

Kilgore West Valley HP Plant, Utah ACE Fiber Reinforced SMA IDEAL-CT & Performance Testing

Source: Stonemont QC Report for Summit Materials

Location: Kilgore Contracting, West Valley HP Plant, Utah

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Conducted by: Malisa Bateman & Kyle Ballantyne, Stonemont QC

Key Takeaways

ACE Fiber-Reinforced SMA provides:

- Higher crack resistance (IDEAL-CT)
- Greater fracture energy absorption
- Longer service life & reduced maintenance
- Conformance with SMA performance targets

Overview

This comprehensive laboratory report by StonemontQC documents IDEAL-CT (Indirect Tensile Asphalt Cracking Test) and Performance Testing (Air Voids – SSD) on Stone Mastic Asphalt (SMA) samples incorporating ACE Fiber additive. Testing was performed using materials supplied by Summit Materials, evaluating the crack resistance, energy absorption, and compaction characteristics of ACE Fiber-reinforced SMA. [Download Report](#)

Key Findings

1. IDEAL-CT Index (Cracking Resistance)

- Sample 529639018: CT Index range 280–482, average 281.4
- Sample 546988798: CT Index range 229–528, average 343.8
- Sample 524642751: CT Index range 228–1240, average 470.9

Result: ACE Fiber SMA exhibited 53%–156% higher cracking resistance compared to a control SMA mix (CT Index 183.6).

2. Fracture Energy (Work of Fracture)

Values ranged from 3,400 – 11,000 J/m² (converted from J/in²)

Indicates significantly higher energy absorption before fracture, improving pavement fatigue life.

3. Peak Load & Displacement

Consistent load–displacement curves show enhanced deformation resistance, validating improved structural performance under stress.

4. Air Voids (SSD)

Ranged from 6.0% – 7.6%, within standard SMA design specifications.
Confirms proper compaction and mix uniformity with ACE Fiber inclusion.

Comparative Summary

Mix Type	Avg Ideal CT Index	Improvement vs Control	Air Voids (SSD)
SMA Control (No Fiber)	183.6	—	6.5%
ACE XP Fiber SMA	365.4	+53 / 156%	6-7.5%

Incorporating ACE Fiber into SMA results in substantial gains in cracking resistance, fracture energy, and durability, while maintaining target air voids — demonstrating a clear advantage for long-life, high-performance pavements.

Surface Tech Contact:

312 S. Cedros Ave., S200, Solana Beach, CA 92075

+1-619-880-0265

info@surface-tech.com

www.surface-tech.com

