Y_2O_3-CIP(Cold Isostatic Pressing) granule : YT3WBQ

NYC

High purity (3N and better) granules enable high quality ceramics

①Acrylic binder system

②Excellent green properties

③Easy sintering, low and stable shrinkage rate

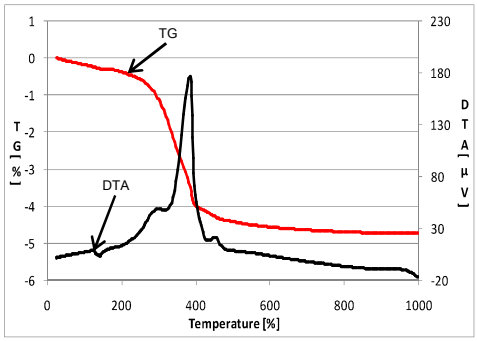
Granule production facility

[Manufactured under the clean environment facility for semiconductor/LCD industries]

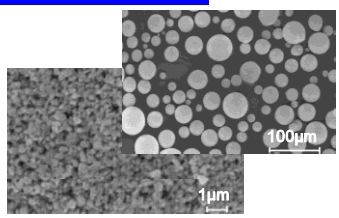
Specification

	Analysis item		Unit	Value	Note
Raw material	Average particle size	$D_{50\%}$	μm	0.5	Microtrac HRA
	Specific surface area	-	m^2/kg	6.0×10^3	BET Method
Granules	Purity	Y_2O_3/TREO	%	>99.9	
	Impurities	Fe_2O_3	ppm	<10	ICP-AES
		Na_2O	ppm	<10	AA
	Average particle size	$D_{50\%}$	μm	40	Microtrac HRA
	Density	Apparent density	kg/m^3	1.3×10^3	JISK 5101
		Tap density		1.4×10^3	
Green body	Density	R.D.	%	>50	CIP pressure : $1\times10^7kgf/m^2$ Real density : $5.03\times10^3kg/m^3$
Sintered body	Density	R.D.	%	>98	1650℃×2hr. in Air
	Shrinkage	-	%	<20	

TG-DTA

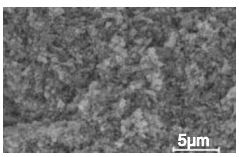


SEM



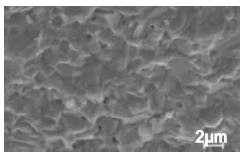
Granule

Molding (Molding Pressure : $1tf/cm^2$)



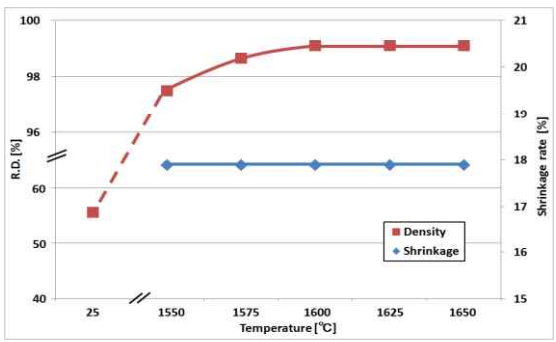
Molded body

Sintering (1650℃×2hr. in air)

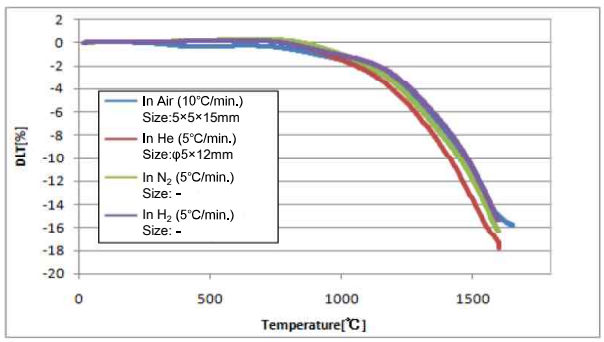


Sintered body

Sintering characteristic



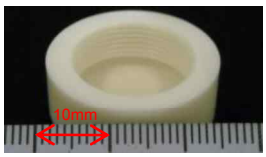
Heat shrinkage curve



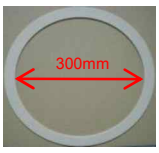
Applications

- Semiconductor / LCD industries
- Metallurgy, Magnet
- Electro ceramics

Examples of engineering model



Y_2O_3 cap



Y_2O_3 ring

June 2012

Y_2O_3 powder for spray coating : YT3WBHQ

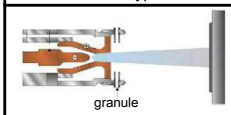
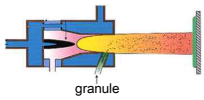
NYC

Granules for spray coating processed and refined under clean environment from highly purified Yttrium oxide powders

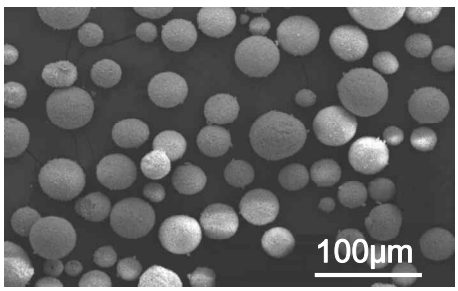
①Tailor-made for each different spray coating technology
②High purity (4N and better) with narrow particle size distribution
③No clogging with high efficiency of spray coating
⇒ High quality film / Improved productivity (cost reduction)

Granule production facility

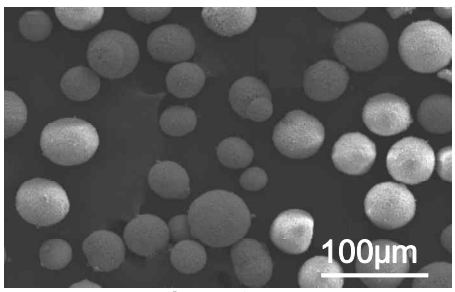
Specification

Analysis item		Unit	Value		Note
			Outer type	Inner type	
			 granule	 granule	
Purity	Y_2O_3/TREO	wt%	>99.99	←	
Impurities	Fe_2O_3	ppm	<20	←	ICP-AES
	Na_2O	ppm	<10	←	AA
L.O.I		wt%	<0.5	←	1000℃ 1hr
Average Particle Size		μm	30 ~ 40	40 ~ 50	Microtrac HRA
Apparent Density		kg/m³	1.4 ~ 1.6×10³	←	JIS K5101
Angle of repose		°	24 ~ 26	←	JIS R9301

SEM

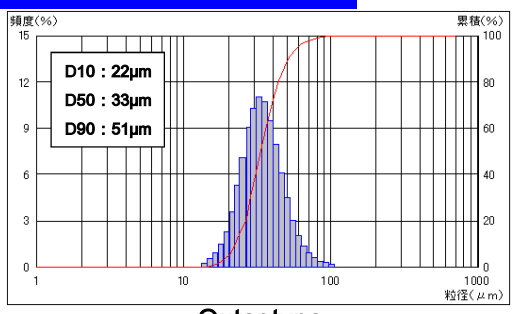


Outer type

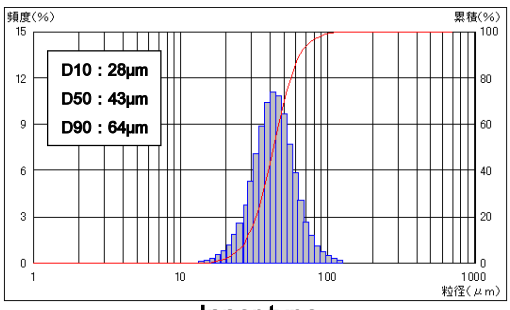


Inner type

Particle size distribution



Outer type

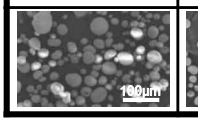
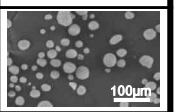


Inner type

Applications

- Semiconductor / LCD industries
- Electro ceramics

Example : Rare earth powder for spray coating

Gd_2O_3	CeO_2
	

June 2012