

## CDOT SMA ACE XP – IDEAL-CT Performance Report

**Source:** Blankenship Asphalt Tech & Training (BATT)

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**Prepared For:** CDOT /Brannan Sand & Gravel [Download Report](#)

### Overview

Plant-produced Stone Matrix Asphalt (SMA) mixtures were provided to BATT for comparative IDEAL-CT evaluation. Two mixes were tested: one with ACE XP polymer fiber reinforcement and a control mix without fiber. Testing followed ASTM D8225 at 25°C using compacted specimens at  $7 \pm 0.5$  % air voids. Bulk density and specific gravity were determined per AASHTO T166 and T209.

#### Testing Methodology

- Mixtures reheated to 149 °C (300 °F) before splitting for compaction.
- Compaction temperature:  $135 \pm 3$  °C ( $275 \pm 5$  °F), target 62 mm height.
- IDEAL-CT testing at 25 °C per ASTM D8225; specimens conditioned 2 hours in water bath.
- Constant loading rate: 50 mm/min until load  $\leq 0.1$  kN.

### IDEAL-CT Results Summary

Mixture	Avg. CT Index	Improvement vs Control	Avg. Air Voids (%)
CDOT SMA + ACE XP	570.0	+210 %	6.7
CDOT SMA (Control)	183.6	—	6.4

### Observations

The ACE XP reinforced SMA demonstrated a 210 % increase in cracking resistance versus control. The ACE XP mix appeared richer and more cohesive, while the control looked dry and dull. Further verification of AC content is recommended for mix optimization.

### Key Takeaway

ACE XP polymer fiber reinforcement significantly enhances SMA cracking resistance and fracture energy providing high-performance, longer-life pavements for CDOT applications.

### Market Relevance

ACE XP's verified SMA performance supports UK highway durability, resilience, and carbon efficiency goals under PAS 2080 whole-life carbon standards.

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