/ / / SAFETY DATA SHEET

YOX-40 High-Purity Yttrium Oxide

Prepared in accordance with Regulation (EC) No 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2020/878

Product code	Revision	Issue date	Language
YOX-40	Rev 1.0	2 November 2026	English

SECTION 1 Identification of the substance or mixture and of the company or undertaking

Product identifier	YOX-40 High-Purity Yttrium Oxide. Yttrium oxide. CAS 1314-36-9, EC 215-233-5.
Relevant identified uses	Ceramic formulation and chemical synthesis: sintering aid and grain-boundary phase former in Si_3N_4, AlN and SiAlON ceramics; yttria source for YSZ, YAG and yttrium-silicate formulations; starting powder for transparent ceramics, phosphors and sputtering targets. Industrial and professional use only.
Uses advised against	Not for pharmaceutical, food or cosmetic use. Not for consumer sale.
Details of the supplier of the safety data sheet	Sabanci University Faculty of Engineering and Natural Sciences Universite Caddesi No: 27, Orhanli-Tuzla, 34956 Istanbul, Turkiye ekin.felek@strocera.com Manufacturing site: Sabanci University, Orhanli-Tuzla, 34956 Istanbul, Turkiye
Emergency telephone number	Turkiye National Poison Information Centre (UZEM): 114 (24 h) Outside Turkiye: contact the national poison centre of the country of use.

SECTION 2 Hazards identification

2.1 Classification of the substance or mixture

The product is not classified as hazardous according to Regulation (EC) No 1272/2008 (CLP).

2.2 Label elements

No hazard pictogram, signal word or hazard statement is required under CLP.

Precautionary statements

P260 Do not breathe dust. · P280 Wear eye protection. · P284 In case of inadequate ventilation, wear respiratory protection. (Advisory only, not required by CLP for this product.)

2.3 Other hazards

The product is a fine, partly respirable dust. Although not classified, airborne dust may cause mechanical irritation of the eyes and the upper respiratory tract. No constituent is present on the Candidate List of substances of very high concern. The product does not meet the criteria for PBT or vPvB.

SECTION 3 Composition and information on ingredients

Substance. Yttrium oxide, cubic phase.

Constituent	CAS No.	EC No.	Concentration	Classification (CLP)
Yttrium oxide (Y_2O_3)	1314-36-9	215-233-5	≥ 99.99% (4N), total oxide basis, target	Not classified

SECTION 4 First aid measures

General	Move the affected person away from the dust source. If symptoms persist, seek medical advice and show this safety data sheet.

Inhalation	Move to fresh air and keep at rest in a position comfortable for breathing. Rinse the mouth and nose with water. Seek medical advice if respiratory discomfort continues.
Skin contact	Brush off the dry powder, then wash with soap and water. Seek medical advice if irritation persists.
Eye contact	Do not rub. Rinse cautiously with water for at least 15 minutes, holding the eyelids open. Remove contact lenses if present and easy to do. Seek medical advice if irritation persists.
Ingestion	Rinse the mouth with water. Do not induce vomiting. Seek medical advice if a significant quantity has been swallowed.
Note to physician	Treat symptomatically. No specific antidote is known.

SECTION 5 Firefighting measures

Extinguishing media	The product is non-combustible. Use extinguishing media appropriate to the surrounding fire. Avoid methods that raise dust clouds.
Special hazards	The product does not burn. No hazardous decomposition products are expected under fire conditions.
Advice for firefighters	Wear self-contained breathing apparatus and protective equipment appropriate to the surrounding fire.

SECTION 6 Accidental release measures

Personal precautions	Avoid raising dust. Wear the protective equipment specified in Section 8. Ensure adequate ventilation.
Environmental precautions	Prevent entry into drains, surface water and groundwater.
Containment and cleaning	Clean by vacuum or wet methods. Do not dry sweep and do not use compressed air. Place collected material in a labelled, closed container for disposal or recovery.

SECTION 7 Handling and storage

Handling	Handle in a ventilated area and minimise dust generation. Keep containers closed when not in use.
Hygiene	Do not eat, drink or smoke in the working area. Wash hands before breaks and at the end of work.
Storage	Sealed, dry, 5 to 35 °C, away from direct sunlight. Reseal immediately after use. Shelf life 2 years sealed. Y_2O_3 is mildly hygroscopic and slowly forms surface hydroxide and carbonate in humid air; re-calcine at 600 to 800 °C for 2 h if uptake is suspected.
Specific end uses	See Section 1.

SECTION 8 Exposure controls and personal protection

8.1 Occupational exposure limits

Parameter	Limit value	Note

Yttrium and compounds, as Y	1 mg/m³ (8 h TWA)	US OSHA reference value; verify against the national limit in the country of use
General dust, inhalable and respirable	10 mg/m³ inhalable, 4 mg/m³ respirable (8 h TWA)	General inert dust limit; verify against the national limit in the country of use

8.2 Exposure controls

Engineering controls	Use local exhaust ventilation at points where dust may be released.
Respiratory protection	FFP2/FFP3 respiratory protection when weighing, transferring or dispersing the powder.
Hand protection	Gloves.
Eye and face protection	Safety glasses.
Skin and body protection	Standard work clothing. Wash contaminated clothing separately.

SECTION 9 Physical and chemical properties

Physical state	Dry, white, fine powder; soft agglomerates
Colour	White
Odour	Odourless
pH	Not determined
Melting point	Approx. 2 425 °C (literature)
Flash point	Not applicable, inorganic solid
Flammability	Non-combustible
Relative density	5.01 g/cm³ (literature)
Bulk density	Approx. 0.6 to 1.0 g/cm³ loose (typical, not a limit)
Solubility in water	Insoluble
Oxidising properties	None
Particle size	D10 ≥ 0.2 µm, agglomerate D50 0.5 to 1.5 µm, D90 ≤ 5 µm (target, laser diffraction, wet). Primary crystallite size 0.1 to 0.25 µm (BET-equivalent, target).
Particle shape	Equiaxed sub-micron crystallites in soft agglomerates
Specific surface area	5 to 15 m²/g (target, BET)

SECTION 10 Stability and reactivity

Reactivity	Not reactive under normal conditions of handling and storage.
Chemical stability	Stable under the recommended storage conditions. Mildly hygroscopic; slowly forms surface hydroxide and carbonate in humid air.
Hazardous reactions	None known.
Conditions to avoid	Conditions that generate airborne dust; moisture.
Incompatible materials	Soluble in acids. None known under normal conditions of use.

Hazardous decomposition products	None known.

SECTION 11 Toxicological information

Acute oral toxicity	No data on the product. Yttrium oxide: LDLo oral, rat, above 10 000 mg/kg. Not classified.
Acute dermal and inhalation toxicity	No data on the product. Not classified.
Skin and eye	Not classified. Dust may cause mechanical irritation.
Sensitisation, mutagenicity, carcinogenicity, reproductive toxicity	No data on the product. Not classified.
STOT	Not classified. High airborne dust concentrations may cause transient irritation of the upper respiratory tract.
Nanoform information	A number-based particle size distribution has not been determined. Primary crystallite size is specified at 0.1 to 0.25 µm (BET-equivalent, target), with soft agglomerates of 0.5 to 1.5 µm.

SECTION 12 Ecological information

Toxicity	No aquatic toxicity data are available for the product.
Persistence and degradability	Inorganic; biodegradability methods are not applicable.
Bioaccumulative potential	No data.
Mobility in soil	Solid powder, insoluble in water.
PBT and vPvB assessment	The product does not contain substances assessed as PBT or vPvB.

SECTION 13 Disposal considerations

Waste treatment	Dispose of the product and its container in accordance with national and local regulations. Avoid generating dust.
Waste code	Assigned by the user according to the origin of the waste and the applicable national waste list.

SECTION 14 Transport information

Not classified as dangerous goods (IATA DGR, IMDG). HS code 2846.90. UN number, proper shipping name, hazard class and packing group: not applicable.

SECTION 15 Regulatory information

The product is not subject to authorisation under REACH Annex XIV and is not restricted under REACH Annex XVII. No constituent appears on the Candidate List. A chemical safety assessment has not been carried out.

SECTION 16 Other information

16.1 Revision

This is revision 1.0 of this safety data sheet, issued on 2 November 2026. This is the first issue; no previous revision exists.

16.2 Sources

Datasheet STR-TDS-YOX-40. Regulation (EC) No 1907/2006 (REACH) as amended. Regulation (EC) No 1272/2008 (CLP) as amended. Published data for yttrium oxide. Values marked as target are design targets for qualification batches; measured values are reported on the batch Certificate of Analysis.