesized using precipitation, hydrothermal processing, and sol-gel methods. The standard chemical route involves precipitating yttrium hydroxide or oxalate from a salt precursor. The precipitated cake is washed and dried followed by calcination at temperature between 600 °C and 900 °C for 2 to 4 hours. The thermal decomposition of the precursor yields pure cubic phase yttrium oxide (Y_2O_3) and gaseous byproducts. These scalable wet-chemical methods transform purified yttrium salt solutions into high-purity oxide powders.

APPLICATIONS

☒ Phosphors in display technology :

- It is when doped with europium, is used to create the red phosphor in color television tubes and LED displays.

☒ High-performance ceramics:

- Yttrium Oxide imparts excellent resistance to heat and corrosion, making it indispensable in producing ceramics for aerospace components, cutting tools, and medical implants.

☒ Optical coatings:

- Optical transparency, high refractive index and ability of Yttrium oxide to withstand high temperatures makes it applicable in high-power laser and space-based optical system.

☒ Catalyst in chemical reactions:

- Yttrium oxide is used as a crucial catalyst in cracking processes to breakdown complex hydrocarbons in petrochemical industries.

☒ Additive in metallurgy:

- Yttrium oxide is used as an additive in metallurgy to refine grain structure and improve mechanical properties of metals and alloys.

☒ Radioactive medicine:

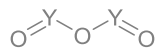
- Yttrium-90, a radioactive isotope derived from Yttrium Oxide, is used as in the treatment of liver cancer, neuroendocrine tumors, joint inflammation.

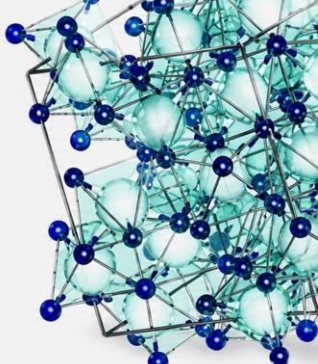
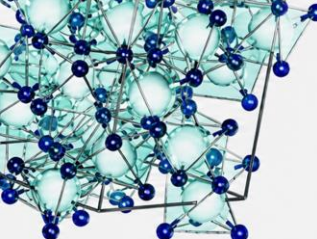
☒ Film capacitor:

- Yttrium oxide incorporated into the dielectric material enhances the insulation characteristic of the material, leading to higher capacitance.

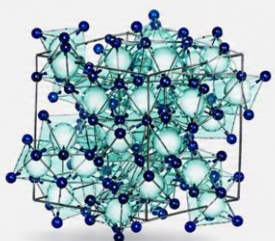
☒ Magnetic material:

- It is used in the production of Yttrium Iron Garnet, a magnetic material used in microwave and telecommunication devices.

Synonyms	Yttria, diyttrium trioxide, yttrium sesquioxide
CAS no.	1314-36-9
EINECS no.	215-233-5
Molecular formula	Y_2O_3
Molecular weight	225.81 g/mol
Structure	



Yttrium Oxide



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SPECIFICATIONS

Test	Unit	Specification
Appearance	-	White to almost white powder
Treo	%	NLT 99.30
LOI	%	NMT 0.40
Y ₂ O ₃	%	NMT 99.999
La ₂ O ₃	ppm	NMT 1
CeO ₂	ppm	NMT 1
Pr ₆ O ₁₁	ppm	NMT 1
Nd ₂ O ₃	ppm	NMT 1
Sm ₂ O ₃	ppm	NMT 1
Gd ₂ O ₃	ppm	NMT 1
Fe ₂ O ₃	ppm	NMT 1
SiO ₂	ppm	NMT 16
CaO	ppm	NMT 3

STORAGE & PRECAUTION

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place.

PACKING

25 kg HDPE Bags with inner polythene liner

REACH STATUS

Not registered

ExSyn offers Yttrium oxide on commercial scales and welcomes enquiries. No matter the quantity you need, our exceptional quality and service will make ExSyn your supplier of choice! If you need any additional information or SDS, please contact us.