LOW CEMENT HIGH ALUMINA CASTABLE

LCC & ULCC Series · Al_2O_3 70–90% · Cement Kiln Zones · 1500°C – 1750°C

PRODUCT OVERVIEW

Vuulcan LCC Series are low cement and ultra-low cement high alumina castables engineered for cement rotary kiln zones. CaO content ≤ 2.5% (LCC) or ≤ 1.0% (ULCC) with optimized particle grading ensures controlled water demand, superior density, and extended lining life. Zone-specific formulations from feed end to burning zone. Factory-direct from Zibo refractory cluster with 60+ years heritage.

KEY FEATURES

- ✓ Low/Ultra-low cement content — superior hot strength
- ✓ Al_2O_3 70–90% — five zone-mapped grades
- ✓ Controlled water demand — consistent installation density
- ✓ Anti-alkali & wear-resistant variants available
- ✓ Full COA every shipment — batch traceability
- ✓ 12–18 month lining life in high-wear zones

TECHNICAL SPECIFICATIONS (5 GRADES)

GRADE	AL_2O_3	BULK DENSITY	CCS (110°C)	CCS (1450°C)	MAX SERVICE TEMP	TYPICAL APPLICATION
LCC-70	≥ 70%	2.65 g/cm³	≥ 70 MPa	≥ 50 MPa	1500°C	Feed end, precalciner lower
LCC-80	≥ 80%	2.80 g/cm³	≥ 80 MPa	≥ 60 MPa	1600°C	Preheater, riser duct
LCC-85	≥ 85%	2.85 g/cm³	≥ 90 MPa	≥ 70 MPa	1650°C	Transition zone, tertiary air
ULCC-85	≥ 85%	2.90 g/cm³	≥ 110 MPa	≥ 85 MPa	1700°C	High-wear cooler sections
ULCC-90	≥ 90%	2.95 g/cm³	≥ 120 MPa	≥ 95 MPa	1750°C	Critical hot zones, nose ring

CHEMICAL COMPOSITION (TYPICAL VALUES)

GRADE	AL_2O_3	CAO	FE_2O_3	SIO_2	LINEAR CHANGE (1450°C, 3H)
LCC-70	70–75%	≤ 2.5%	≤ 1.5%	22–26%	-0.5 ~ +0.2%
LCC-80	80–85%	≤ 2.5%	≤ 1.2%	13–17%	-0.4 ~ +0.2%
LCC-85	85–88%	≤ 2.5%	≤ 1.0%	10–13%	-0.3 ~ +0.2%
ULCC-85	85–88%	≤ 1.0%	≤ 0.8%	10–13%	-0.2 ~ +0.1%
ULCC-90	≥ 90%	≤ 1.0%	≤ 0.6%	7–9%	-0.2 ~ +0.1%

CEMENT KILN ZONE MAPPING

FEED END / INLET	TRANSITION ZONE	BURNING ZONE*	COOLER / DISCHARGE
800–1200°C	**1200–1450°C**	**1450–1600°C**	**800–1200°C**
LCC-70	LCC-85	Mag-Spinel	ULCC-85
Alkali-resistant	Thermal shock	Brick required	Wear-resistant

* Burning zone typically requires magnesia-spinel brick. Vuulcan can include this in combined kiln lining proposals.

INSTALLATION & CURING PARAMETERS

GRADE	WATER ADDITION	MIX TIME	WORKING TIME	DEMOLD TIME	CURING (110°C)
LCC-70	7.0–8.0%	3–5 min	30 min	8–12 hr	24 hr
LCC-80	6.5–7.5%	3–5 min	30 min	8–12 hr	24 hr
LCC-85	6.0–7.0%	3–5 min	25 min	10–14 hr	24 hr
ULCC-85	5.5–6.5%	4–6 min	20 min	12–16 hr	24 hr
ULCC-90	5.0–6.0%	4–6 min	20 min	12–16 hr	24 hr

Critical: Water content must be strictly controlled. Excess water (>1% above range) reduces density by 8–12% and accelerates wear. Installation guidance included with every order.

QUALITY CONTROL & TESTING (PER BATCH)

1	Al_2O_3, CaO, Fe_2O_3 chemical analysis	ASTM C401	**2**	Bulk density after 110°C drying	GB/T 23294
3	Cold crushing strength (110°C, 1450°C)	ASTM C133	**4**	Linear change after heat treatment	GB/T 5988
5	Water demand & flow value	ASTM C860	**6**	Abrasion resistance (wear-resistant grades)	ASTM C704

APPLICABLE STANDARDS & CERTIFICATIONS

PRIMARY STANDARD	CHINESE NATIONAL	QUALITY SYSTEM
ASTM C401	GB/T 23294	ISO 9001:2015
TEST METHODS	**THIRD-PARTY**	**DOCUMENTATION**
ASTM C133, C860	SGS (available)	Full COA per batch

ISO 9001 · ASTM C401 · GB/T 23294 · COA INCLUDED · SGS VERIFIED

ORDERING INFORMATION

Model nomenclature: `VRF – LCC-85 – AK – WR`

VRF = Vuulcan Refractory · **LCC/ULCC-XX** = Grade (70/80/85/90) · **AK** = Anti-alkali / **ST** = Standard · **WR** = Wear-resistant / **TS** = Thermal-shock optimized

Packaging: 25kg woven bags, 40 bags/pallet, 25 tons/FCL (1000 bags) · **Lead Time:** 25–35 days production + shipping · **MOQ:** 10 tons/grade · **Pricing:** FOB Qingdao or CIF destination · **Contact:** inquiry@vuulcan.com · WhatsApp: +86 130 5488 5665