

Aqueous Ceria Slurries

For the precision polishing of borosilicate glass, fused silica, glass ceramics, and other optical materials.

Products	D50 (um)	D97 (um)	Filter Size (um)	Concentration (Wt. %)	pH	Typical SR on 9B (mg)
D605S	0.8-1	5	5	50%	8.0-10.0	153
DS605	0.3-0.5	<2	3	30%	6.0-9.0	147
DS606	1.4-1.6	<7	10	30%	6.0-9.0	145
TJX438	0.5-0.7	<4.0	5	30%	10-10.5	138
DS650	0.6-0.8	<6	5	45%	9.5-10	108
DS670	0.3-0.5	<6	N/A	15%	6.0-8.0	N/A
FYCA11	0.4-0.6	1.0-1.5	3	40%	7.0-9.0	132
FYCA12	0.15-0.3	0.6-0.9	1	40%	8.0-10.0	111
FYCA13	0.6-0.8	4-5	5	40%	8.0-10.0	133
FYCA14	0.3-0.5	1.5-3	3	40%	8.0-10.0	132
FYCA15	0.35-0.55	1-3	3	40%	9.0-11.0	146
FYCA17	0.4-0.6	1-3	3	40%	9.0-11.0	115

Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Polishing time (Min)	Surface finish
9B	Japanese 1900W	80	Fixed	B270 (99.7x49.4x2.1mm)	15	10	15	Good

D605S

D605S Precision Glass Polishing Slurry

D605S is a high purity, precision glass polishing compound which is produced by a proprietary process which allows for the precise control of crystallite hardness. It is suitable for use on all types of pitch and high quality polishing pads. The benefits are:

- High polishing rates
- Defect-free surface finish
- Easy mixing and robust particle suspension
- Long slurry life
- Easy cleaning from all types of surfaces
- Low cost per finished unit

Slurry Specifications:

Abrasive 97% rare earth oxide

Slurry – 49-51% solids

pH – 8.0 to 10.0

Average Particle Size – 0.8 to 1.0 μm

Specific Gravity – 1.65 to 1.69

Instructions for Use

-Clean polishers well before adding fresh slurry

-Dilute as needed

-No freezing restrictions

DS605

DS605 is designed to meet the most stringent surface requirements for high-precision optical glass at a reasonable cost. 97% of the particle is less than 3 micron with a very high ceria content. It enables soft glass products to be polished without grinding; for the hard glass, it can reduce the dispersion surface.

Parameters	Spec
CeO ₂ /TREO	> 60%
D50	0.3-0.5um
D97	< 2 um
Concentration	40%
PH	6-8
Suspension	Yes
Package	4 gallons per carton

Typical PSD

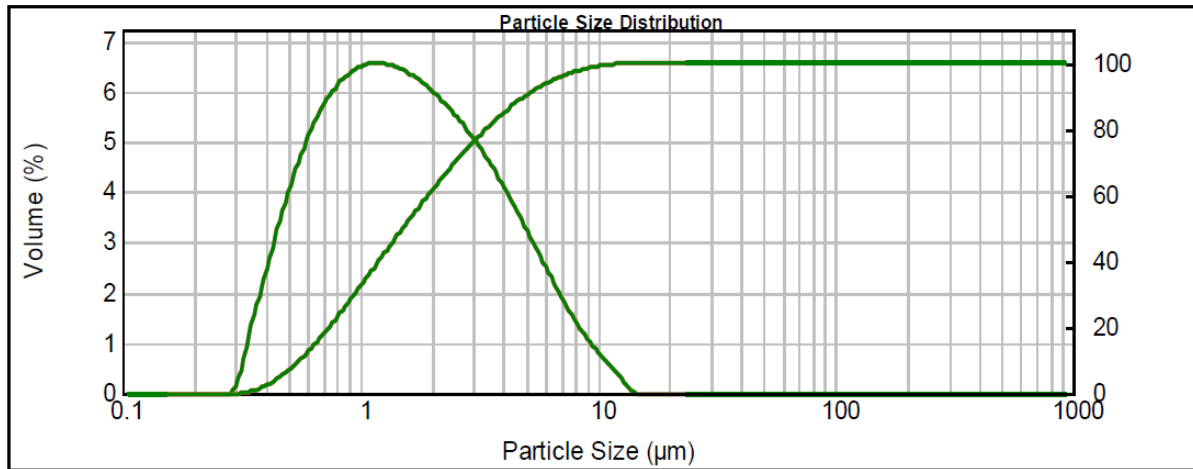
N/A

DS606

DS606 is only different from DS605 because of the bigger particle size.

Parameters	Spec
CeO ₂ /TREO	> 60%
D50	1.4-1.6um
D97	<7 um
Concentration	30%
PH	6-9
Suspension	Yes
Package	4 gallons per carton

Typical PSD:



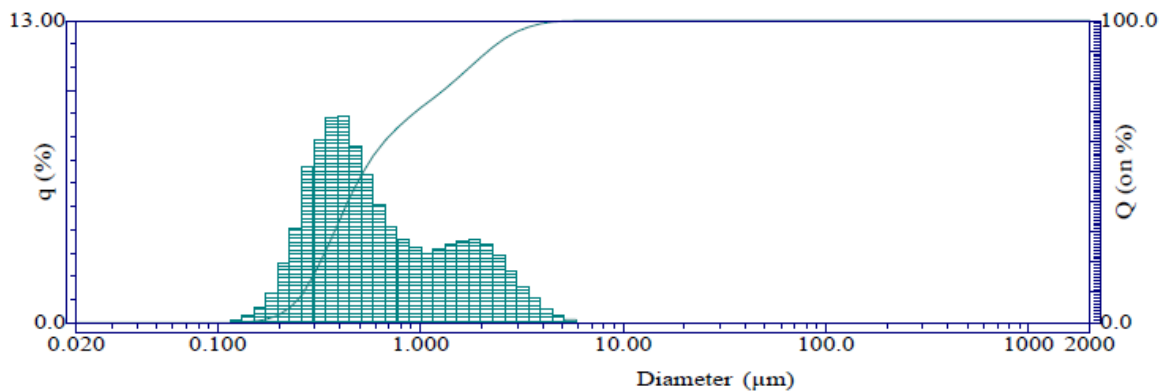
Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Surface finish	Polishing time (min)	Typical stock removal(mg)
9B	Japanese 1900W	80	Fixed	K9 (99.7*49.4*2.0mm)	15	10	Good	26	145

TJX438

TJX-438 is used in the field of precision optical polishing to meet the ultra-flatness requirements of precision optical glass surfaces. 97% of the particle is less than 5 microns and the cerium oxide concentration is 30%. It can meet the high quality surface of precision optical glass while improving the grinding rate. In addition, it has high polishing durability and high life.

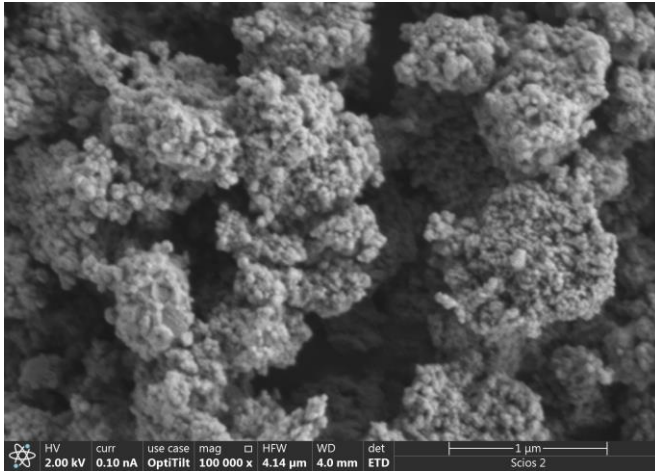
Parameters	Spec
CeO ₂ /TREO	≥98%
D50	0.5-0.7 um
D97	<4 um
Concentration	30%
PH	10-10.5
Suspension	Yes
Package	4 gallons per carton

Typical PSD

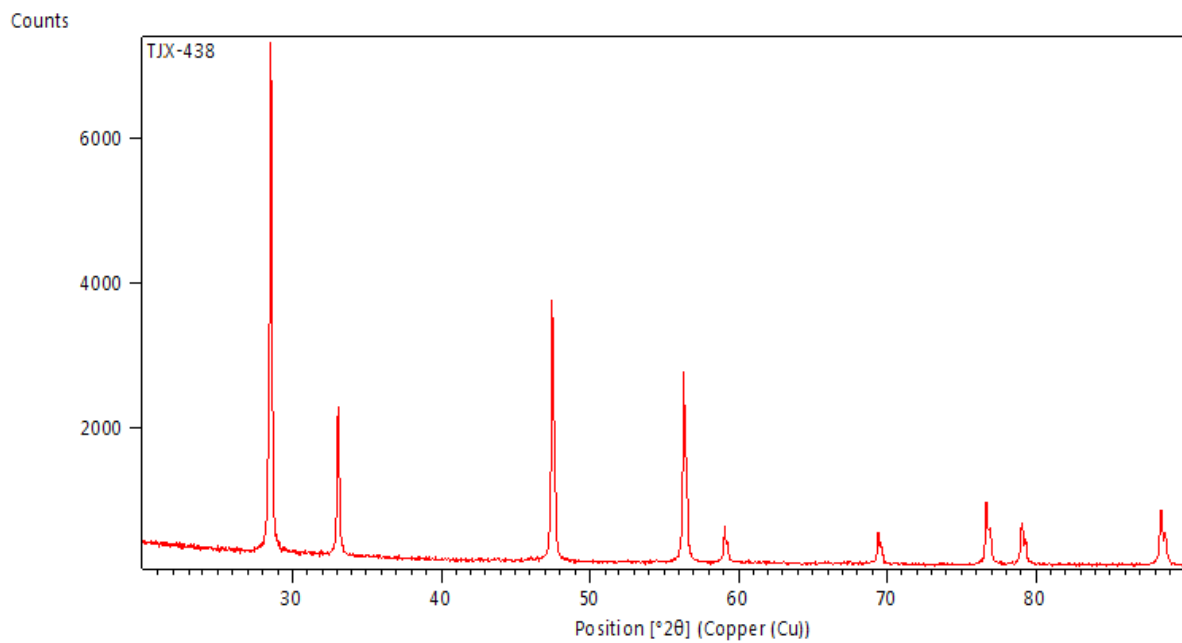


Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Surface finish	Polishing time (min)	Typical stock removal(mg)
9B	Japanese 1900W	80	Fixed	K9 (99.7*49.4*2.0mm)	15	5	Good	25	138

SEM:



XRD:

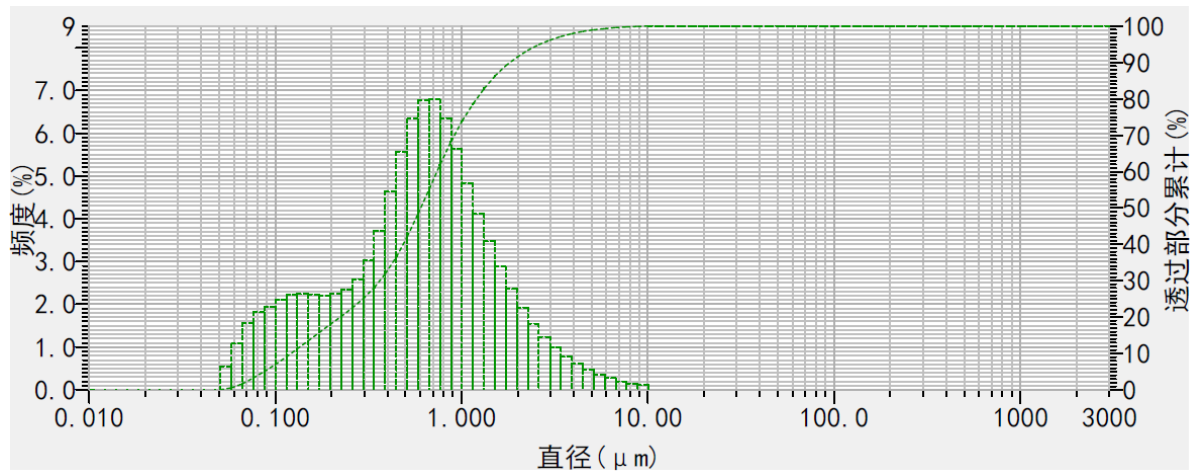


DS650

DS650 is designed to polish high-precision optical glass to achieve high performance at a reasonable cost. The formulation offers improved surface quality without sacrificing stock removal rate.

Parameters	Spec
CeO ₂ /TREO	>60%
D50	0.6-0.8um
D97	<6um
Suspension	Yes
PH	9.5-10
Concentration	40%
Package	20Kg per carton

Typical PSD



Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Surface finish	Polishing time (min)	Typical stock removal(mg)
9B	Japanese 1900W	80	Fixed	K9 (99.7*49.4*2.0mm)	15	10	Good	25	108

DS670

DS670 is a ceria polishing slurry made from a mixture prepared using a special precipitation process. The formulation has the advantages of good dispersion, high cutting rate, easy cleaning and good surface quality.

Parameters	Spec
CeO ₂ /TREO	>60%
D50	0.3-0.5 um
D97	<3um
Concentration	15%
PH	6-8
Suspension	Yes
Package	4 gallons per carton

Typical PSD

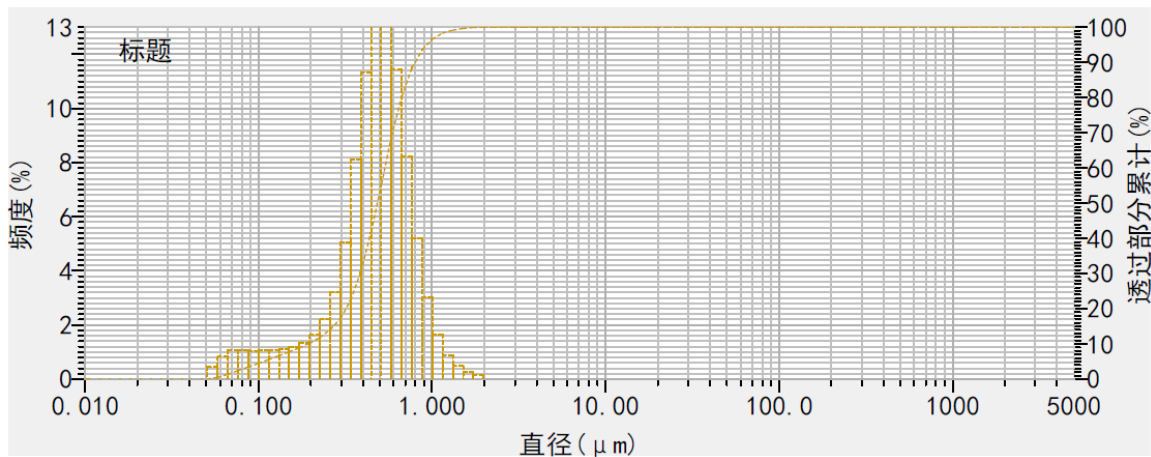
N/A

FYCA11

FYCA11 is a specially treated cerium oxide slurry made of a rare earth mixture, designed to have a high cutting rate and fine surface finish.

Parameters	Unit	Typical data	LSL	USL
CeO ₂ /TREO	wt%		60	
D50	um	0.48	0.4	0.6
D97	um	1.04	--	2
Solid Content	wt%	40%	39	41
PH	--	8.5	7	9

Typical PSD



Polishing parameters for reference:

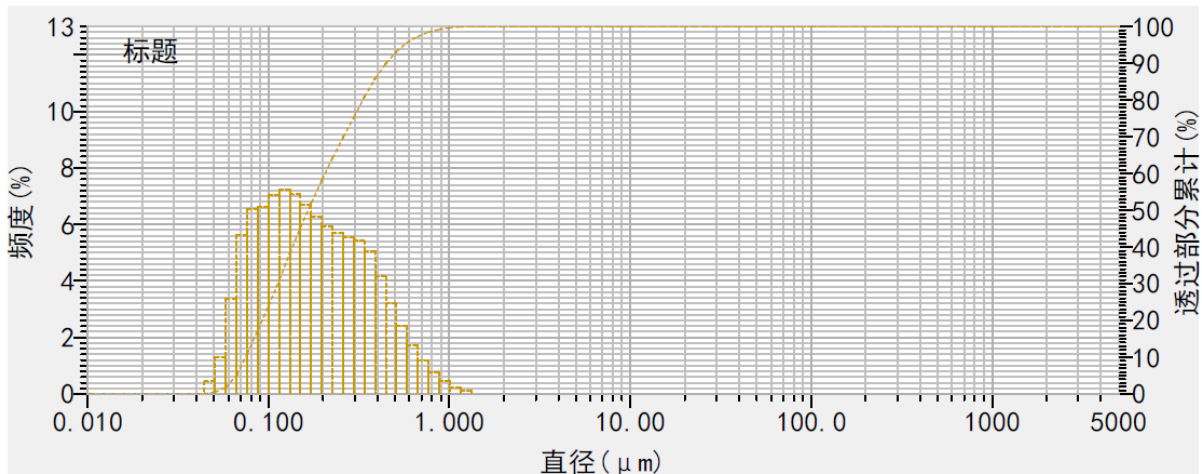
Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Surface finish	Polishing time (Min)	Typical Stock removal (mg)
9B	Japanese 1900W	80	Fixed	B270 (99.7x49.4x2.1mm)	15	10	Good	15	132

FYCA12

FYCA12 is specifically designed to reduce surface roughness versus conventional polishes. The smaller average particle size produces a higher surface quality with lower roughness, on both soft and hard glass compositions. The unique dispersion characteristics of the slurry improve the efficiency of use.

Parameters	Unit	Typical data	LSL	USL
CeO ₂ /TREO	wt%		60	
D50	um	0.17	0.15	0.3
D97	um	0.66	--	1
Solid Content	%	40%	39	41
PH	--	9	8	10

Typical PSD



Polishing parameters for reference:

Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Polishing time (Min)	Surface finish	Typical Stock removal (mg)
9B	Japanese 1900W	80	Fixed	B270 (99.7x49.4x2.1mm)	15	10	15	Good	111

FYCA13

FYCA13 is a cerium oxide slurry made of a rare earth mixture via special processing. It is formulated by advanced dispersion technology and designed to perform at high cut rates, with good surface quality.

Parameters	Unit	Typical data	LSL	USL
CeO ₂ /TREO	wt%		75	
D50	um	0.7	0.6	0.8
D97	um	4.3	--	5
Solid Content	%	40%	39	41
PH	--	9.5	8	10

Typical PSD (N/A at this moment)

Polishing parameters for reference:

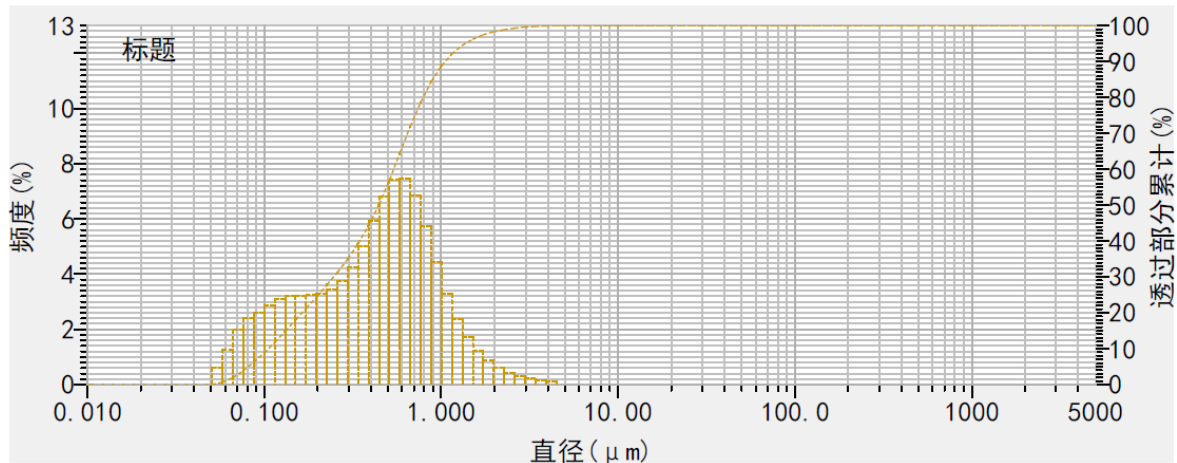
Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Polishing time (Min)	Surface finish	Typical Stock removal (mg)
9B	Japanese 1900W	80	Fixed	B270 (99.7x49.4x2.1mm)	15	10	15	Good	133

FYCA14

FYCA14 is derived from our FYCA13 product, with a smaller average particle size. The formulation is specially designed to improve the surface quality without sacrificing cut rate.

Parameters	Unit	Typical data	LSL	USL
CeO ₂ /TREO	wt%		75	
D50	um	0.5	0.3	0.5
D97	um	1.7	--	3
Solid Content	%	40%	39	41
PH	--	9.5	8	10

Typical PSD



Polishing parameters for reference:

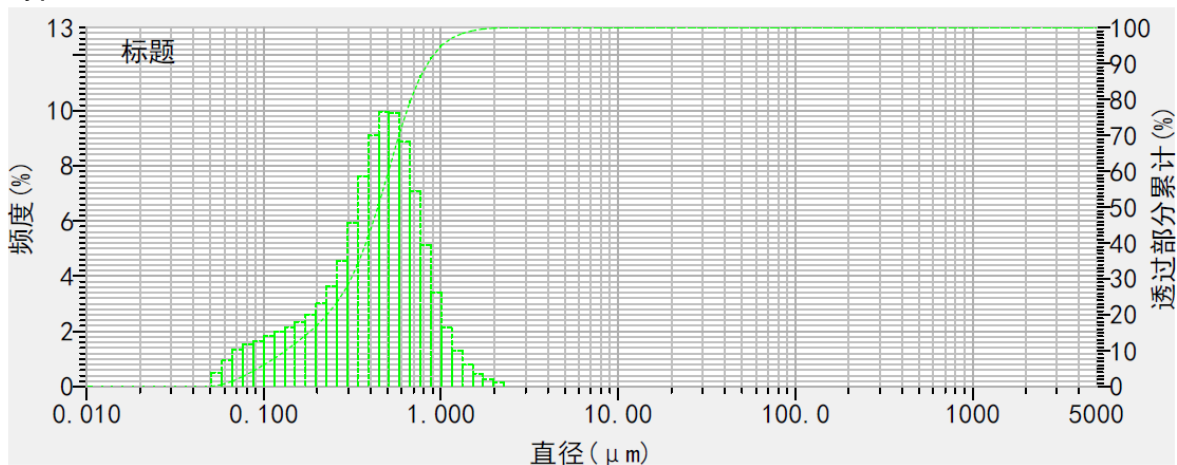
Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Polishing time (Min)	Surface finish	Typical Stock removal (mg)
9B	Japanese 1900W	80	Fixed	B270 (99.7x49.4x2.1mm)	15	10	15	Good	132

FYCA15

FYCA15 is a ceria polishing slurry made from a mixed rare earth precursor prepared using a special precipitation process. The formulation has the advantages of good dispersion, high cutting rate, easy cleaning and long life.

Parameters	Unit	Typical data	LSL	USL
CeO ₂ /TREO	wt%		75	
D50	um	0.45	0.35	0.55
D97	um	1.2	--	3
Solid Content	%	40%	39	41
PH	--	10	9	11

Typical PSD



Polishing parameters for reference:

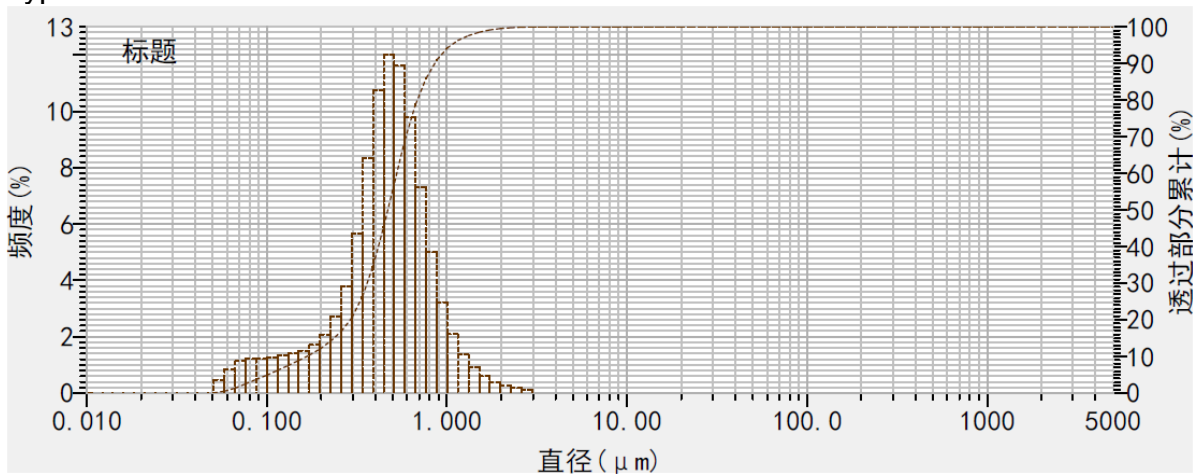
Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Polishing time (Min)	Surface finish	Typical Stock removal (mg)
Japanese 1900W	80	Fixed	B270 (99.7x49.4x2.1mm)	15	10	15	Good	143

FYCA17

FYCA17 is designed to polish high-precision optical glass to achieve high performance at a reasonable cost. The formulation offers improved surface quality without sacrificing stock removal rate.

Parameters	Unit	Typical data	LSL	USL
CeO2/TREO	wt%		60	
D50	um	0.47	0.4	0.6
D97	um	1.3	--	3
Solid Content	%	40%	39	41
PH	--	10.5	9	11

Typical PSD



Polishing parameters for reference:

Polisher	Polishing pad	Pressure (Kg)	Slurry flow rate	Glass polished	Plate rotation (rpm)	Slurry concentration (wt%)	Polishing time (Min)	Surface finish	Typical Stock removal (mg)
9B	Japanese 1900W	80	Fixed	B270 (99.7x49.4x2.1mm)	15	10	15	Good	115

Technical References

- Use the following pre-mixing method to increase polishing efficiency, reduce rework, reduce cerium oxide usage, and increase throughput:
 1. Calculate the mixing ratio according to the target slurry concentration (Baume). Please use warm water of 25-35 °C;
 2. Add the water to a clean container as calculated;
 3. Stir to disperse the ceria polishing solution;
 4. Weigh the ceria polishing liquid solution into the warm water according to the determined mix ratio and stir well;
 5. Add 250 mL of the mixed slurry to the measuring cylinder;
 6. Drop a hydrometer into the measuring cylinder to measure the Baume. Adjust the mixing ratio to get the target Baume reading if necessary. After each adjustment, steps 5 and 6 should be repeated until the target hydrometer reading is reached.

Note: The Baume of the mixed slurry should be measured every two hours or at least twice a day.

- We also recommend that pH should be monitored. Ceria slurry cut rates are optimized at high pH, and alkalinity may change during the polishing process. It is important to monitor and control pH during glass polishing, as some glass types can corrode when the pH range is not correct.