EPA Leverages Controversial IRIS Value for Ethylene Oxide to Fast-Track Overhaul of Clean Air Act Regulations of Chemical Manufacturers

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Update: EPA published the proposed rule package in the Federal Register on April 25, 2023. The original alert has been updated to reflect the date of the public hearing and the deadline for public comments.

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Last week, the U.S. Environmental Protection Agency (EPA) issued a 444-page pre-publication summary of new proposed rules intended to reduce hazardous air emissions from chemical manufacturers in the Synthetic Organic Chemical Manufacturing Industry (SOCMI) and the Group I & II Polymers and Resins Industry. The proposed rule package largely mirrors the Ethylene Production MACT (EMACT) and Miscellaneous Organics NESHAP (MON), but includes new provisions to restrict ethylene oxide (EtO) and chloroprene emissions, a fenceline monitoring program for six specific hazardous air pollutants (HAPS), enhanced flaring requirements, and new limits for dioxins and furans, among other actions.[1]

EPA will hold a public hearing on May 16, 2023. Public comments on the rule package are due on or before June 26, 2023. Companies that own or operate synthetic organic chemical manufacturing facilities and are concerned about the implications of this proposed rule package as applied to their specific circumstances may contact the authors of this article for more information.

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The speed with which EPA has promulgated this suite of ten new or amended rules may be unprecedented. EPA began developing the rule package in 2022, after sending a Clean Air Act (CAA) 114 Information Collection Request to only eight chemical manufacturing companies – a fraction of the purported 200 plus facilities EPA intends for the rules to cover. The Agency agreed by consent decree to issue final rules by March 29, 2024.

The Agency's stated exigency in issuing the regulatory package is its updated Integrated Risk Information System (IRIS) inhalation unit risk estimates (UREs) for EtO (2016) and chloroprene (2010). As our earlier coverage has outlined, industry, the scientific community, and states alike have widely criticized the EtO IRIS value since its publication. So far, EPA has repeatedly failed to respond meaningfully to these criticisms. The EtO IRIS value is currently subject to judicial review in a challenge to the Miscellaneous Organic Chemical Manufacturing (MON) rule.[2]

Notwithstanding its deadline, most of the regulatory action appears to be discretionary – EPA has already conducted technology and risk reviews of the NESHAP and is not required to do so again under the Clean Air Act. EPA could have limited its regulatory review to the NSPS. Instead, EPA has again chosen to

leverage fundamentally flawed science to fast-track far-reaching and costly regulations that may ultimately be overprotective of the actual risks and unnecessary.

The following summary provides an overview of some of the proposal's more noteworthy aspects, including EtO, fenceline monitoring, flaring requirements, and dioxins and furans. Despite proposing the most comprehensive overhaul of its chemical manufacturing rules in decades and conducting their first-of-its-kind risk assessments (i.e., community and whole facility demographic risk assessments), the Agency did not issue the actual text of the proposed rules. That proposed regulatory text likely exists, at least in draft, because the proposal makes countless cross-references and citations to specific proposed provisions. What the proposed rules would require for entities subject to the rules will be impossible to confirm until publication of the regulatory language. A more detailed summary will be developed after the text of the rules is published.

Ethylene Oxide

Most of the new rules governing EtO follow existing standards in the MON and the EMACT. However, the proposal would place new restrictions on flaring EtO. If adopted, owners and operators would be prohibited from sending more than 20 tons of EtO to all of their flares combined in any consecutive 12-month period.

Fenceline Monitoring

To date, SOCMI sources have not been required to undertake fenceline monitoring. Fenceline monitoring requirements currently only apply to benzene emissions from Petroleum Refineries (under the Refinery MACT). The proposed new rules would require SOCMI sources to monitor six HAPs: benzene, 1,3-butadiene, chloroprene, ethylene dichloride, EtO, and vinyl chloride.

The proposed rules outline two monitoring systems. EtO and vinyl chloride would be monitored through canister sampling in 24-hour sampling periods once every 5 days. For the remaining four constituents, fenceline monitoring would be required using diffusive tube samplers with 14-day sampling periods. This requirement is similar to the benzene fenceline monitoring at petroleum refineries.

Facilities would be required to undertake corrective action after threshold action levels have been triggered. The proposed action level for EtO is 0.2 $\mu g/m^3$ and 0.3 $\mu g/m^3$ for chloroprene. The proposed action level for benzene is 9 $\mu g/m^3$; for 1,3-butadiene is 3 $\mu g/m^3$; for ethylene dichloride is 4 $\mu g/m^3$; and for vinyl chloride is 3 $\mu g/m^3$.

Facilities would be required to complete a root cause analysis and take initial corrective action within 45 days of exceedance of an action level. If the initial corrective action identified by the root cause analysis is not completed within 45 days, the owner or operator must submit a corrective action plan within 60 days of completing the root cause analysis. The Agency proposes that companies submit fenceline monitoring data every 45 days.

Flaring

The new flare rules generally would adhere to the Refinery MACT CC, which is also cross-referenced in the EMACT and MON. However, these rules would expand them to unassisted flares, and steam-assisted and air-assisted flares. The proposed flaring standards replace long-standing requirements in the General Standards under Part 63 Subpart A, moving to continuous monitoring and control of the net heat value of the combustion zone (minimum NHVcz of 270 Btu/hr during any 15-minute period). The rules would propose new standards for elevated and ground pressure-assisted multi-point flares (minimum NHVcz of 800 Btu/scf during any 15-minute period).

Dioxins and Furans

EPA is proposing new emissions limits for dioxins and furans in all of the air toxics rules covered by the proposal. The rules currently do not regulate emissions of those pollutants. Dioxins and Furans would have a proposed emissions limit 0.054 ng/dscm at 3 percent oxygen (toxic equivalency basis).

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EPA has posted additional information about the rules here. B&D's EtO group also covered these developments in earlier alerts listed below:

- After Months of Delay, EPA Quietly Takes Steps Toward Community Outreach on Ethylene Oxide Risks; OIG Once Again Urges EPA to Expedite Community-Specific Notifications
- Ethylene Oxide Update: Second Risk Review Process Resolves EPA-OIG Conflict; EPA Advances Sterilizer Agenda
- EPA Forges Ahead on EO Actions without Completing Review of the Controversial IRIS Value or Its Use in Rulemaking
- EPA Publishes MON RTR, But Delays Responding to Comments on Its Controversial Risk Assessment for Ethylene Oxide

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[1] Synthetic Organic Chemical Manufacturing Industry (SOCMI) and the Group I & II Polymers and Resins Industry. The rules propose amendments to six National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 C.F.R. Part 63, Subparts F, G, H, I, U and W) and proposes four the new rules under the New Source Performance Standards (NSPS) (40 C.F.R. Part 60, Subparts IIIa, NNNa, RRRa and VVb). The four amendments to NESHAP Subparts F-I (Hazardous Organic NESHAP (HON) apply to chemical manufacturing plants, with Subparts F-H explicitly applying to SOCMI processes and Subpart I applying to certain non-SOCMI processes. Together the HON subparts outline applicability criteria and compliance, recordkeeping, and reporting requirements for process vents, storage vessels, transfer racks, wastewater streams, and equipment leaks. The two amendments to NESHAP Subparts U and W apply to the Polymers and Resins Industry, Group I & II respectively. These subparts provide similar criteria and compliance requirements as those in Subparts F-I for P&R operations. Finally, the four new NSPS Subparts IIIb, NNNb, RRRb, and VVb would regulate VOCs from SOCMI sources. The proposed NSPS additions regulate equipment leaks, air oxidation unit processes, distillation operations, and reactor processes.

[2] *Huntsman Petrochemical LLC et al. v. U.S. EPA*, No. 20-1414 (D.C. Cir. filed Oct. 09, 2020).

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