

Tabular Alumina — Technical Data Sheet

Revision: 2025-01 ISO 9001 Certified viseray.com

1. PRODUCT DESCRIPTION

AF-T tabular alumina is produced by sintering high-purity calcined alumina at temperatures approaching 1900°C in vertical shaft kilns. The resulting product features large, well-developed tabular (platelet-shaped) alpha-Al₂O₃ crystals with low open porosity, high bulk density, and exceptional thermal shock resistance.

2. CHEMICAL COMPOSITION

PARAMETER	AF-T-1	TYPICAL
Al ₂ O ₃	≥ 99.4%	99.5%
Na ₂ O (total)	≤ 0.25%	0.15%
Fe ₂ O ₃	≤ 0.05%	0.03%
SiO ₂	≤ 0.10%	0.06%
CaO	≤ 0.06%	0.03%
Alpha-Al ₂ O ₃	≥ 98%	99%

3. PHYSICAL PROPERTIES

PARAMETER	AF-T-1
Bulk density (pellets)	≥ 3.50 g/cm ³
Apparent porosity	≤ 5.0%
Water absorption	≤ 1.5%
Refractoriness (PCE)	> 1850°C (Orton cone 39+)
Thermal expansion (20–1000°C)	~8.0 × 10 ⁻⁶ /K
Thermal conductivity (400°C)	~6 W/(m·K)
Grain shape	Tabular (platelet)

4. SIZE FRACTIONS AVAILABLE

FRACTION	SIZE RANGE	TYPICAL USE
K1 (fine)	0–0.5 mm	Matrix fines, low-cement castables
K2 (medium-fine)	0.5–1.5 mm	Intermediate aggregate
K3 (medium)	1.5–3.0 mm	Coarse aggregate, slide gates
K4 (coarse)	3.0–5.0 mm	Coarse aggregate, purging plugs
Pellets	> 6 mm	Crush-to-size for custom fractions
Fine grades	D50 7–40 µm	Micro-filler, available on request

5. APPLICATIONS

- Steel ladle refractories (castables, bricks, well blocks)
- Slide gate plates and purging plugs
- High-alumina low-cement and ultra-low cement castables
- Petrochemical reactor linings
- Glass furnace bottom and sidewall refractories

6. PARTICLE PACKING RECOMMENDATIONS

Optimal packing in refractory castables is achieved with a modified Andreasen or Dinger-Funk distribution ($q = 0.26–0.30$). Typical aggregate blend: 40% K3/K4, 25% K2, 20% K1, 15% fines ($<45\ \mu\text{m}$). Contact our technical team for formulation support.

7. PACKAGING & STORAGE

- 25 kg paper sacks on pallets (standard for fractions $\leq 3\ \text{mm}$)
- 1000 kg big bags (standard for all fractions)
- Bulk shipment in container liners available
- Store in dry conditions; protect from moisture
- Shelf life 36 months in unopened original packaging

8. SAFETY

Non-hazardous under REACH and OSHA HCS. Avoid dust inhalation. Coarse fractions pose low inhalation risk; fine fractions require standard dust protection. Full SDS available on request.