



Asphalt Binder Crumb Rubber Verification Subtask Group Meeting Minutes

Wednesday, July 30, 2014 10:00am – 2:00pm	Granite Construction Company Summit Meeting Room 4001 Bradshaw Road Sacramento, CA 95827
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1. The meeting was called to order at 10:00am. Don Goss and Kee Foo (co-chairs) welcomed the participants, and participants made self introductions. An attendance roster is included with these minutes.
2. Don covered housekeeping items and asked if any changes or additions to the agenda were necessary. None were suggested.
3. The subtask group Scoping Document was discussed by the Rock Products Committee Asphalt Task Group co-chairs (Suszko, Balasubramanian, Peterson, Van Kirk) in order to clarify the purpose and need for the work of the group. Participants were asked to focus their discussions upon the objectives of the Scoping Document. The objectives mentioned in the scoping document were reiterated by the co-chairs, which are: verification of the crumb rubber content in the asphalt (including independent verification) and verification of the source of the scrap tires used in the production of the crumb rubber modifier to ensure the tires were taken from vehicles owned and operated in the United States. Also, the co-chairs mentioned that this was an expedited project to be completed in approximately three months.
4. Subtask group membership was discussed, and it was noted that all participants for this meeting would be included in the distribution list for future meeting notices, minutes, and other information. Membership in the subtask group is open to all persons who are willing to contribute to the objectives and goals of the group.
5. The group brainstormed about potential approaches to verifying the content of crumb rubber modifier (CRM) in asphalt and about the extent of the verification. Possible approaches mentioned included the use of analytical tests upon the finished asphalt and rubber product, and the use of weights and measures similar to the process required in the Caltrans Material Plant Quality Program (MPQP). It was suggested that the extent of the verification of CRM content may include records related to the source of the CRM, measurements of the amount of CRM in asphalt, and records and reports submitted to Caltrans. It was noted that the state of Colorado uses both a chain of custody

with respect to source and ownership of the CRM and a weights and measures protocol in their CRM verification efforts.

6. A survey about analytical test procedures for CRM content in asphalt was distributed to each participant of the group, and open discussion followed about the various options, which included Fourier Transform Infrared Spectroscopy (FTIR), Thermal-Gravimetric Analysis (TGA), Nuclear Magnetic Resonance (NMR), and Size-Exclusion Chromatography (SEC). Of these, the most promising seems to be FTIR. However, it was mentioned that drawbacks to the test included the need for known materials for calibration and multiple calibration curves, the variability of the calibration curves with respect to the base materials, and poor precision. FTIR has been described as a “research level” test, which indicates that it is not an easy test and that there may be no standard test method for its use with CRM content in asphalt.

- Edgard Hitti volunteered to contact Terry Arnold (FHWA) and ask about a standard analytical test method, precision and bias for the method, equipment needed, and equipment cost.
- Kee Foo volunteered to survey other state DOTs and inquire about their practices for the verification of CRM content in asphalt.

7. The group took a break for lunch at 11:30am and reconvened at approximately the noon hour.

8. The group participated in further discussion about the use of weights and measures and other ways of verifying the CRM content in asphalt. The use of a “marker” in CRM was discussed, but the group could not agree on a specific material that would be suitable for testing and secure against false dosing of samples. The use of the MPQP for verification was suggested, and it was noted that elements of that program might be appropriate for use. However, it was also suggested that “verification” of the CRM content in asphalt might extend beyond the scope of the MPQP. A general discussion followed about what should be included in the scope of the verification. Caltrans representatives suggested that – if an analytical test is not feasible – then verification might be viewed in terms of three elements: 1) a chain of custody with respect to source and ownership of the CRM, 2) a protocol for weights and measures, and 3) independent verification of the process.

Further discussion followed about what would constitute “independent verification” of the process (element 3). Several suggestions were made, including a) eyewitness verification, such as by a Caltrans representative, b) third-party verification, such as by a consulting Professional Engineer, or c) a verification by a Weighmaster licensed by the State of California. It was agreed that further discussion was warranted about the verification process in general and about the element of “independent verification” within the process as a whole.

- Caltrans representatives agreed to brainstorm among themselves about other potential approaches to the element of “independent verification.”

- The group at large also agreed to give further consideration to this same topic for future discussion.

9. Group and individual tasks were assigned as noted by the bullet points (•) above. Participants were asked to complete their tasks by August 18 and submit the results to the co-chairs (Kee and Don) for distribution to the group prior to the next meeting.

10. The next meeting was scheduled for Monday, August 25 in Southern California, at either the Caltrans Southern Regional Lab or the Vulcan Materials Company Irwindale offices.

11. The meeting was adjourned at approximately 1:30pm.

Respectfully submitted,

Kee Foo
Don Goss