



TECHNICAL & COMMERCIAL BRIEF

Coal Rejects & Ash-Based Liner / Roadway System

High Strength • Carbon-Saving • Cost-Effective • Engineered for Performance



ARC Innovations has developed an engineered platform that transforms coal rejects and ash into high-performance road layers and liner systems.

This solution delivers structural reliability, commercial value, and environmental benefits by converting a waste liability into a construction asset.

ARC INNOVATIONS





Engineering Advantages

- High early and long-term strength
- Zero shrinkage – exceptional dimensional stability
- Low permeability for liner applications
- Excellent compaction behaviour and workability
- Strong tensile resistance (high ITS)
- Suitable for road layers, platforms, and containment systems

Commercial Advantages

- 25–40% reduction in cost compared to natural aggregates
- Eliminates quarry dependence and long hauling
- Converts stockpiles into revenue-generating construction assets
- Strong ESG benefits supporting sustainability goals
- Predictable supply and scalable deployment



Key Engineering Results (Roadlab Testing)

- Maximum Dry Density (MDD): ~1 299 kg/m³
- Optimum Moisture Content (OMC): 15.2–15.6%
- Achieved Compaction: 102–106% Mod AASHTO
- UCS (7 days): 2.48–2.66 MPa
- ITS: 250–279 kPa
- Linear Shrinkage: 0.0%
- Non-plastic / very low PI

Construction Methodology

1. Screening/blending (if required)
2. Binder addition (MSC™ or equivalent)
3. Homogenisation and mixing
4. Placement in 150–250 mm lifts
5. Compaction to 102–106% Mod AASHTO
6. Final trimming and curing



Quality Assurance

- Moisture & density control
- Regular UCS & ITS testing
- Grading verification
- Binder dosage checks
- Layer thickness verification

Coal rejects and ash—when engineered correctly—offer exceptional mechanical performance, zero shrinkage, and long-term durability.

The system outperforms traditional gravel while significantly reducing cost and environmental impact.



Contact
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