



RECOMMENDATIONS FOR CIPP INSTALLATIONS USING STYRENATED RESINS

Phase 2 Study “Evaluation of Air Emissions from Polyester Resin CIPP with Steam Cure” February 2020

- Based on the data collected in this study, it is recommended that PPE be worn at the time of the initial opening of the liner transport truck door or storage unit by those entering the truck. It is likely that the air quality will improve once the door is open, but active air monitoring for VOCs is recommended to ensure a safe work environment in the transport truck or any storage unit.
- It is also recommended that active air monitoring be performed when entering manholes, which is already an industry practice.
- Data indicates distances within 10 feet could be a cause for concern. To provide an extra factor of safety it is recommended that a perimeter of 15-ft be implemented around exhaust manholes and emission stacks during curing. This is a conservative distance based on the data collected in this study. This perimeter could be entered for short amounts of time not exceeding 5 minutes. If this area must be entered for longer than 5 minutes, suitable PPE should be used.
- The emissions stacks should be a minimum of six feet in height to enhance the dispersion of emissions and lessen the likelihood of workers entering the perimeter from having to cross into the plume even when wearing PPE. Our team noted that for the taller stacks, when standing in upwind directions it was much easier to avoid the plume. With the horizontal stacks closer to the ground, it was very difficult to avoid emissions when approaching the stack. Workers would have to approach stacks periodically to adjust valves.
- The data in this study does not suggest additional PPE for the workers around steam cured CIPP emissions sites beyond the recommendations above and what is already standard practice. Standard practice typically includes eye and ear protection, gloves, steel toe boots, safety vests and hard hats.

Phase 3 Study “Evaluation of Styrene Emissions Associated with Various CIPP Coatings in Refrigerated Storage” April 2023

- Once doors are opened and styrene thresholds reduce to below regulatory agencies’ limits for the planned exposure time of workers, the truck can safely be entered for that amount of time with minimal PPE. Please refer to the latest exposure guidelines for styrene for full guidance.
- If durations must be exceeded, manufacturers could consider using thicker coatings, more impermeable coatings, wrapping the liners with impermeable materials to reduce the release of styrene in the cold storage trucks, additional PPE appropriate for the higher styrene thresholds, etc.

Additional NASSCO Recommendation: If possible, when installing CIPP in densely populated areas or near businesses, schools, medical centers, or other busy facilities, consider installation during off-hours.

Download “Guideline for the Safe Use and Handling of Styrene-Based Resins in Cured-in-Place Pipe” at [NASSCO.org/Resources](https://nassco.org/Resources)

To Download the full Phase 2 and Phase 3 Reports and to learn more visit [NASSCO.org/Safety/Styrene-Safety](https://nassco.org/Safety/Styrene-Safety)

For safety questions, email Safety@NASSCO.org