

## A.1 Technology Name

### Polymeric Sampling Devices

#### A.1.1 Source

Lotufo, Guilherme R., Philip T. Gidley, Andrew D. McQueen, David W. Moore, Deborah A. Edwards, Jeffery Hardenstine, and Allen D. Uhler. 2022. Passive-Sampler-Based Bioavailability Assessment of PCB Congeners Associated with Aroclor-Containing Paint Chips in the Presence of Sediment.” Archives of Environmental Contamination and Toxicology 82 (1): 105–18. <https://doi.org/10.1007/s00244-021-00907-2>.

#### A.1.2 Summary

|                          |                                |
|--------------------------|--------------------------------|
| <b>Media:</b>            | Sediment mixed with Paint Chip |
| <b>Study Type:</b>       | Ex-situ                        |
| <b>Technology:</b>       | PE                             |
| <b>Peer Reviewed:</b>    | Yes                            |
| <b>Publication Date:</b> | January 2022                   |

#### A.1.3 Site Description

- A lab study that evaluates the bioavailability of PCBs associated with paint chips dispersed in sediment.
- PE passive samplers were deployed in the field-collected sediments and sediments mixed with paint chips.
- The bioavailability of PCB was represented by the polymer-sediment accumulation factor (PSAF), defined as the ratio of the PCB concentrations in the PE and organic carbon normalized concentrations in sediment.
- Equilibrium was assessed by varying the equilibrium time.

#### A.1.4 Remedial Phase

Not applicable. Lab study on bioavailability.

#### A.1.5 Outcome

The PSAFs for the field sediments were ~ 50–60 and ~ 5 times higher than for the relatively uncontaminated sediment amended with paint chips for the size fractions 0.25–0.3 mm and < 0.045 mm, respectively. Bioavailability for PCBs associated with paint chips is much lower than PCBs associated with field-collected sediment. PCB in fine-grained paint chips (< 0.045 mm) is more bioavailable than in coarse-grained paint chips (> 0.25 mm).

#### A.1.6 References

None. Supplemental information provides the raw congener data for the sediment and sediment + paint chips samples. The congener profiles for paint chips may be useful for forensic evaluation.