# OSAC RESEARCH NEEDS ASSESSMENT FORM

**Title of research need:** A study and database of automotive refinish paint binder systems

**Keyword(s):** automotive; refinish; binders; database

**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 need addresses workflow in E1610, Std Guide for Forensic Paint Analysis and Comparison, with respect to ensuring that appropriate discrimination techniques are recognized and available for the characterization and discrimination of automotive refinish systems.

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)?

> Not at this time.

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

> Weimer R.B., Wright D.M., Hodgins T., Paint and Polymers (ch. 3). In: Desiderio V.J., Taylor C.E., Nic Daeid N. (eds.). Handbook of Trace Evidence Analysis. Wiley, Hoboken, NJ: 157-218.
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> Wright D.M., Kirby D.P., Thornton J.I., Forensic Paint Examination (ch. 2). In: Hall A, Saferstein R (eds.), Forensic Science Handbook, Vol I, 3rd ed. CRC Press, Boca Raton, FL (2020): 81-150.

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?

> Not at this time.

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

> This research would allow practitioners to recognize characteristic chemical features that distinguish an automotive refinish from an OEM coating in order to determine if sourcing would be an option through the use of PDQ if the paint was an OEM or using a refinish automotive paint database that would result from this work.

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

There is limited information in the scientific literature on the development and chemistry of refinishes used by manufacturers and/or 3rd party vendors.  Recognizing a binder chemistry as a refinish and being able to further classify it as "higher end" (e.g., developed for use by the manufacturer on their products, developed and sold by the refinish branch of the auto paint suppliers) vs lower grade products used by universal repair shops would also allow for the start of some refinish sourcing capabilities and the conclusions that could be drawn from such results.

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

Knowledge gained from this effort could provide investigative lead information in hit-and-run searches.

8. Status assessment (I, II, III, or IV):

I

|  | **Major** gap in current knowledge | Minor gap in current knowledge |
|---|---|---|
| **No or limited** current research is being conducted | I | III |
| **Existing** current research is being conducted | II | IV |

*This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.*