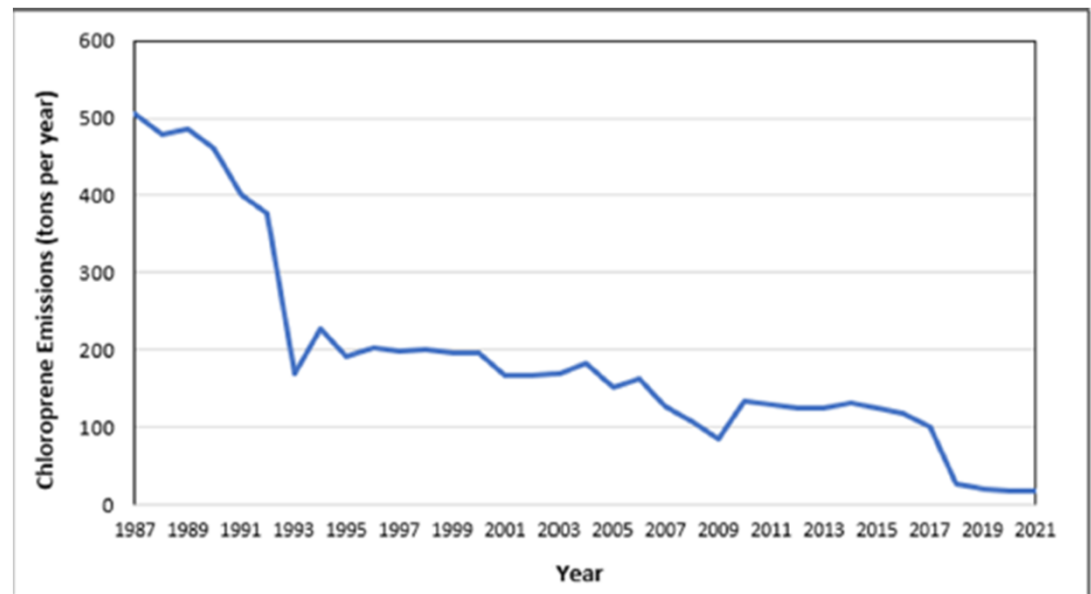


Denka Performance Elastomer(DPE) Meeting with OIRA Docket No. EPA-HQ-OAR-2022-0730

March 7, 2024

DPE has substantially reduced chloroprene (CD) emissions

- After acquiring facility in late 2015, DPE achieved 85% reduction in CD emissions by March 2018
 - RTO >98% DRE
 - MERP = 99.3% DRE for HAPF unit
- Since 2022, DPE has implemented additional operational changes to further reduce emissions.
 - 2022 AEI: 19.2 tpy CD
 - Preliminary estimate of annual emissions for 2023: 13-15 tpy CD
- No low hanging fruit; additional reductions are enormously costly.



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No Evidence of Cancer in Humans

- Decades of much higher emissions, but Louisiana Tumor Registry (housed at LSU) has found that cancer incidence in community is below state-wide averages.
- Robust worker study found no increase in cancer mortality in workers exposed to much higher concentrations for decades.
- IRIS cancer risk estimate based entirely on study of female mice known to be especially susceptible to lung and liver cancers.
- Toxicologists in EPA peer review questioned use of mouse results to estimate cancer risk in humans.
- EPA asked for PBPK model but declined to use it in rulemaking.

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Proposed Rule results in significant environmental harm

- **Using EPA's own assumptions, environmental harm is more than 40 times higher than the health benefits.**
- EPA claims 1 cancer case prevented every 20-21 years
- PM2.5 and ozone disbenefits and no other benefits
- Assuming every cancer case causes a premature death and using EPA's VSL of \$11.1 million, **annual benefit is ~\$550,000**
- Because of natural gas consumption required to achieve a DRE of 99.9% from very low concentration streams, rule would increase CO2e emissions by ~123,000 tpy
- Using EPA's SCC, **annual environmental harm is ~\$23 million**

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EPA underestimates costs of emissions control requirements

- Outdated cost estimate basis: Multipliers on 2016 data (EPA) vs. 2023 vendor estimates and industry-accepted estimating software (DPE)
- Account for acid gas scrubber to remove HCl from the flue gas
- High alloy material of construction required (HCl service)
- Additional ancillary projects required:
 - Need to upgrade
 - WWTP
 - Electrical Infrastructure
 - Natural Gas Infrastructure
 - Piping/ducting/enclosures
 - PRD monitoring
 - eGC Fenceline monitoring
 - Separate MERP DFTO

Topic	\$/Millions Annualized Cost
New Thermal Oxidizer Required to Achieve 99.9% DRE	\$12.14
Capital Costs \$38 Million (+/- 50% TIC)	
WWTP Improvements to Treat More Scrubber Water	
Incremental Fuel/Power/Water	
Enclosures (Poly Reactors/Wash Belts/Emulsion Tanks)	\$0.22
Steam Stripping for Wastewater Control (EPA-Provided Total Annual Cost)	\$7.60
PRD Program	\$0.51
eGC Fenceline Monitoring	\$3.00
LDAR Monitoring	\$0.20
MERP DFTO	\$0.34
Capital Costs	
Incremental Fuel/Water	
Total	\$22.68
EPA Total ¹	\$10.40

¹ FR 25122, Table 9, Vol. 88, No. 79 (April 25, 2023)

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The costs substantially outweigh benefits

- **Using EPA own estimates for benefits and costs, costs are at least 19 times higher than benefits**
 - The benefits of the rule are ~\$550,000/year using EPA's statistical value of life
 - EPA's estimate of annualized costs is \$10.4 million/year
- **Using EPA benefits estimates and actual engineering cost estimates, costs are more than 40 times higher than benefits**
 - Actual engineering estimates show annualized costs are ~ \$22.7 million
 - Average cost-per-ton of reduction is \$1.51 million
- **Total social cost of proposed standards (environmental harm and compliance costs) are ~ 85 times higher than benefits**

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Costs of 99.9% DRE requirement at MERP are extraordinarily high

- Current DRE is 99.3%
- Because of comingling with RCRA waste streams, MERP streams cannot be routed to main DFTO
- Annualized costs of installing and operating small DFTO to achieve 99.9% DRE for MERP streams would be ~ \$1.0 million
- Proposed controls would only reduce annual chloroprene emissions by 50-60 pounds (0.03 tons at most)
- **Cost-per-ton of emission reduction would be higher than \$40 million**

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Costs of reducing chloroprene emissions from RTO are prohibitively expensive

- Annualized cost for new DFTO to replace RTO is nearly \$3.7 million
- DFTO to go from 98% DRE to 99.9% DRE reduces chloroprene emissions by <0.8 tons annually
- **Cost-per-ton of emissions reduction would be more than \$4.6 million**
- **Environmental Harm is about \$3.5 million a year**
 - Natural gas consumption needed to control only those streams currently routed to RTO would increase CO₂ emissions by ~18,700 mtpy. (18,700 x SCC of \$190/metric ton = \$3,553,000).

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The cost-per-ton of emission reductions from wastewater requirements is extremely high

- Less than 1 tpy in reductions is possible from EPA's proposed requirements (5% of what is claimed in the proposed rule)
- **The actual cost-per-ton removed would be at least \$9.3 million/ton** using ERG's capital and operating costs

Table 4. Control Costs and Cost Effectiveness for Affected Wastewater Streams

Facility EIS ID		Steam Stripper TCI (\$)	Steam Stripper TAC (\$/yr)	Cost Effectiveness (\$/ton Chloroprene)
17640111		\$5,842,800	\$7,556,500	\$426,900
1	P&R I Facility Nationwide			\$426,900

$\$7,556,500 / 0.81 \text{ tpy} = \$9.3 \text{ million Cost Effectiveness}$

- ERG's cost estimates are incomplete
 - Additional costs would need to be incurred to route and control air emissions
 - Sizing DFTO, ducting to control, natural gas usage

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Compliance deadlines

- Two-year compliance deadline is not sufficient given need to (1) design new systems for enclosures, ducting, and piping; (2) address process safety and product quality concerns; and (3) procure and install new equipment
- Competition with dozens of other chemical plants for engineers and equipment
- Ongoing supply chain issues
- Based on discussions with DOJ, DPE is concerned that it may get a 90-day compliance deadline because of EPA's ISE lawsuit
 - Would be a shut-down order for only U.S. neoprene plant
 - Would also be arbitrary and capricious given the 2- or 3-year compliance deadlines for other facilities that pose a higher cancer risk

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