MATC
MOBILE ASPHALT TECHNOLOGY CENTER

U.S. Department of Transportation
Federal Highway Administration

TECHNOLOGY DEPLOYED IN MATC

ILLINOIS FLEXIBILITY INDEX TEST (I-FIT)

Determine the flexibility of your asphalt mixture

HOW IT WORKS

The I-FIT uses semi-circular bending geometry in a loading frame capable of measuring load and displacement over time at room temperature in order to determine the cracking potential of asphalt mixtures. The test is run at a displacement rate of 50 mm/minute to produce a fracture mechanics-based parameter calculated from the fracture energy and the post-peak slope. In the end, this test will generate the parameter's flexibility index (FI). Specimens are fabricated to 150 mm in diameter and 50 mm in height, notched to a depth of 15mm and to a width of ≤ 2.25 mm to force the failure location, with 7.0±1.0 percent air voids, and conditioned at the test temperature (25°C) for at least two hours before testing.

The larger the FI, the better the cracking resistance.

Image Source: FHWA
I-FIT specimen in jig

I-FIT FEATURES

Quick
OPERATION

Generate a FI for each specimen in
<5 MINUTES

New load frame and equipment costs
~$12,000

Retrofit for load frame and equipment costs
~$4,000

SPECIMENS
require cutting and notching

Tests at least
THREE REPLICATES
for each sample

Meets
AASHTO T 393
standards and specifications*

Current use of I-FIT in specifications in: California, Illinois

Current performance testing program evaluations of I-FIT in: Minnesota, Utah, Vermont, Wisconsin

Learn more at https://www.fhwa.dot.gov/MATC

* These standards and specifications are not FHWA requirements

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