

A person in a grey suit jacket and white shirt is shown from the waist down, holding a brown leather bag and a book. The background is a green chalkboard with various mathematical formulas and diagrams. The text 'TCE UPDATE' is overlaid in the center.

TCE UPDATE

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.

Final Rule Delaying Section 6 (g) portions

- Asphalt Testing Was **NOT** Included in the Delay

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

EPA Guide to Complying with 2024 TCE...

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

Compliance Guide



A GUIDE TO COMPLYING WITH THE 2024 TRICHLOROETHYLENE (TCE) REGULATION UNDER THE TOXIC SUBSTANCES CONTROL ACT (TSCA) (RIN 2070-AK83)

Includes:

Compliance Guidance on Prohibitions, Workplace Chemical
Protection Program (WCPP) and Other Requirements

U.S. Environmental Protection Agency
Document Number: 740B24011, January 2025

- **Current OSHA Standard**
 - 100 ppm time-weighted average over 8 hrs.
 - **Now, EPA Standard**
 - Action level of 0.1 ppm over 8 hr. TWA
 - Interim existing chemical exposure limit of 0.2 ppm over 8 hr. TWA
 - **Respiratory Protection**
 - No respiratory protection required under 0.2 ppm
 - Above 0.2 ppm will require higher levels of respirators as exposure goes over limit
 - **Monitoring Frequency**
 - 90 Days > 0.2 ppm
 - 180 Days > 0.1 ppm and < 0.2 ppm
 - 5 Years < 0.1
-

TCE Rulemaking Summary

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



**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**

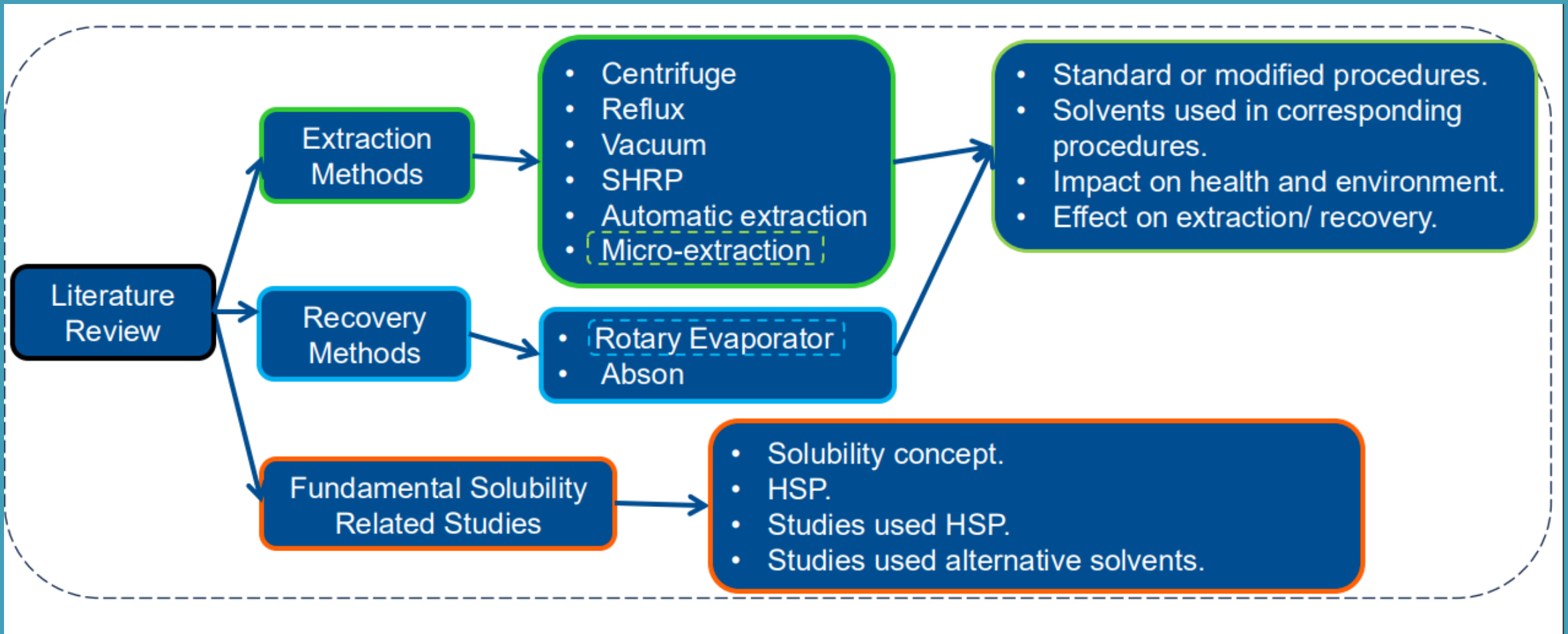
Start Date: 10/2/2024

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

- Dibutyl Sebacate, CAS# 109-43-3
- Isopropyl Palmitate, CAS# 142-91-6
 - Density 0.852 g/cm^3
 - May mix with Toluene at some ratio
- Dipentene, CAS# 138-86-3
- T6E4: Toluene 60% + 2EH 40%
 - Density of Toluene is 0.865 g/cm^3 at 25°C and of 2EH is 0.833 g/cm^3 at 25°C
 - Flash point: 12°C from prediction.

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

Work ongoing:

❖ New Micro-extraction Procedure

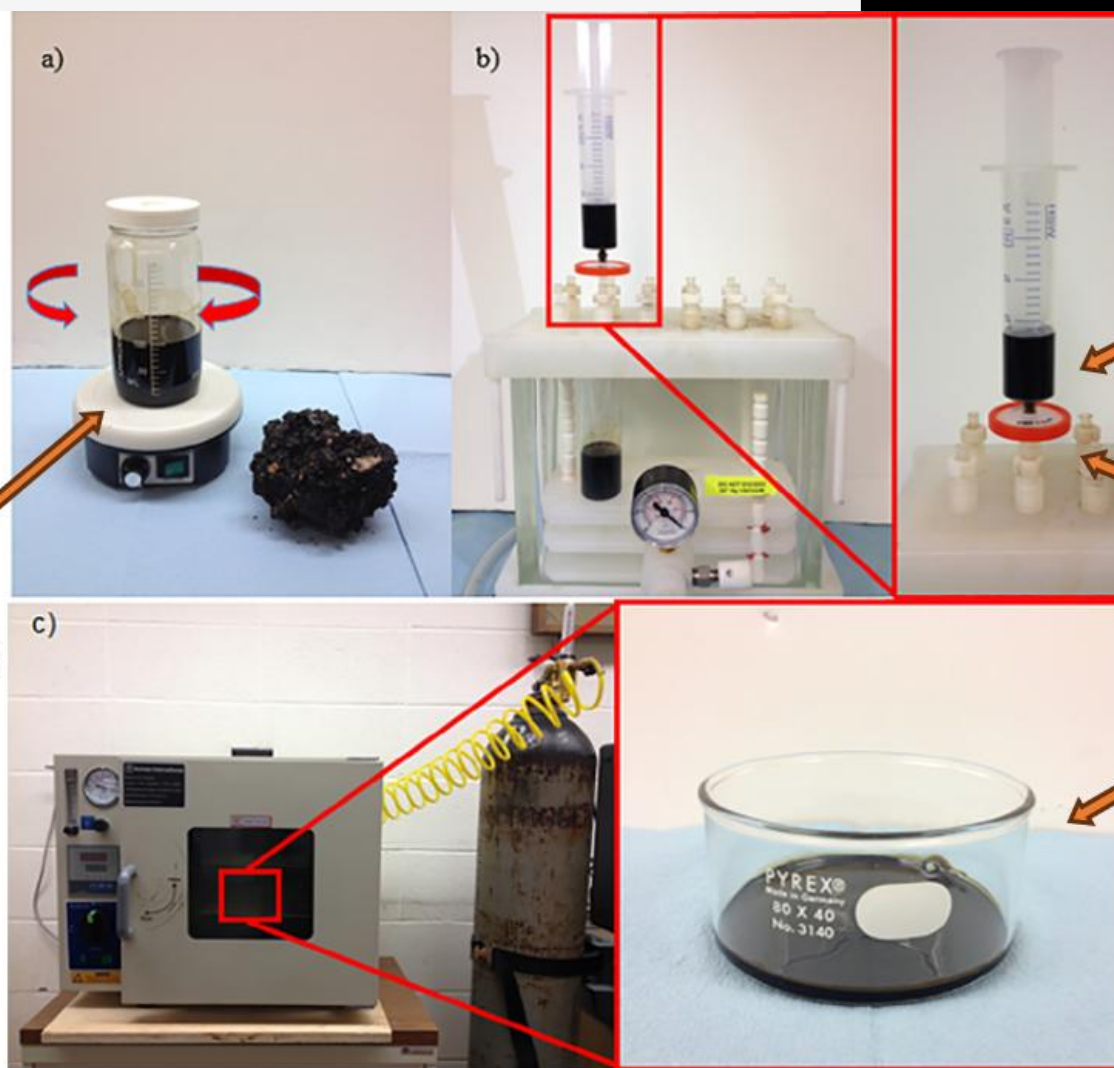
- Add 5g binder & 40ml solvent in a wide mouth bottle.
- Magnet keeps spinning for 12h.
- Check dissolution by spot test.



Material :
~40g loose asphalt
mixture
Toluene

■ **Apparatus:**

- A 200 mL wide mouth glass bottle sealed with a lid that also has a silicone septa
- A magnetic stir bar along with a magnetic stirrer



■ **Apparatus:**

- 10mL syringes that do not use rubber seals
- Glass filter (GF) syringe of 1.0 μm size and 25 mm diameter
- Wide open mouthed glass container
- Vacuum oven

Micro-extraction and Recovery

Conclusions and Next Steps

- HSP approach was successfully used to create a database of potential solvents which could dissolve asphalt – 4 options selected for next steps of screening
- Some options were high in viscosity – narrowed down to a few blends which all work well, plus commercial alternatives
- Auto extractor compatibility will depend on manufacturers
- Recovery goes hand-in-hand with checking asphalt content because of residue remaining on aggregate; must therefore ensure boiling point is reasonable
- Micro-extraction offers promising option for recovering small amounts of asphalt binder for DSR/FTIR/etc.

QUESTIONS?

Thank you!