U.S. Department of Transportation
Federal Highway Administration

Turner-Fairbank Highway Research Center

Research Needs Related to Possible Trichloroethylene Ban

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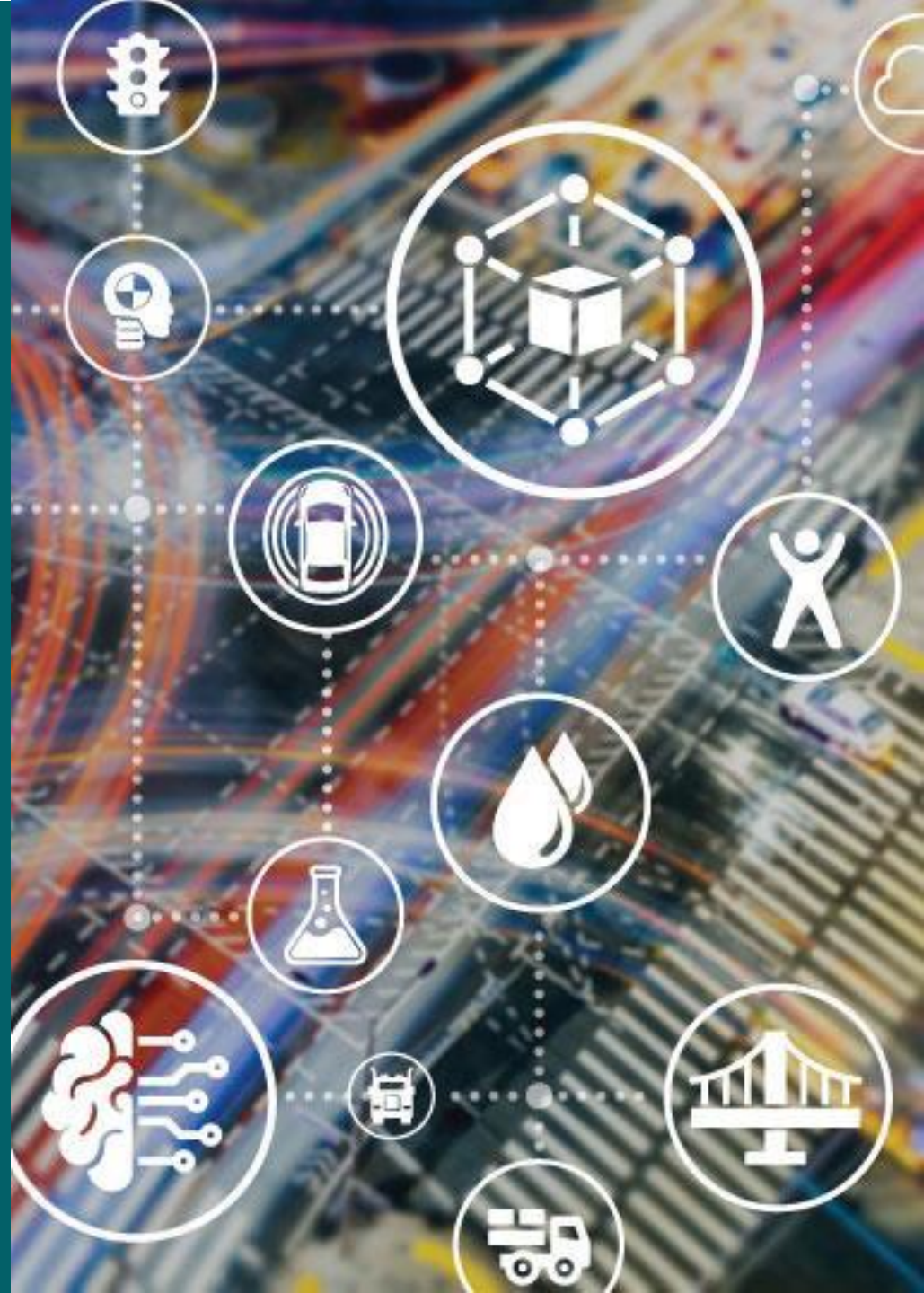

Abbreviations

ASTM	ASTM International
EPA	U.S. Environmental Protection Agency
PCE	perchloroethylene
TCE	trichloroethylene
TSCA	Toxic Substances Control Act

Introduction

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What is Happening with Solvents?

- The TSCA, as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, authorizes EPA to evaluate risks from new and existing chemicals on human health and the environment.[1,2]
- TSCA requires the EPA designate at least 20 chemical substances as high priority and 20 as low priority for review.[3]

[1]EPA. 2024. "The Frank R. Lautenberg Chemical Safety for the 21st Century Act" (web page). https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/frank-r-lautenberg-chemical-safety-21st-century-act, last accessed November 12, 2024.
[2]EPA. 2024. "Chemicals under the Toxic Substances Control Act (TSCA)" (web page). https://www.epa.gov/chemicals-under-tsca, last accessed November 12, 2024.
[3]EPA. 2024. "Prioritization of Existing Chemicals Under TSCA" (web page). https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/prioritization-existing-chemicals-under-tsca, last accessed November 12, 2024.

Risk Evaluation[(1)]

- Upon identification of chemicals, EPA conducts risk evaluations.
- Once a risk evaluation is complete, EPA must replace the high priority item, so the queue remains full at 20 chemicals.
- Risk management follows the risk evaluation phase.
- Restrictions are then imposed to eliminate unreasonable risk.

[1]EPA. 2024. “Risk Management for Existing Chemicals under TSCA” (web page). https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-existing-chemicals-under-tsca, last accessed November 12, 2024.

Trichloroethylene's Status Relevant to the TSCA

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Trichloroethylene (TCE)[1]

- TCE is an organic material that is volatile and colorless.
- TCE is used as a degreasing solvent in many industries.
- TCE is used widely in asphalt industry to extract binder for asphalt content determination and gradation in research and production scenarios. The resulting solution can be further distilled to recover the asphalt binder for performance testing.
- TCE involves serious worker exposure risks.

Recent technological advances have introduced closed-loop systems (such as devices prescribed in ASTM D8159[2]).

[1]Minnesota Department of Health. 2024. "Trichloroethylene (TCE) and Your Health" (web page). https://www.health.state.mn.us/communities/environment/hazardous/topics/tce.html, last accessed November 12, 2024.
[2]ASTM International. 2019. *Standard Test Method for Automated Extraction of Asphalt Binder from Asphalt Mixtures*. ASTM D8159-19. West Conshohocken, PA: ASTM International. https://www.astm.org/d8159-19.html, last accessed November 12, 2024.

TCE in the TSCA[1]

- In October 2023, EPA proposed a risk management rule.
- The risk management rule was in response to the January 2023 risk evaluation outcome, which was an amendment to an initial November 2020 risk evaluation.
- A public comment period was initiated shortly after and closed in December 2023.
- A final rule on TCE (and PCE) was issued on Monday.

[1]EPA. 2024. "Risk Management for Trichloroethylene (TCE)" (web page). https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-trichloroethylene-tce, last accessed November 12, 2024.

Discussion

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Research Needs

- What is your primary objective when using chlorinated solvents? What is the asphalt community losing with this prohibition?
- What health and safety questions remain relevant to TCE and PCE so that we can adequately protect workers (e.g., technicians)?
- If the primary objective is asphalt content determination, will more ignition testing do the trick?
- If the primary objective is measuring recovered binder properties, would tests capable of characterizing coating of aggregate work (say, a workability test)?
- What do you think? Where do we need to go first given EPA's rule?

Questions?

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