PRODUCT CATALOGUE / / / CAT-005

High-Purity Yttrium Oxide

YOX-40

Fine, *reactive,* clean.

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POSITION / / / CAT-005

Even distribution is a **powder** problem.

HIGH-PURITY Y_2O_3 / / / 4N / / / FINE CALCINED POWDER / / / SINTERING & SYNTHESIS GRADE

A sintering aid or a yttria source works at low addition levels, so the way it distributes matters as much as its chemistry. YOX-40 is a high-purity yttrium oxide powder for ceramic formulation and chemical synthesis, produced by a wet-chemical route and calcined to a fine cubic Y_2O_3.

Primary crystallites of about 0.1 to 0.25 µm are supplied as soft agglomerates with a median size of 0.5 to 1.5 µm after wet dispersion. The powder disperses readily in aqueous and organic slurries and reacts cleanly in solid-state and co-precipitation syntheses.

01 / / / PURITY

Purity

≥ 99.99% on a total oxide basis (4N) and ≥ 99.995% Y_2O_3/TREO. Non-rare-earth impurities are controlled to published limits and reported on every batch.

02 / / / PARTICLE

Particle

Agglomerate D50 0.5 to 1.5 µm, D90 ≤ 5 µm, specific surface area 5 to 15 m²/g by BET. Cubic Y_2O_3 (bixbyite), no secondary phase detected by XRD.

SPECIFIED PER CUSTOMER PROCESS

- Surface area, adjustable between approximately 3 and 25 m²/g
- Tighter limits for individual elements
- Coarser calcined grades and granulated press-ready powder



STR-TDS-YOX-40 / / / YOX-40

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SPECIFICATION / / / STR-TDS-YOX-40

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STATUS

Preliminary. This sheet is a target specification issued for product qualification. Limits shown are the design targets of the development programme; measured values for each delivery are reported on the batch Certificate of Analysis, which takes precedence over this document.

DELIVERY AND HANDLING

- Dry, white, fine powder; soft agglomerates that break down under mild milling or ultrasonic dispersion.
- 100 g, 1 kg and 5 kg HDPE containers; 25 kg fibre drum with PE liner. Screw or locking lid with tamper-evident seal. Batch and revision on the label.
- Sealed, dry, 5 to 35 °C, away from direct sunlight; reseal immediately after use. 2 years sealed.
- Measured values for each delivery are reported on the batch Certificate of Analysis. SDS available on request.

KEY DATA · TARGET

PURITY, Y_2O_3	≥ 99.99% (4N)
PHASE	cubic, single phase
MORPHOLOGY	fine, soft agglomerates
D50, AGGLOMERATE	0.5 to 1.5 µm
PRIMARY CRYSTALLITE	0.1 to 0.25 µm
D90	≤ 5 µm
SPECIFIC SURFACE, BET	5 to 15 m^2/g
LOSS ON IGNITION	≤ 1.0%
RESIDUAL CARBON	reported on CoA

FULL TARGET SPECIFICATION / / / STR-TDS-YOX-40

NOTES

- Particle size is measured by laser diffraction in aqueous suspension after standard ultrasonic dispersion; the D50 describes soft agglomerates, which break down further under slurry milling.
- Primary crystallite size is derived from BET and confirmed by SEM.
- Sintering behaviour, densification and optical properties depend on the host system, forming method and firing schedule and are not specified here.
- Sample quantities for evaluation: 100 g to 1 kg.

APPLICATIONS / / / CAT-005

In service

YOX-40



SINTERING AID FOR Si_3N_4, ALN, SIALON

INDUSTRY



TRANSPARENT Y_2O_3 AND YAG CERAMICS

INDUSTRY



SPUTTERING TARGET FEEDSTOCK

SEMICONDUCTOR EQUIPMENT

USE CASES

- Sintering aid for Si_3N_4, AlN and SiAlON structural and substrate ceramics
- Yttria source for YSZ, YAG and yttrium-silicate (EBC) formulations
- Transparent Y_2O_3 and YAG ceramics, laser hosts
- Phosphor and scintillator precursors
- Sputtering target and ceramic-target feedstock
- Crucibles, setters and release coatings for reactive-metal melting

Images are illustrative. Strocera supplies the powder; forming, firing and spraying stay on your line.

REQUIREMENT AND RESPONSE / / / CAT-005

What it **answers**

YOX-40

The left column is the problem on your side. The right column names the sector that carries the application.

REQUIREMENT	MATERIAL RESPONSE	SECTOR
A sintering aid that distributes evenly	Agglomerate D50 0.5 to 1.5 µm, D90 ≤ 5 µm, oversize above 20 µm ≤ 0.5% by volume. Disperses in aqueous and organic slurries.	INDUSTRY
A starting powder for transparent ceramics	Cubic Y_2O_3 with no secondary phase detected by XRD, ≥ 99.99% (4N), Y_2O_3/TREO ≥ 99.995%.	INDUSTRY
A target powder with published limits	≤ 100 ppm total impurities. NiO, CuO, Cr_2O_3, TiO_2 and ZnO ≤ 2 ppm each, other rare-earth oxides ≤ 50 ppm.	SEMICONDUCTOR EQUIPMENT
A reactive yttria source for synthesis	Specific surface area 5 to 15 m²/g, adjustable on request between approximately 3 and 25 m²/g.	INDUSTRY

PROCESS / / / CAT-005

Specification first

YOX-40

FORMULATION / / / CHARACTERIZATION / / / QUALIFICATION / / / DELIVERY

01 / / / FORMULATION

Formulation

Your specification is the starting point. Tighter limits for individual elements and particle options are agreed against your process.

02 / / / CHARACTERIZATION

Characterization

Impurities by ICP-MS and ICP-OES, phase by X-ray diffraction, particle size by laser diffraction, morphology by FE-SEM, to the methods named on the datasheet.

03 / / / QUALIFICATION

Qualification

Limits are target values for qualification batches. Sample quantities for evaluation: 100 g to 1 kg.

04 / / / DELIVERY

Delivery

HDPE containers and PE-lined fibre drums with tamper-evident seals. Batch and revision on the label. Measured values on the batch Certificate of Analysis.

Strocera

Bring your *specification*.

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FULL SPECIFICATION / / / STR-TDS-YOX-40