

Project Description:

The primary objectives of this research effort is to develop a near-real-time laser-scanning system to rapidly classify aggregates used in highway construction. The intent is to employ this classification process to

- Quantify specific engineering properties (e.g., acid insoluble residue, soundness, LA Loss, etc.)
- Assess whether an aggregate will pass or fail a defined engineering property test
- Identify and/or quantify the presence of deleterious materials (e.g., ASR, chert, shale, reactive aggregate)
- Determine the composition of blends in stockpiled aggregate
- Determine the source of an unknown aggregate

Six states are part of this TPF program. They include: KS, MD, OK, OH, NY and NM.

Each State is supplying aggregates that will be tested and evaluated to determine the efficacy of the technology

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):

During this period, 50 new unknown samples were received from KSDOT for scanning analysis (to validate the D cracking models previously developed. MD modeling studies continued with a focus on identifying quarry sources of unknown samples. OH counting models are being developed for shale and chert counting. The Research team has initiated an investigation of selected spectral line modeling to assess whether such an approach can result in improved predictive modeling when compared to total spectra modeling. Software modifications are continuing to improve data processing. A meeting was held in Topeka KS with DOT personnel to develop plans for the remaining months of the project.

Anticipated work next quarter:

Work will continue on new spectral line modeling approaches; and meetings with State participants are anticipated to review results and future planning.

Significant Results:

Modeling of New York and Maryland friction properties were successful using carbonate samples. Kansas D cracking Models were developed for samples of a given formation. Chert counting models for Ohio were not initially Effective; but additional work is ongoing.

There is a lack of adequate sample volume from Oklahoma and New Mexico to pursue modeling activities at this time

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints set forth in the agreement, with recommended solutions to those problems).

The project is scheduled for completion in ~6 months-time. We are tracking budget and schedule closely at this time to determine in conjunction with the participating states future actions.