Title of research need: Sample size limit for visual soil color determination (updated)

Keyword(s): Soil color, Munsell

Submitting subcommittee(s): Trace Materials

Date Approved: 02/24/2021

(If SAC review identifies additional subcommittees, add them to the box above.)

Background Information:

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

   This research need directly addresses a gap in the draft “WK7003- Standard Practice for Determination and Comparison of Color by Visual Observation in Forensic Soil Examination.”

2. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

   There are no known studies addressing the lower size limit for visual soil color determination, except for a small assessment by instrumental colorimetry in Dong et al.


4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest? Is your research need identified by NIJ?

This research supports “Quantitative methods to augment visual trace evidence screening and examinations”.

5. In what ways would the research results improve current laboratory capabilities?

Virtually all forensic laboratories performing soil examination use color in their examinations processes, and most, if not all, use visual color determination. A study addressing the size limitation of this method would strengthen existing processes.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

A study documenting the size limits for accurate color determination would validate well-established methodologies in soil color determination for forensic sized samples.

7. In what ways would the research results improve services to the criminal justice system?

The results would bolster a widely accepted method.
8. Status assessment (I, II, III, or IV):

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<thead>
<tr>
<th>Major gap in current knowledge</th>
<th>Minor gap in current knowledge</th>
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<tbody>
<tr>
<td>No or limited current research is being conducted</td>
<td>I</td>
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<tr>
<td>Existing current research is being conducted</td>
<td>III</td>
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This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.