

ROOFS - ANALYSIS OF THERMAL SHOCK

The TSAR Plus™ Software

Introduction

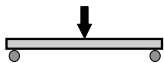
Thermal shock failure of roofing systems can be prevented by the careful selection of materials for a geographic location. Failure occurs as rapid cooling results in thermal stresses, which exceeds the strength of the materials. An analysis method has been developed to assist engineers and designers to predict this type of failure.

The Bending Beam Rheometer and Direct Tension Tests for asphaltic materials were developed as part of SHRP binder test development program. Recently, the low temperature requirements have been refined to predict at which temperature a binder fails in single event thermal cracking.

[DTT]



[BBR]



The TSAR Plus™ software is a rapid user-friendly method to determine the performance. TSAR Plus™ determines the critical temperature that corresponds to thermal cracking based upon Bending Beam Rheometer (BBR) and Direct Tension Testing (DTT) for a range of conditions which the user can specify including the new proposed ASTM binder specification.

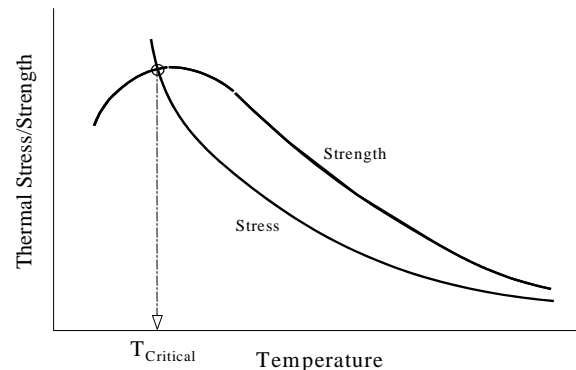
For materials producers, agencies and test laboratories

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ADVANTAGES

- 1 Rapid user friendly analysis
- 2 Easy data entry
- 3 Automatic graphs and reporting

this software provides a vital tool to classify asphaltic systems.



The data from the BBR and DTT tests are entered into a template. The BBR data can then be used to compute the thermal stress in roof systems using the appropriate cooling rate and other material parameters such as the coefficient of linear expansion. A plot of stress versus temperature is then developed. The DTT test data is compared to the induced stress and the critical cracking temperature determined.

TSAR Plus™ is ideal for consultants and R&D groups. The software contains enhanced features that make graph and report generation as easy as the click of a mouse pointer.

Abatech offers a detailed training course on the developments of the binder spec, as follows:

- ❑ Low temperature specification of asphalt binders and introduction of the new specification
- ❑ Analysis of binder using the TSAR Plus™ software

For further information please contact Abatech at <http://www.abatech.com>.

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