



**CYPHER
ENVIRONMENTAL**

“Always do what's right.”



Smith Environmental Solutions
(Sask. Distributor)



UNSTABLE ROADS?



ROAD//STABILIZR[®]

Superior Soil Stabilization

**Significantly reduce
operational costs through
better haul road management.**

ROAD//STABILIZR[®] is a highly concentrated, environmentally friendly liquid enzyme-based soil stabilizer specifically engineered for high clay content materials. The solution saves costs through the allowance for use of clay-based materials, which are typically marginal in terms of their engineering properties, and turns them into a high performance engineering input.

ROAD//STABILIZR[®] treated materials exhibit reduced long-term maintenance requirements and produce tangible reductions in rolling resistance, which reduces fuel consumption and improves productivity of your haul fleet. Once applied, **ROAD//STABILIZR[®]** will dramatically reduce OPEX!



SIGNIFICANTLY REDUCE LONG TERM MAINTENANCE COSTS

- Reduces dust – saves water
- Required grading frequency reduced dramatically



REDUCTION IN MATERIAL COSTS TO BUILD ROAD

- Allows for the use of inexpensive in situ, high clay content materials
- Saving on use of expensive aggregates



INCREASED CBR (CALIFORNIA BEARING RATIO) VALUE RESULTING IN REDUCED ROLLING RESISTANCE

- Better fuel economy
- Improved productivity



REDUCED SWELL ALLOWING FOR MORE DURABLE ROADS IN WET WEATHER



NON-CORROSIVE & ENVIRONMENTALLY FRIENDLY

BETTER ROADS. BETTER BOTTOM LINE. BETTER PLANET.

CLIENT RESULTS

"Heavy hauler operators in the North mine say that it (ROAD//STABILIZR®) performs better and is harder than conventional roads. It's a lot smoother and easier to travel on - similar to driving on pavement."

Angus Munro, Operations Support, Syncrude Canada

"Shengli open-pit coal mine built 19.8 km of ROAD//STABILIZR® haul road in 2014. So far, the road has been subjected to heavy traffic including Komatsu 830E which average 320 TON in weight. It has been observed that the road performs well in flatness, strength and other performance indexes. It has provided benefit for the recovery of production after the rain and the reduction of cost, it has great significance in cost control, energy conservation and environmental protection".

(Translated from Mandarin)

Huang Yuejun, Engineering Supervisor,
Shenhua Beidan Shengli Energy Co., Ltd.

APPLICATIONS

- HAUL ROADS
- ACCESS ROADS
- RUNWAYS & TARMACS
- BASE, SUB-BASE OR SUB-GRADE BELOW ANY PAVED SURFACES
- STABILIZATION OF ANY HIGH-CLAY CONTENT MATERIALS



17.4% 

**REDUCTION IN HAUL TRUCK FUEL BURN
RESULTING IN MILLIONS OF \$ SAVED**

As reported by: Shenhua Beidian Shengli Energy Co. Ltd.

61% 

REDUCTION IN ROLLING RESISTANCE

As reported by: Syncrude Canada

63% 

REDUCTION IN SWELL POTENTIAL

As reported by: EPMOP - Quito, Ecuador

300%+ 

CALIFORNIA BEARING RATIO (CBR)

MEASURE OF ROAD MATERIAL STRENGTH

As reported by: 3rd party lab results

CO2 EMISSIONS REDUCED BY OVER
10,000 TONS PER YEAR 

As calculated: Based on the Shenhua fuel savings case study

Long Term

Stronger

Safer

Low Cost



ROAD//STABILIZR[®]

How it Works

How ROAD//STABILIZR[®] Works

ROAD//STABILIZR[®] takes advantage of the electronic bonding potential of cohesive clays which have natural excess negative charges distributed about the clay particles' surfaces. Consequently, these clays adsorb and bond with large quantities of polar water molecules causing the clay-rich material to lose strength and become plastic. ROAD//STABILIZR[®] acts as a catalyst to:

- 1) Remove excess water,
- 2) Promote and facilitate a high degree of compaction and densification, and
- 3) Catalyze clay bonding and polymerization.

When sufficient amounts of reactive (cohesive) clays are present or added to a suitable aggregate, treated with ROAD//STABILIZR[®] and compacted, the clays become strongly and semi-permanently bonded to each other acting like a flexible cementing agent that locks the aggregate material in place.

Excellent, durable, long-lasting, and environmentally sustainable roads can be routinely constructed by applying:

- 1) Appropriate testing and design parameters,
- 2) Proper materials and ROAD//STABILIZR[®], and
- 3) Proper construction protocols.

The procedures are simple and easily followed by contractors and municipalities, however, failure to do so can result in substandard or failed roads.

