Cured-in-Place Pipe (CIPP) Emission Capture System

Track Code: 2017-WHEL-67875

Categories:
- Green Technology
- Materials and Manufacturing

Keywords:
- Drinking Water
- Emissions
- Environmental Engineering
- Green Technology
- Materials and Manufacturing
- Water

Cured-in-place pipe (CIPP) is a popular sanitary sewer, storm water, and drinking water pipe repair technology. CIPP is one of the most widely used methods for pipeline repair, making up approximately 50 percent of all water pipe repair sites across the U.S. It is also used in Australia, United Kingdom, Germany, and other countries. Until recently, emissions from CIPP were believed to be just steam and vapor. Purdue University researchers discovered that CIPP emissions also contain organic solvent, partially cured resin particles, among other materials. Current emission monitoring uses gas meters to check for worksite chemical levels in the air; however, research has shown that multiple phases of materials exist. Gas meters can only identify gas phase contaminants and cannot capture emissions from multiple phases of materials. There is need for a system that captures emissions from CIPP. To determine worksite exposure risks, chemicals in the pipelines must be identified.

Researchers at Purdue University have developed a system for capturing the multi-phase mixture emitted from CIPP technology. To capture a sample, the system is setup at the exhaust pipe for the CIPP process and at locations where fugitive emissions are released. This system allows for the real-time capture of emissions, sampling of the emissions, and monitoring of the air stream.

To view a video related to this technology, click on this link: https://youtu.be/rBMOoa2XcJI

Advantages:
-Capture emissions beyond steam and vapor
-Environmentally friendly
-Real-time data capture

Potential Applications:
-CIPP emission capture, sampling, and monitoring the air stream

Related Publication:
Seyedeh Mahboobeh Teimouri Sendesi, et al. Worksite Chemical Air Emissions and Worker Exposure during Sanitary Sewer and Stormwater Pipe Rehabilitation Using Cured-in-Place-Pipe (CIPP). Environmental Science & Technology Letters, Article ASAP. http://pubs.acs.org/doi/10.1021/acs.estlett.7b00237

People:

- Whelton, Andrew J (Project leader)
- Boor, Brandon Emil
- Howarter, John Alan

Intellectual Property:

Application Date: October 9, 2019
Type: NATL-Patent
Country of Filing: United States
Patent Number: (None)
Issue Date: (None)

Application Date: April 18, 2018
Type: PCT-Patent
Country of Filing: WO
Patent Number: (None)
Issue Date: (None)

Application Date: April 18, 2017
Type: Provisional-Patent
Country of Filing: United States
Patent Number: (None)
Issue Date: (None)

Contact OTC:

Purdue Office of Technology Commercialization
The Convergence Center
101 Foundry Drive, Suite 2500
West Lafayette, IN 47906

Phone: (765) 588-3475
Fax: (765) 463-3486
Email: otcip@prf.org