



Specification of Y TZ[®] GRINDING MEDIA



NIKKATO CORPORATION

1. Product Name

Y TZ[®] GRINDING MEDIA (Ball Type)

2. Specification

2.1 Chemical Composition

ZrO₂ + HfO₂ : 95.00 ± 0.50 wt%

Y₂O₃ : 5.00 +0.20/-0.60 wt%

2.2 Density

≥ 5.95 g/cm³

2.3 Hardness(HV1)

≥ 10.7 GPa

2.4 Wear rate

≤ 0.5 ppm/h

2.5 Crushing Load

Media Size(mm)	Crushing Load(kN)
φ0.1	≥ 0.007
φ0.2	≥ 0.018
φ0.3	≥ 0.04
φ0.4	≥ 0.10
φ0.5	≥ 0.15
φ0.65	≥ 0.20
φ0.8	≥ 0.30
φ1.0	≥ 0.40
φ1.25	≥ 0.70

Media Size(mm)	Crushing Load(kN)
φ1.5	≥ 1.0
φ1.75	≥ 1.4
φ2.0	≥ 2.0
φ2.3	≥ 2.4
φ2.7	≥ 2.8
φ3.0	≥ 4.0
φ4.0	≥ 6.5
φ5.0	≥ 9.0
φ10-25 *	≥ 9.0

*Each lot isn't measured but guaranteed.

2.6 Size Tolerance

Media Size(mm)	Tolerance(mm)
φ0.1	-0.02 , +0.03
φ0.2	-0.03 , +0.07
φ0.3	-0.01 , +0.07
φ0.4	-0.05 , +0.10
φ0.5	-0.05 , +0.15
φ0.65-0.8	-0.10 , +0.15

Media Size(mm)	Tolerance(mm)
φ1.0-2.3	± 0.15
φ2.7-3.0	± 0.2
φ4.0, 5.0	± 0.3
φ10-25	± 1.0



TOSOH

Specification of Y TZ[®] GRINDING MEDIA



NIKKATO CORPORATION

1. Product Name

Y TZ[®] GRINDING MEDIA (Cylinder Type)

2. Specification

2.1 Chemical Composition

ZrO₂ + HfO₂ : 95.00 +0.00/-1.00 wt%

Y₂O₃ : 5.00 +0.60/-0.20 wt%

2.2 Density

≥ 5.95 g/cm³

2.3 Hardness(HV1)

≥ 10.7 GPa

2.4 Wear rate

≤ 0.5 ppm/h

2.5 Size Tolerance

Media Size	Tolerance(mm)
Cylinder 3/8"	φ; ± 0.3, H; ± 0.5
Cylinder 1/2"	φ; ± 0.5, H; ± 0.7

3. Measuring Method

3.1 Chemical Composition

The chemical composition of the forming powder is analyzed by X-ray fluorescence method.

3.2 Density

Density is measured by the Archimedes method using the chemical balance.

3.3 Hardness

Hardness is measured by using the Vickers hardness tester at a minimum of 10 points.

3.4 Wear Rate

The wear rate is calculated by the weight loss of the media.

Test-A (For 5mm and smaller)

Mill type	Attrition mill
Mill lining	YTZ [®] material
Inter volume	650 cc
Media feed	400 cc
Water feed	300 cc (20-25°C)
Mill speed	400 rpm
Operating time	24 hours

Test-B (For 10mm and larger)

Mill type	Ball mill
Mill lining	YTZ [®] material
Internal volume	2000 cc
Media feed	1000 cc
Water feed	800 cc
Mill speed	100 rpm
Operating time	48 hours

3.5 Crushing Strength

Compressing one ball using the testing machine carries out the crushing strength test. The ball is put between two tungsten carbide plates, and is loaded at a crosshead speed of 0.5mm/min. The maximum pressure estimates crushing strength at the final fracture.

3.6 Size Tolerance

100 balls from each batch are measured by caliper and/or image analysis for size tolerance.



TOSOH

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YTZ[®] Grinding Media is produced for normal industrial particle size reduction and dispersion applications. Best results are obtained when used in wet processes. The use of YTZ[®] in applications other than milling or dispersion, for example as a structural component or implant device, is not recommended.

YTZ[®] GRINDING MEDIA CONSISTS OF BALL/CYLINDER-SHAPED PIECES. UNSAFE FOOTING CONDITION MAY EXIST IF SPILLED. THIS MATERIAL, WHEN PRESENT IN < 1 MM SIZE, MAY PRESENT AN INHALATION HAZARD AS IT IS A FINE BEAD LIKE SUBSTANCE WHICH SHOULD NOT BE INHALED. REFER TO MSDS FOR MORE INFORMATION.

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