WELCOME TO TCE 101

Kelly Senger, Illinois DOT

USEPA Trichloroethylene Final Rule

1. Delay of Effective Date for 4 Final Regulations Published by the Environmental Protection Agency Between November 29, 2024, and December 31, 2024

2. In accordance with the memorandum of January 20, 2025, from President Donald J. Trump, entitled “Regulatory Freeze Pending Review,” this action temporarily delays until March 21, 2025

Federal Register citation	Title	Publication date	Original effective date	New effective date
89 FR 102568	Trichloroethylene (TCE); Regulation under the Toxic Substances Control Act (TSCA)	12/17/2024	[1] 1/16/2025	3/21/2025
89 FR 95034	Appendix W—Revisions to the Guideline on Air Quality Models	11/29/2024	1/28/2025	3/21/2025
89 FR 106357	Air Plan Approval; Illinois; Alton Township 2010 Sulfur Dioxide Redesignation and Maintenance Plan	12/30/2024	1/29/2025	3/21/2025
89 FR 107012	Air Plan Revisions; California; Feather River Air Quality Management District	12/31/2024	1/30/2025	3/21/2025

[1] *On December 17, 2024, EPA published a final rule under section 6(a) of the Toxic Substances Control Act (TSCA) (15 U.S.C. 2605(a)) to address the unreasonable risk of injury to health presented by trichloroethylene, with an effective date of January 16, 2025. Trichloroethylene (TCE); Regulation Under the Toxic Substances Control Act (TSCA),89 FR 102568 (Dec. 17, 2024). Thirteen petitions for review of that rule were filed in various Circuits of the United States Courts of Appeals. On January 13, 2025, the Fifth Circuit Court of Appeals granted a petitioner's motion to temporarily stay the rule's effective date. The petitions were then consolidated by the Judicial Panel for Multidistrict Litigation and transferred to the Third Circuit Court of Appeals. By an order dated January 16, 2025, the Third Circuit left the temporary stay of the effective date in place pending briefing on whether the temporary stay of the effective date should remain in effect. Because of the decisions of the Fifth and Third Circuits, the rule never went into effect and is therefore also covered by the terms of the Regulatory Freeze Pending Review memorandum. Accordingly, the Agency includes this rule in this action.*

USEPA TCE Final Rule – Update:

APRIL 11

EPA Postpones Toxic Substances Control Act Final Rule and Effective Dates for Banning All Uses of TCE

COURT-ORDERED STAY AND REGULATORY FREEZE DELAY EPA'S TCE BAN, GIVING DRY CLEANERS AND INDUSTRY MORE TIME TO PREPARE

https://www.enviroforensics.com/blog/epa-postpones-toxic-substances-control-act-final-rule-and-effective-dates-for-banning-all-uses-of-tce/

Additionally, to comply with the terms of President Trump's *Regulatory Freeze Pending Review* January 20, 2025 memorandum, the EPA issued the *Delay of Effective Date for 4 Final Regulations Published by the Environmental Protection Agency Between November 29, 2024, and December 31, 2024* on January 28, 2025 (90 FR 8254). This action initially delayed the TCE final rule's effective date from January 16, 2025, to March 21, 2025. However, the EPA is now expecting to publish an additional notice further postponing requirements for 90 days, to June 20, 2025. The additional 90-day postponement notice is currently under judicial review.

FACT SHEET
2024 Final Risk Management Rule for Trichloroethylene under TSCA

EPA

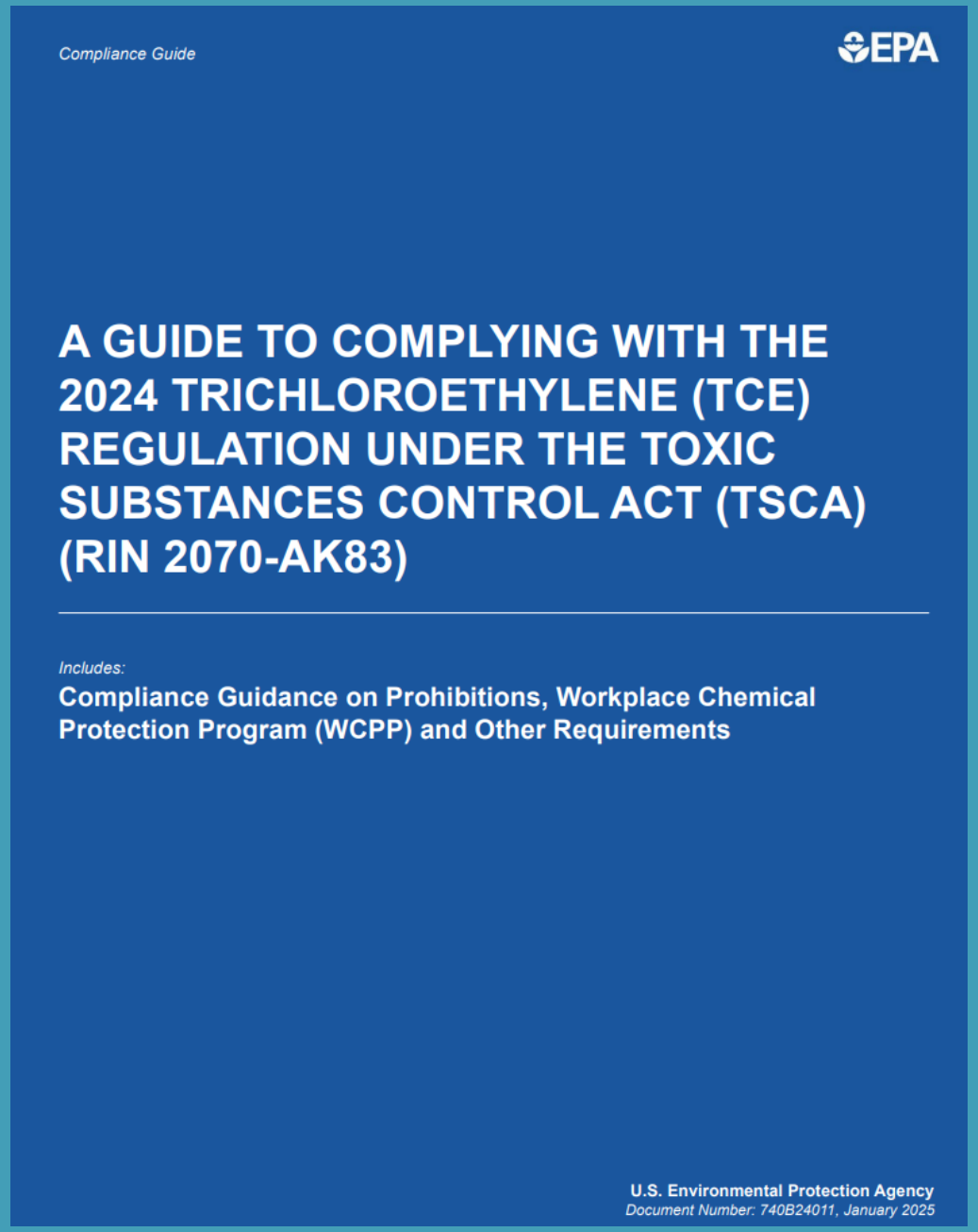
Compliance Timelines* for the Workplace Chemical Protection Program until Prohibition

Initial Monitoring	Exposure Limits and Dermal Protections	Workplace Information and Training Program	Exposure Control Plan	Other Exposure Monitoring
Complete initial monitoring within 180 days, or within 30 days of initiating use. Demarcate regulated area within 90 days of initial monitoring data. Provide respiratory protection within 90 days of initial monitoring data. Existing Facilities Before **June 16, 2025** (180 days after final rule publication). Facilities with New TCE Use Within 30 days of initiating use.	Ensure that TCE inhalation exposures do not exceed the interim ECEL for all potentially exposed persons (e.g., workers and others in the workplace). Provide respiratory and/or dermal protection as applicable. Existing Facilities Before **September 15, 2025** (270 days after final rule publication). Facilities with New TCE Use Within 90 days after receipt of any exposure monitoring that indicates exposures above the interim ECEL.	Develop and implement a program to train potentially exposed persons (e.g., workers and others in the workplace) on the rule's requirements. Ensure participation in a training and information program for potentially exposed persons by **September 15, 2025** (270 days after final rule publication).	Develop and implement an exposure control plan within 1 year, or before **December 18, 2025**. Notify potentially exposed persons of completion of exposure control plan within 30 days of its completion. Provide requested records by a potentially exposed person within 15 days of request. Update Exposure Control Plan at least every 5 years or when circumstances change significantly.	Periodic Monitoring Conduct at a minimum **every 5 years but could occur as frequently as every 90 days,** dependent upon initial monitoring results. As Needed Monitoring Conduct additional monitoring within 30 days after any change that may reasonable be expected to introduce new or additional sources of TCE exposure or where there is a reason to believe exceedances of the interim ECEL level have occurred.

https://www.epa.gov/system/files/documents/2024-12/tce-fact-sheet.pdf

EPA Trichloroethylene FACT SHEET 2024

EPA Guide to Complying with 2024 TCE…



https://www.epa.gov/system/files/documents/2025-01/tce-compliance-guide.pdf

IDOT's response to Rulemaking:

1

Working with our Safety and Environmental Sections to Ensure Compliance

2

Current Use of TCE Documented and Exposure Monitoring Performed/TBD to Determine TCE Exposure Levels

3

Determine our Workplace Chemical Protection Plan to lower Exposure Levels

- Engineering Controls
- Elimination
- PPE

Trichloroethylene (TCE)

Chemical Identification	
CAS #	79-01-6
Formula	C_2HCl_3
Synonyms	ethylene trichloride; TCE; trichloroethene; trilene

Hazard Summary:

- Acute (short-term) and chronic (long-term) inhalation exposure to trichloroethylene can affect the human central nervous system (CNS), with symptoms such as dizziness, headaches, confusion, euphoria, facial numbness, and weakness. Liver, kidney, immunological, endocrine, and developmental effects have also been reported in humans.
- Possible carcinogen.

Trichloroethylene (TCE) Exposure Limits

Exposure Limits					
OSHA PEL 8-hour TWA		**NIOSH REL** Up to 10-hour TWA		**ACGIH TLV©** 8-hour TWA	
PEL-TWA	100 ppm	**REL-TWA**	25 ppm	**TLV-TWA**	10 ppm
PEL-STEL		**REL-STEL**		**TLV-STEL**	25 ppm
PEL-C	200 ppm; 300 ppm (Peak), for a single time period up to 5 min in any 2 hours	**REL-C**			

FIND A SAFE AND EFFECTIVE ALTERNATIVE TO TCE

R27-276, Investigation of Alternative Solvents for Asphalt Extraction and Recovery

Illinois Center for Transportation (ICT) at UIUC

Professors: Hajj, Al-Qadi, and BK Sharma

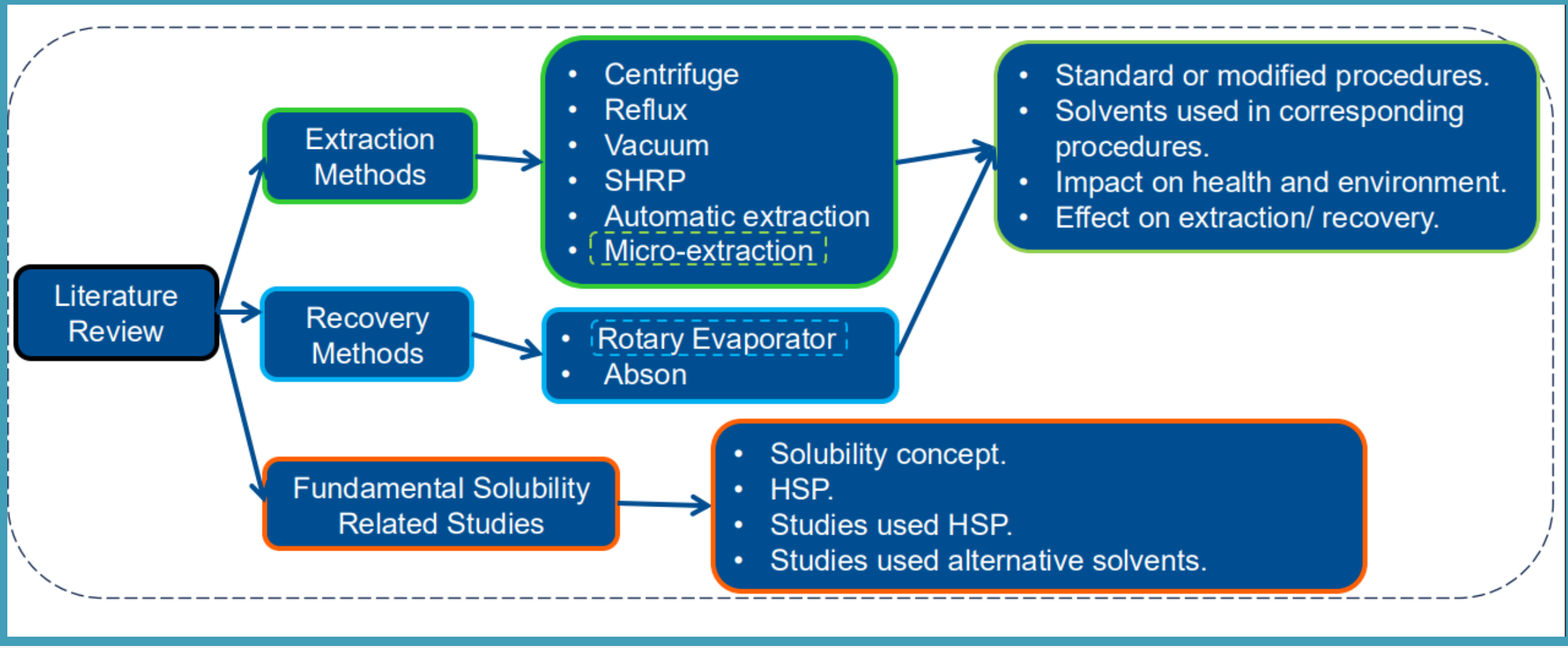
Start Date: 10/2/2024

End Date: 9/30/2026

Description:

The U.S. Environmental Protection Agency proposes banning trichloroethylene and methylene chloride — two solvents used to extract binder from asphalt and to perform solubility tests. Failure to determine the asphalt binder content of hot-mix asphalt could affect pavement performance. The goal of this project is to identify potential alternative solvents that are better performing and safer to use. Researchers will assess current practices within several state transportation agencies as well as identify and test alternative solvents. Identifying alternative solvents would allow IDOT to reduce the volume of trichloroethylene and methylene chloride used while maintaining long-lasting, high-performing roadways.

R27-276, Investigation of Alternative Solvents for Asphalt Extraction and Recovery



R27-276, Investigation of Alternative Solvents for Asphalt Extraction and Recovery

- Six extraction methods and two recovery methods.
  - *In Illinois, automatic extraction and centrifuge extraction are used*
- Six types of solvents; three are currently banned.
  - *In Illinois,* Abson and rotary evaporator are used.

Auto-extraction

Centrifuge

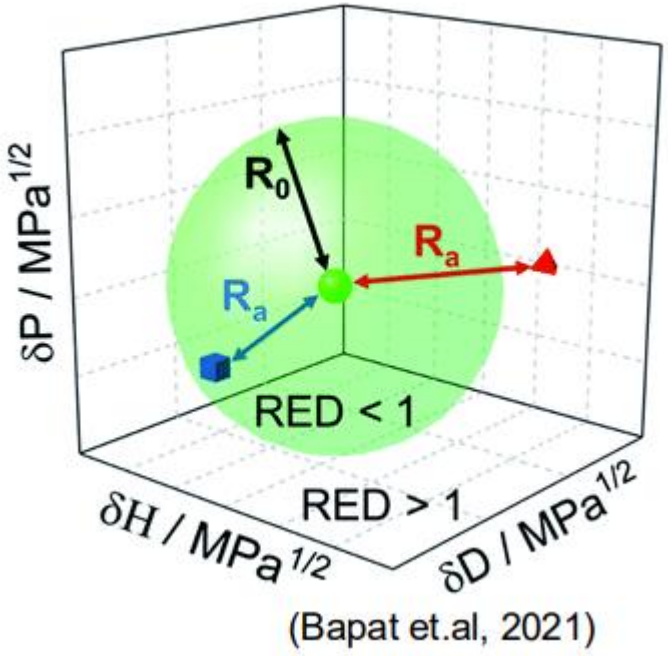
Abson

Rotovap

R27-276, Investigation of Alternative Solvents for Asphalt Extraction and Recovery

Solvents	Method
TCE	Centrifuge, Reflux, Vacuum, SHRP, Automatic Extraction, Micro-extraction
Toluene	Centrifuge, Reflux, Vacuum, SHRP
Toluene/ethanol, 85:15 (v/v) ratio	Micro-extraction
normal-Propyl Bromide (nPB)	Centrifuge, Reflux, Vacuum
Methylene chloride	Centrifuge, Reflux, Vacuum, Automatic extraction
Tetrachloroethylene	Automatic Extraction
Bio-solvent	Vacuum

Hansen Solubility Parameters



(Bapat et.al, 2021)

HSP distance determines solubility between solute and solvent.

- Green sphere: binder
- Blue cube: solvent
- Red triangle: nonsolvent.

R27-276, Investigation of Alternative Solvents for Asphalt Extraction and Recovery

Work ongoing:

- Literature Review was completed
- Methods for developing binder HSP spheres have been identified
- Binder HSP spheres will be developed for IL binders
- Plant mixes will be sampled

QUESTIONS?

Thank you!