COAL MARKET & GRADE REPORT · PAKISTAN

Coal grades supplied in Pakistan: specifications, comparison and market notes

Prepared by Essa Energy Resources (Private) Limited, Lahore · Issued October 2026

This report sets out the main coal grades available to industrial buyers in Pakistan — imported South African RB2, Indonesian thermal coal and Tanzania-origin cargoes, local Pakistan coal, low-sulphur Zardalo, low-volatile Iranian coal with sulphur at or below 1%, and Afghan coal (supply currently suspended) — with typical specifications, our own lot analyses, published quality data and how each grade fits cement and boiler use.

Market snapshot

- South Africa supplied about 83.3% of Pakistan's coal import value in Jan–Jun 2026, followed by Indonesia (10.5%), the United States (3.2%), Tanzania (2.1%) and Iran (0.7%) [3].
- Bituminous coal (HS 2701.12) made up about 93.8% of import value, and sub-bituminous and other coal (HS 2701.19) about 6.0% [3].
- Imports rose to about 7.1 million tonnes in the first nine months of FY2025-26, from 4.5 million a year earlier. Imported coal reached about US$110/t FOB by March 2026, around 22% higher year on year [3].
- Delivered prices for Pakistan are assessed on a CFR basis at Port Qasim, normalised to 5,750 kcal/kg NAR [9].
- The Pakistan–Afghanistan border closed on 11 Oct 2025, halting Afghan coal imports. Northern cement producers moved to South African, Indonesian and Mozambican coal, and some began importing RB2 [4].

Grade comparison

Grade	Calorific value	Sulphur	Ash	Moisture	Availability	Best for
South African RB2	5,500 NAR	≤ 1.0%	≤ 24%	≤ 15%	Regular (sea)	Cement kilns, boilers
Indonesian ICI-2 (5,800 GAR)	≈ 5,500 NAR	0.8 – 1.0%	8 – 10%	15 – 18%	Regular (sea)	Boilers, low-sulphur blend
Indonesian ICI-4 (4,200 GAR)	≈ 3,800 NAR	≈ 0.6%	≈ 7%	≈ 35%	Regular (sea)	Low-cost boiler heat
Tanzania cargo	per CoA (≥ 5,500 NAR)	≤ 1.0% target	≤ 20% target	≤ 15% target	Occasional	RB2 alternative
Pakistan local 5,000+	5,000+ ARB	3 – 6%	10 – 25%	4 – 13%	Regular (road)	Blending, local industry
Zardalo (lab lot)	6,229 ARB	2.3% (≤ 2.5%)	20.6%	4.5%	Regular (road)	High-heat local, low moisture
Iranian ≤ 1% S	6,000 – 7,000	≤ 1.0%	25% spec	≤ 5%	Limited (Gabd)	High heat, blending
Afghan	6,000 – 6,800 GCV	< 1%	8 – 14%	6 – 10%	Suspended (border)	Northern cement kilns

Imported grades: typical commercial or index values. Local and selected grades: Essa Energy offered limits per lot. Tanzania: buyer acceptance window.

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How to read the grades

- **Heat value basis matters.** NAR (net as received) is lower than GAR (gross as received): 5,800 GAR ≈ 5,500 NAR for Indonesian coal [8]. Compare grades on the same basis.
- **Sulphur drives kiln and boiler performance and emissions.** Imported RB2 and Indonesian coal stay at or below about 1%; most local coal runs 3–6%. Zardalo tested at 2.3%, and Iranian coal is offered at 1% or less.
- **Moisture lowers delivered heat.** Low-GAR Indonesian coal carries about 35% total moisture [7], so more tonnes are needed for the same heat.
- **Blending** RB2 or Indonesian coal with local coal balances cost and sulphur.

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IMPORTED · FLAGSHIP GRADE

South African RB2

The benchmark imported thermal coal for Pakistani cement kilns and industrial boilers: a known 5,500 kcal/kg NAR band with sulphur at or below 1%.

ORIGIN	RANK	SUPPLY
South Africa	**Bituminous steam coal**	**Regular**

Source area: Mpumalanga coalfields, shipped via Richards Bay Coal Terminal. **Supply:** Regular — seaborne to Port Qasim / Karachi, then by road.

Specification

Parameter	Basis	Typical	Range / limit	Test method
Calorific value	NAR	5,500 kcal/kg	5,300 – 5,700 kcal/kg	ASTM D5865 / ISO 1928
Calorific value (approx.)	GAR	≈ 5,850 kcal/kg	5,650 – 6,050 kcal/kg	ASTM D5865 / ISO 1928
Total moisture	ARB	12%	15% max	ASTM D3302 / ISO 589
Inherent moisture	ADB	3.5%	5% max	ASTM D3173
Ash	ADB	21%	24% max	ASTM D3174 / ISO 1171
Volatile matter	ADB	24%	22 – 28%	ASTM D3175 / ISO 562
Total sulphur	ADB	0.8%	1.0% max	ASTM D4239 / ISO 19579
Hardgrove grindability	—	52	45 – 65 HGI	ASTM D409
Ash fusion (IDT, reducing)	—	1,280 °C	1,250 °C min	ASTM D1857 / ISO 540
Size	—	0 – 50 mm	90% min passing 50 mm	ASTM D4749

Typical commercial specification for South African 5,500 NAR steam coal. Final quality per load-port certificate of analysis (CoA).

Latest Essa Energy lot analysis [19]

SFTS report SFTS/4376/826 (RB2, tested 01 Oct 2026)

Total moisture (ARB)	Inherent moisture (ADB)	Volatile matter (ADB)	Ash (ADB)	Fixed carbon (ADB)	Total sulphur (ADB)	Gross calorific value (ADB)
9.2%	2.3%	24.9%	16.5%	56.3%	0.87%	6,106 kcal/kg

Lot well inside the RB2 specification: sulphur 0.87% (limit 1.0%) and ash 16.5% (limit 24%). 6,106 kcal/kg air-dried ≈ 5,675 kcal/kg gross as received at 9.2% total moisture.

Best suited for: Cement kilns (main fuel) · Industrial and process boilers · Base coal for blending with lower-cost local coal

Market notes

- South African grades are named by NAR: RB1 ≈ 6,000, RB2 ≈ 5,500 and RB3 ≈ 4,800 kcal/kg NAR [5].
- South Africa supplied about 83% of Pakistan's coal import value in Jan–Jun 2026 [3].
- After the Afghan border closed on 11 Oct 2025, northern cement producers moved to imported coal and some began importing RB2 [4].

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IMPORTED · FLEXIBLE GAR RANGE

Indonesian Thermal Coal

Traded as five named grades, ICI-1 to ICI-5, by heat value (GAR). Low sulphur and low ash; moisture rises as the grade falls. ICI-2 (5,800 GAR) is the closest match to RB2 on net heat.

ORIGIN	RANK	SUPPLY
Indonesia	**Sub-bituminous to bituminous**	**Regular**

Source area: Kalimantan and Sumatra mines, shipped from Kalimantan / Sumatra anchorages. **Supply:** Regular — seaborne, grade chosen by GAR band.

Indonesian grades (ICI-1 to ICI-5)

Grade	GAR (kcal/kg)	NAR (approx.)	Total moisture	Ash	Sulphur	Basis
ICI-1	6,500	≈ 6,200	12 – 15%	≤ 13%	≤ 1.0%	Typical offer
ICI-2	5,800	≈ 5,500	15% (15 – 18%)	8% (8 – 10%)	0.8% (0.8 – 1.0%)	Index spec [6]
ICI-3	5,000	≈ 4,600	25 – 30%	≤ 8%	≤ 0.8%	Typical offer
ICI-4	4,200	≈ 3,800	35%	7%	0.6%	Index spec [7]
ICI-5	3,400	≈ 3,000	40 – 45%	≤ 6%	≤ 0.5%	Typical offer

Specification

Parameter	Basis	Typical	Range / limit	Test method
Volatile matter	ADB	38%	35 – 45%	ASTM D3175 / ISO 562
Total sulphur	ARB	0.6 – 0.8%	≤ 1.0%	ASTM D4239 / ISO 19579
Hardgrove grindability	—	45	38 – 55 HGI	ASTM D409
Size	—	0 – 50 mm	90% min passing 50 mm	ASTM D4749

Calorific value, moisture, ash and sulphur by band are in the table above (index specification where cited, otherwise typical offers). Final quality per CoA.

Best suited for: Boilers and mixed industrial use · Blending to lower sulphur · Cost-sensitive heat demand (lower GAR bands)

Market notes

- Like South Africa's RB1 / RB2 / RB3, Indonesian coal is traded as named grades — ICI-1 to ICI-5 of the Indonesian Coal Index: 6,500 GAR ≈ 6,200 NAR · 5,800 ≈ 5,500 · 5,000 ≈ 4,600 · 4,200 ≈ 3,800 · 3,400 ≈ 3,000 [8].
- Platts 5,800 GAR basis: TM 15% (15–18), ash 8% (8–10), sulphur 0.8% (0.8–1.0) [6]. Kalimantan 4,200: TM 35%, ash 7%, sulphur 0.6% [7].
- Indonesia supplied about 10.5% of Pakistan's coal import value in Jan–Jun 2026 [3].

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IMPORTED · CARGO-SPECIFIC

Tanzania-Origin Cargo

An emerging origin now visible in Pakistan's import data. There is no single published Tanzanian export grade, so every parcel is checked against the buyer's window below.

ORIGIN	RANK	SUPPLY
Tanzania	**Bituminous / sub-bituminous by source**	**Occasional parcels**

Source area: southern basins (Ruvuma / Ngaka, Songwe–Mbeya), exported via Mtwara and Dar es Salaam. **Supply:** Occasional parcels — each cargo evaluated on its own CoA.

Specification

Parameter	Basis	Typical	Range / limit	Test method
Calorific value	NAR	per cargo CoA	5,500 kcal/kg min (buyer target)	ASTM D5865 / ISO 1928
Total moisture	ARB	per cargo CoA	15% max (buyer target)	ASTM D3302 / ISO 589
Ash	ADB	per cargo CoA	20% max (buyer target)	ASTM D3174 / ISO 1171
Volatile matter	ADB	per cargo CoA	22% min (buyer target)	ASTM D3175 / ISO 562
Total sulphur	ADB	per cargo CoA	1.0% max (buyer target)	ASTM D4239 / ISO 19579
Size	—	0 – 50 mm	90% min passing 50 mm	ASTM D4749

Buyer acceptance window — each cargo is offered only with a matching load-port CoA.

Best suited for: Cement kilns and boilers when a cargo meets the window · Alternative to RB2 when prices favour it

Market notes

- Tanzania supplied about 2.1% of Pakistan's coal import value in Jan–Jun 2026, under both bituminous and sub-bituminous codes [3].
- The Ngaka project (Ruvuma) was developed with export routes via Mtwara [11].
- The window on this sheet is a buyer acceptance target for cement and boiler use, not a published origin standard.

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LOCAL · INLAND SUPPLY

Pakistan Local Coal (5,000+)

Inland coal for blending and cost-sensitive heat demand. Good heat value, but sulphur is higher and varies by mine.

ORIGIN	RANK	SUPPLY
Pakistan	**Sub-bituminous**	**Regular**

Source area: Balochistan (Sor Range–Degari, Duki, Mach, Khost–Sharigh–Harnai) and Punjab (Salt Range, Makarwal). **Supply:** Regular — by road from the mines.

Specification

Parameter	Basis	Typical	Range / limit	Test method
Gross calorific value	ARB	5,500 kcal/kg	5,000 kcal/kg min	ASTM D5865 / ISO 1928
Total moisture	ARB	8%	4 – 13%	ASTM D3302 / ISO 589
Ash	ADB	18%	10 – 25%	ASTM D3174 / ISO 1171
Volatile matter	ADB	38%	30 – 45%	ASTM D3175 / ISO 562
Total sulphur	ADB	4.5%	3 – 6% (mine-dependent)	ASTM D4239 / ISO 19579
Size	—	0 – 50 mm	Lumps on request	ASTM D4749

Commercial 5,000+ lane. Each lot is sampled; sulphur depends on the mine.

Published coalfield quality (Pakistan)

Coalfield	Moisture %	Ash %	Volatile %	Sulphur %	Btu/lb
Sor Range–Degari	3.9 – 18.9	4.9 – 17.2	20.7 – 37.5	0.6 – 5.5	11,245 – 13,900
Khost–Sharigh–Harnai	1.7 – 11.2	9.3 – 34.0	9.3 – 45.3	3.5 – 9.6	9,637 – 15,499
Mach	7.1 – 12.0	9.6 – 20.3	34.2 – 43.0	3.2 – 7.4	11,110 – 12,937
Duki	3.5 – 11.5	5.0 – 38.0	32.0 – 50.0	4.0 – 6.0	10,131 – 14,164
Salt Range (Punjab)	3.2 – 10.8	12.3 – 44.2	21.5 – 38.8	2.6 – 10.7	9,472 – 15,801
Makarwal (Punjab)	2.8 – 6.0	6.4 – 30.8	31.5 – 48.1	2.8 – 6.3	10,688 – 14,029

Best suited for: Blending with imported coal · Local industry and process heat · Cost-sensitive demand

Market notes

- Field ranges from NEPRA's coalfield tables; 1 Btu/lb ≈ 0.556 kcal/kg [1].
- Balochistan coal as a whole: sulphur 2.8 – 7.1%, ash 7.2 – 27.4%, heating value 9,637 – 15,499 Btu/lb [2].
- Average mine prices were about Rs 9,800 – 11,600/t in 2017-18 (Degari, Sor Range, Sharigh) [2].

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LOCAL · LOW-SULPHUR BALOCHISTAN

Zardalo Coal (Low Sulphur Local)

High-heat Balochistan coal with very low moisture and sulphur well below the usual 3–6% of local coal. Our latest lot tested 6,229 kcal/kg as received with 2.3% sulphur.

ORIGIN	RANK	SUPPLY
Pakistan	**High-volatile sub-bituminous**	**Regular**

Source area: Balochistan (Zardalo area); nearest published field data: Khost–Sharigh–Harnai coalfield. **Supply:** Regular — selected mines, by road.

Specification

Parameter	Basis	Typical	Range / limit	Test method
Gross calorific value	ARB	6,229 kcal/kg	6,000 kcal/kg min	ASTM D5865 / ISO 1928
Total moisture	ARB	4.5%	7% max	ASTM D3302 / ISO 589
Inherent moisture	ADB	2.2%	4% max	ASTM D3173
Ash	ADB	20.6%	22% max	ASTM D3174 / ISO 1171
Volatile matter	ADB	39.9%	36 – 43%	ASTM D3175 / ISO 562
Fixed carbon	ADB	37.3%	35% min	ASTM D3172
Total sulphur	ADB	2.3%	2.5% max	ASTM D3177
Size	—	0 – 50 mm	Lumps on request	ASTM D4749

Typical = latest lot analysis (SFTS/4464/926). Limits are Essa Energy's offered specification; each lot ships with its own analysis.

Latest Essa Energy lot analysis [20]

SFTS report SFTS/4464/926 (Zardalo, tested 22 Sep 2026)

Total moisture (ARB)	Inherent moisture (ADB)	Volatile matter (ADB)	Ash (ADB)	Fixed carbon (ADB)	Total sulphur (ADB)	Gross calorific value (ARB)
4.5%	2.2%	39.9%	20.6%	37.3%	2.3%	6,229 kcal/kg

Very dry (4.5% total moisture), so almost all of its heat is delivered. Sulphur 2.3% — far below local field averages, slightly above imported RB2.

Best suited for: Cement kilns and boilers wanting high local heat value · Blending with RB2 or Indonesian coal to hold sulphur near 1.5% · Buyers who need low-moisture coal

Market notes

- Published data for the wider Khost–Sharigh–Harnai field: sulphur 3.5 – 9.6%, ash 9.3 – 34%, heating value 9,637 – 15,499 Btu/lb (≈ 5,350 – 8,600 kcal/kg) [1].
- At 2.3% sulphur, Zardalo is roughly half the sulphur of typical Balochistan coal (2.8 – 7.1%) [2].
- Typical and limit values on this sheet come from our latest lot analysis [20]; every lot ships with its own analysis.

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IMPORTED OVERLAND · RIMDAN / GABD BORDER

Iranian Coal (Low Sulphur, ≤ 1%)

High-heat, low-volatile Iranian coal at 6,000 – 7,000 kcal/kg with sulphur at or below 1% and very low moisture. Priced against ash and volatile matter with a bonus / penalty schedule.

ORIGIN	RANK	SUPPLY
Iran	**Low-volatile bituminous**	**Limited**

Source area: supplied overland to the Rimdan (Iran) / Gabd (Pakistan) border crossing near Gwadar. **Supply:** Limited — by road, about 5,000 t a month per supplier.

Specification

Parameter	Basis	Supplier specification	Price adjustment	Test method
Calorific value	—	6,000 – 7,000 kcal/kg	—	ASTM D5865 / ISO 1928
Total moisture	AR	5% max	—	ASTM D3302 / ISO 589
Ash	—	25% (spec)	Bonus below 22%, penalty above 28%	ASTM D3174 / ISO 1171
Volatile matter	AD	9 – 17%	0.5% outside 9 – 17%	ASTM D3175 / ISO 562
Total sulphur	—	1% max	—	ASTM D4239 / ISO 19579
Carbon	—	up to 60%	—	ASTM D3172
Size	—	0 – 150 mm	—	ASTM D4749

Supplier specification with price bonus / penalty on ash and volatile matter. Every lot ships with an SGS or agreed-lab analysis.

Price bonus / penalty schedule [10]

Result	Ash < 17%	Ash 17 – 22%	Ash 22 – 28%	Ash 28 – 32%	Ash > 32%	VM > 17%	VM < 9%
Price	+2% bonus	+1% bonus	no change	−1% penalty	−2% penalty	−0.5% penalty	0.5% *

Ash spec 25% and volatile matter spec 9 – 17%, each with ±1 point tolerance. Adjustments are a percentage of the contract price, on the agreed lab result. * The supplier table lists 0.5% in the bonus column for volatile matter below 9% — confirm in the contract.

Best suited for: Blending to raise heat and cut sulphur · Boilers and kilns in Balochistan and Sindh near the Gabd route · Buyers needing very low moisture

Market notes

- Offer terms: delivery at the Rimdan / Gabd border, Ex-Works or delivered to customs; about 5,000 t a month per supplier; price on request; SGS or lab report available for each lot [10].
- Volatile matter of 9 – 17% is low (near-anthracite), so it ignites slower than RB2 or Indonesian coal and is usually blended with a higher-volatile coal for kilns.
- Iran supplied about 0.7% of Pakistan's coal import value in Jan–Jun 2026; payment channels remain a constraint [3].

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IMPORTED OVERLAND · SUPPLY SUSPENDED

Afghan Coal

Until October 2025 the main fuel for northern Pakistan's cement plants: high heat, low moisture and low sulphur, delivered by road through Torkham and Chaman.

ORIGIN	RANK	SUPPLY
Afghanistan	**Sub-bituminous to high-volatile bituminous**	**Suspended**

Source area: northern Jurassic coalfields (Dara-i-Suf, Samangan; Karkar–Dudkash, Baghlan). **Supply:** Suspended — Pakistan–Afghanistan border closed since 11 Oct 2025.

Specification

Parameter	Basis	Dara-i-Suf lab sample	Market trade range	Test method
Gross calorific value	AR	≈ 5,210 kcal/kg (21.81 MJ/kg)	6,000 – 6,800 kcal/kg	ASTM D5865 / ISO 1928
Moisture	AR	4.95%	6 – 10%	ASTM D3302 / ISO 589
Ash	AR	15.7%	8 – 14%	ASTM D3174 / ISO 1171
Volatile matter	AR	30.95%	28 – 40%	ASTM D3175 / ISO 562
Fixed carbon	AR	48.4%	40 – 55%	ASTM D3172
Total sulphur	—	not reported	below 1%	ASTM D4239 / ISO 19579
Size	—	—	0.5–5, 5–10, 10–25, 25–50, 50+ mm	ASTM D4749

Lab sample = one published Dara-i-Suf analysis; trade range = a published market specification. Supply suspended while the border is closed.

Best suited for: Cement kilns in northern Pakistan (when the border is open) · Boilers needing high heat with low moisture

Market notes

- Lab sample: Dara Souf coal tested at moisture 4.95%, ash 15.7%, volatile matter 30.95%, fixed carbon 48.4%, calorific value 21.81 MJ/kg [13]. Market range from a Pakistani coal trader's published Afghan specification [14].
- Afghan coals are sub-bituminous to high-volatile bituminous, and quality varies widely by seam and area [18]. Proven reserves are about 73 Mt, with potential resources of 100 – 440 Mt [16].
- Prices to Pakistan: US$170 – 200/t in March 2022, when northern cement plants burned about 70% Afghan coal [17]; about Rs 43,000 – 45,000/t, expected to fall to about Rs 38,000/t, in August 2023 [15].
- The border closure from 11 Oct 2025 halted Afghan coal imports; producers shifted to South African (including RB2), Indonesian and Mozambican coal [4].

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Testing and inspection

Parameter	Standard methods
Sampling and preparation	ASTM D2013 / D2234 · ISO 13909 · ISO 18283
Total moisture	ASTM D3302 · ISO 589
Inherent moisture	ASTM D3173
Ash	ASTM D3174 · ISO 1171
Volatile matter	ASTM D3175 · ISO 562
Total sulphur	ASTM D4239 · ISO 19579
Calorific value	ASTM D5865 · ISO 1928
Grindability (HGI)	ASTM D409
Ash fusion	ASTM D1857 · ISO 540
Size	ASTM D4749

Specifications are indicative and for commercial discussion. Final quality is governed by the certificate of analysis (CoA) of each cargo or lot, from an independent inspector (e.g. SGS, Intertek) or an agreed laboratory. Bases: ARB as received, ADB air dried, NAR / GAR net / gross as received. 1 Btu/lb ≈ 0.556 kcal/kg.

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