



The Skinny on Trichloroethylene (TCE)

**Iowa Strategic Goals Program
March 23, 2021**

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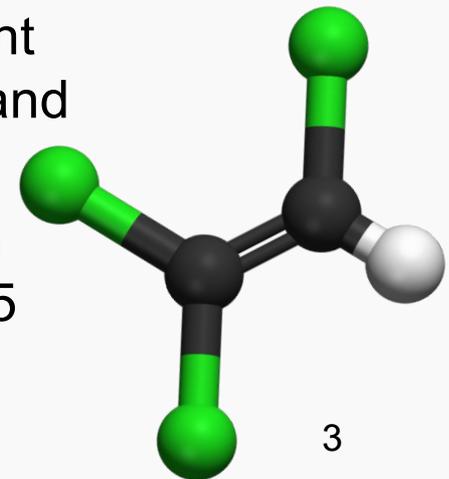
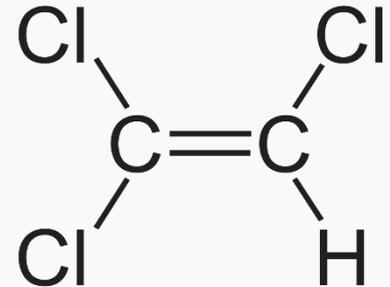
Agenda

- What is TCE?
- Regulatory status of TCE
- TCE Review Under TSCA
 - Findings from Risk Evaluation for Trichloroethylene (TCE)
 - Risk Management Process
- Pollution Prevention for TCE – Minnesota's Experience
 - Jane Paulsen, MN Technical Assistance Program



What is TCE (trichloroethylene)?

- Colorless liquid and a volatile organic compound (VOC) with a pleasant, sweet odor resembling chloroform. It is both produced in and imported into the United States
- TCE has a wide range of uses, including as a solvent in vapor degreasing, as a processing aid, or in paints and coatings
- Used as a solvent in many consumer and commercial products solvent including adhesives and sealants, paint and coatings, automotive care products, and cleaning and furniture care products
- The total aggregate production volume decreased from 220.5 to 171.91 million pounds between 2012 and 2015



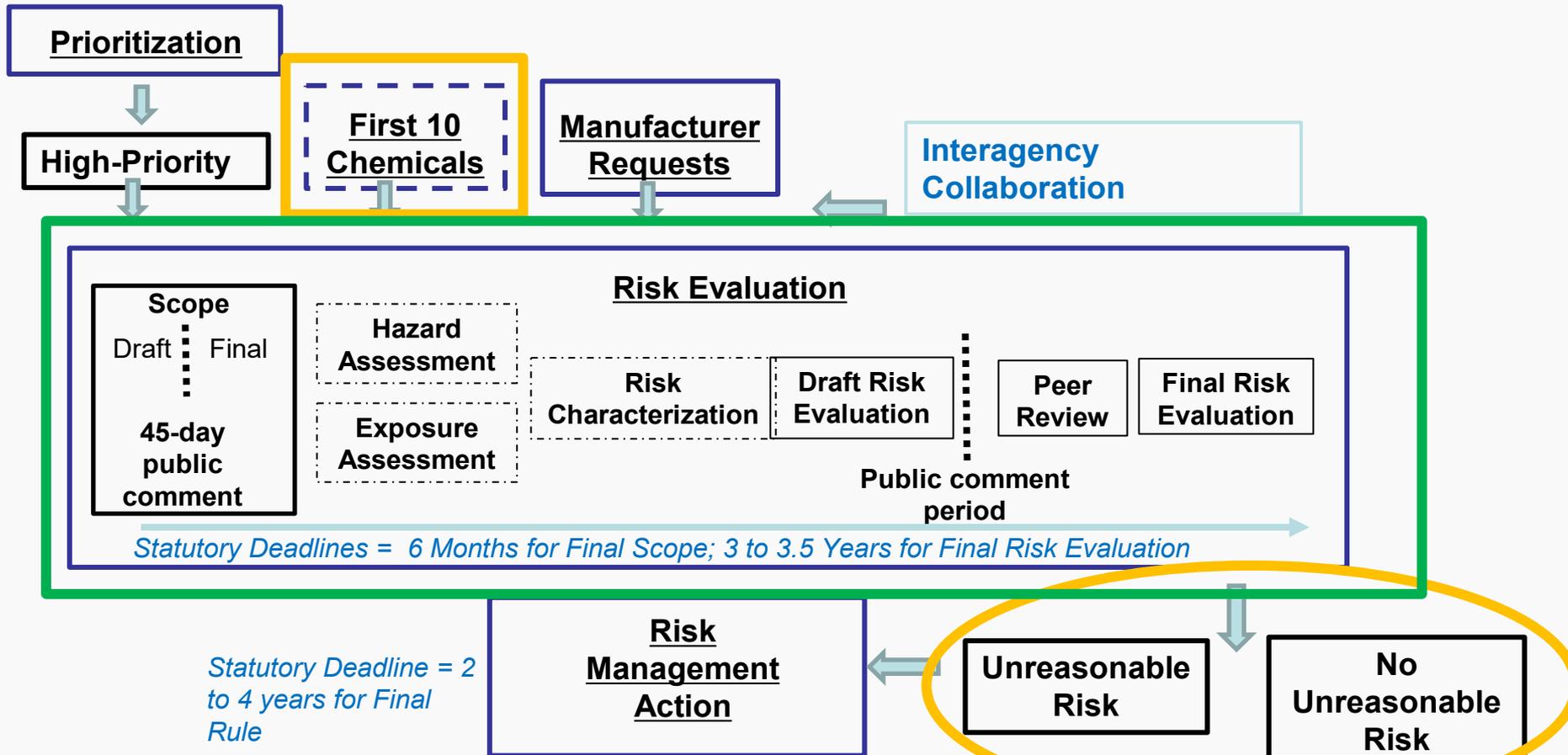


EPA Regulations of TCE

- Clean Air Act: Hazardous Air Pollutant (HAP), pre-cursor to ozone
- Clean Water Act: toxic pollutant (effluent limitations)
- Safe Drinking Water Act: Max contaminant level 0.005 mg/L (goal is 0)
- RCRA: Listed waste (D040) and also categorical waste
- TRI: must be reported
- Superfund: one of the most common chemicals in cleanups
- OSHA, State, and Local regulations as well



TSCA Risk Evaluation Process and Timeline



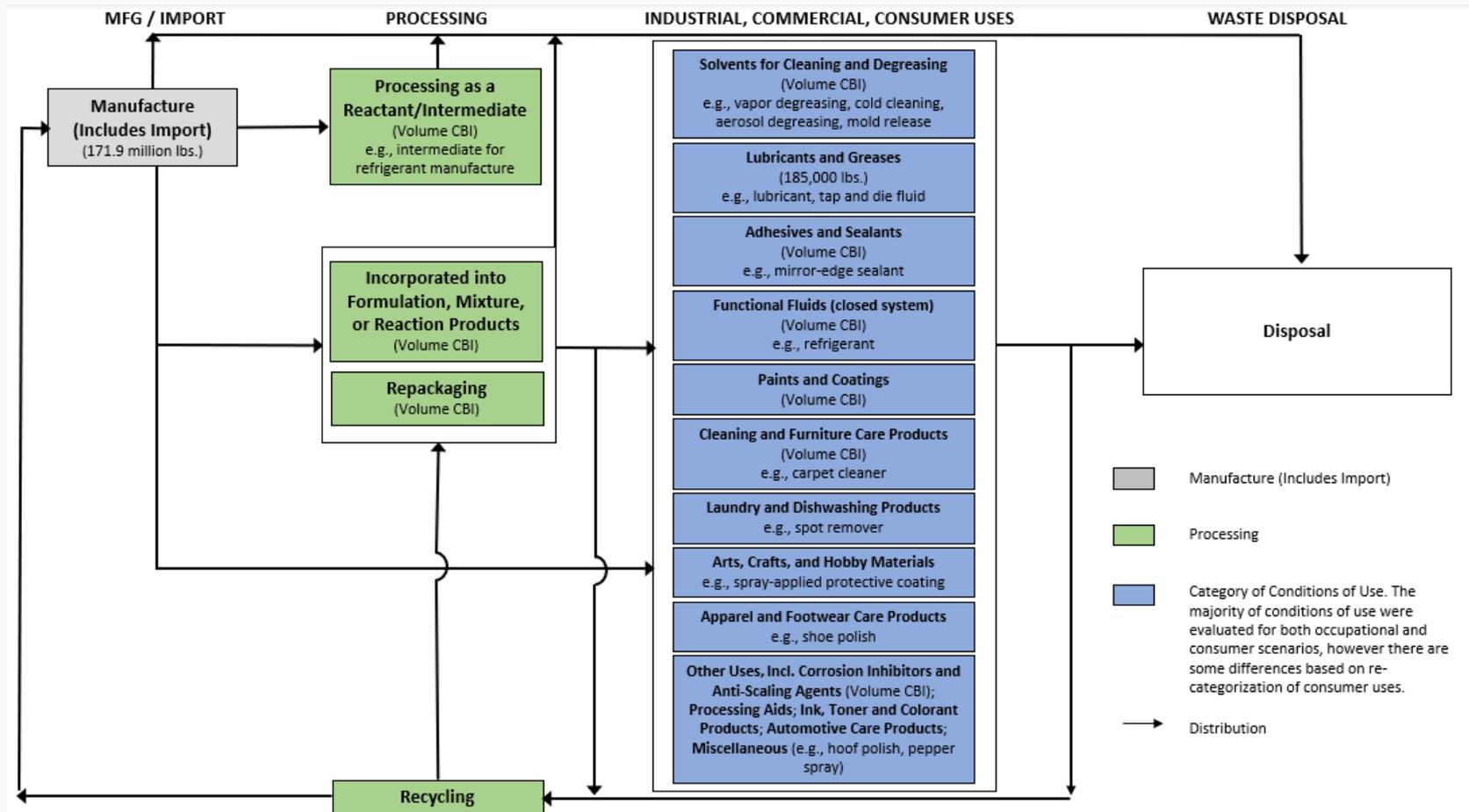


Overview of Risk Evaluation for TCE

- Final risk evaluation published November 24, 2020
 - 54 conditions of use were evaluated
 - Final risk evaluation follows a series of risk evaluation activities
- Public comments and external scientific peer review informed the final risk evaluation
 - 70 public comments received on the draft risk evaluation (comment period closed April 27, 2020)
 - Peer review: EPA's Science Advisory Committee on Chemicals (SACC) met to review the draft evaluation (March 2020)
- The final risk evaluation and supplemental materials are in docket [EPA-HQ-OPPT-2019-0500](#), with additional materials supporting the risk evaluation process in docket [EPA-HQ-OPPT-2016-0737](#), on www.regulations.gov



TCE Life Cycle Diagram





Risk Determinations

- **NO UNREASONABLE RISK:** two of the 54 conditions of use of TCE do not present an unreasonable risk of injury to health or the environment:
 - Distribution in commerce
 - Consumer use in pepper spray
- **UNREASONABLE RISK:** 52 of the 54 conditions of use of TCE present an unreasonable risk of injury to health to:
 - Workers and occupational non-users (ONUs) during occupational exposures
 - Consumers and bystanders during exposures to consumer use
- EPA's risk evaluation identified unreasonable risks for:
 - non-cancer adverse effects from acute inhalation and dermal exposures (immunosuppression effects)
 - non-cancer adverse effects from chronic inhalation and dermal exposures (autoimmunity effects), and
 - cancer from chronic inhalation and dermal exposures



Manufacturing, Processing, Industrial, and Commercial Uses that Present an Unreasonable Risk

- Domestic manufacture
- Import
- Processing: processing as a reactant/intermediate
- Processing: incorporation into a formulation, mixture, or reaction product
- Processing: incorporation into articles
- Processing: repackaging
- Processing: Recycling
- Industrial and commercial use as a solvent for open-top batch vapor degreasing
- Industrial and commercial use as a solvent for closed-loop batch vapor degreasing
- Industrial and commercial use as a solvent for in-line conveyORIZED vapor degreasing
- Industrial and commercial use as a solvent for in-line web cleaner vapor degreasing
- Industrial and commercial use as a solvent for cold cleaning
- Industrial and commercial use as a solvent for aerosol spray degreaser/cleaner and mold release
- Industrial and commercial use as a lubricant and grease in tap and die fluid
- Industrial and commercial use as a lubricant and grease in penetrating lubricant
- Industrial and commercial use as an adhesive and sealant in solvent-based adhesives and sealants; tire repair cement/sealer; mirror edge sealant



Industrial and Commercial Uses and Disposal that Present an Unreasonable Risk

- Industrial and commercial use as a functional fluid in heat exchange fluid
- Industrial and commercial use in paints and coatings as a diluent in solvent-based paints and coatings
- Industrial and commercial use in cleaning and furniture care products in carpet cleaner and wipe cleaning
- Industrial and commercial use in laundry and dishwashing products in spot remover
- Industrial and commercial use in arts, crafts, and hobby materials in fixatives and finishing spray coatings
- Industrial and commercial use in corrosion inhibitors and anti-scaling agents.
- Industrial and commercial use as processing aids in process solvent used in battery manufacture; process solvent used in polymer fiber spinning, fluoroelastomer manufacture and Alcantara manufacture; extraction solvent used in caprolactam manufacture; precipitant used in beta-cyclodextrin manufacture
- Industrial and commercial use as ink, toner and colorant products in toner aid
- Industrial and commercial use in automotive care products in brake parts cleaner
- Industrial and commercial use in apparel and footwear care products in shoe polish
- Industrial and commercial use in hoof polish; gun scrubber; pepper spray; other miscellaneous industrial and commercial uses
- Disposal



Consumer Uses that Present an Unreasonable Risk

- Consumer use as a solvent in brake and parts cleaner
- Consumer use as a solvent in aerosol electronic degreaser/cleaner
- Consumer use as a solvent in liquid electronic degreaser/cleaner
- Consumer use as a solvent in aerosol spray degreaser/cleaner
- Consumer use as a solvent in liquid degreaser/cleaner
- Consumer use as a solvent in aerosol gun scrubber
- Consumer use as a solvent in liquid gun scrubber
- Consumer use as a solvent in mold release
- Consumer use as a solvent in aerosol tire cleaner
- Consumer use as a solvent in liquid tire cleaner
- Consumer use as a lubricant and grease in tap and die fluid
- Consumer use as a lubricant and grease in penetrating lubricant
- Consumer use as an adhesive and sealant in solvent-based adhesive and sealant



Consumer Uses that Present an Unreasonable Risk cont.

- Consumer use as an adhesive and sealant in mirror edge sealant
- Consumer use as an adhesive and sealant in tire repair cement/sealer
- Consumer use as a cleaning and furniture care product in carpet cleaner
- Consumer use as a cleaning and furniture care product in aerosol spot remover
- Consumer use as a cleaning and furniture care product in liquid spot remover
- Consumer use in arts, crafts, and hobby materials in fixative and finishing spray coatings
- Consumer use in apparel and footwear products in shoe polish
- Consumer use in fabric spray
- Consumer use in film cleaner
- Consumer use in hoof polish
- Consumer use in toner aid



Risk Management Requirements

- Under TSCA, EPA is **required** to take action to address chemicals that pose unreasonable risks to human health or the environment
- EPA must issue a section 6(a) rule following risk evaluation to address all identified unreasonable risks within two years:
 - Proposed rule one year after risk evaluation
 - Final rule two years after risk evaluation
- Specific requirements on consideration of alternatives, selecting among options and statement of effects apply to risk management rules
- Input from stakeholders is critical to the process



TSCA Section 6(a) Regulatory Options

- Prohibit, limit or otherwise restrict manufacture, processing or distribution in commerce
- Prohibit, limit or otherwise restrict manufacture, processing or distribution in commerce for particular use or for use above a set concentration
- Require minimum warnings and instructions with respect to use, distribution, and/or disposal
- Require recordkeeping, monitoring or testing
- Prohibit or regulate manner or method of commercial use
- Prohibit or regulate manner or method of disposal by certain persons
- Direct manufacturers/processors to give notice of the unreasonable risk determination to distributors, users, and the public and replace or repurchase



TSCA Section 6(a) Regulatory Options

- TSCA provides authority to regulate entities including:
 - Distributors
 - Manufacturers and processors (e.g., formulators)
 - Commercial users (workplaces and workers)
 - Entities disposing of chemicals for commercial purposes
- Cannot directly regulate consumer users
 - Under TSCA, EPA has authority to regulate at the manufacturing, processing, and distribution level in the supply chain to eliminate or restrict the availability of chemicals and chemical-containing products for consumer use
 - These authorities allow EPA to regulate at key points in the supply chain to effectively address unreasonable risks to consumers



TSCA Section 6(c)

In promulgating any rule under 6(a), EPA must consider and publish a statement of effects of the rule based on reasonably available information with respect to:

- The effects and magnitude of exposure to human health,
- The effects and magnitude of exposure to environment,
- The benefits of the chemical for various uses,
- The reasonably ascertainable economic consequences of the rule, including consideration of:
 - The likely effect on the national economy, small business, technological innovation, the environment, and public health;
 - The costs and benefits of the proposed and final regulatory action and one or more primary regulatory alternatives; and
 - The cost effectiveness of the proposed regulatory action and 1 or more primary regulatory alternatives.



Types of Information to Inform Risk Management

- Suggestions on effective methods EPA can use to address the unreasonable risks
- Input on protective regulatory approaches
- Information related to controlling exposures, including current work practices, engineering, and administrative controls
- Information on essential uses, and the impacts if the chemical were not available
- Identification of uses that have been phased out, or can be phased out, and thus are no longer needed
- Any information on substitute chemicals that are safe and effective alternatives
- Suggestions on how EPA can further improve its regulatory processes or be more transparent



Principles for Transparency During Risk Management

- Transparent, proactive, and meaningful engagement
- One-on-one meetings, public webinars, and required consultations with state and local governments, Tribes, environmental justice communities, and small businesses
- Extensive dialogue will help people understand the findings in the risk evaluations, the risk management process required by TSCA, and the options available for managing unreasonable risks
- Seeking input from stakeholders on potential risk management approaches, their effectiveness, and impacts those approaches might have on businesses, workers, and consumers
- Input can help the agency develop regulations that are practical and protective



Opportunities for Engagement

- One-on-one meetings
- Webinars providing overviews of final risk evaluations and unreasonable risk determinations
- Consultations seeking targeted feedback, with:
 - States and local governments
 - Tribes
 - Small businesses
 - Environmental justice organizations and communities



Additional Information

- General TSCA: <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/frank-r-lautenberg-chemical-safety-21st-century-act>
- Current Chemical Risk Management Activities: <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/current-chemical-risk-management-activities>
- TCE Risk Management: <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-trichloroethylene-tce>
- TCE: Katie McNamara (McNamara.Katelan@epa.gov, 202-564-4361)
- General Risk Management Outreach: Douglas Parsons (parsons.douglas@epa.gov, 202-564-0341)