March 31, 2025

Lee Zeldin
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

**Re: Comment on information collection request (ICR) for National Emission Standards for Hazardous Air Pollutants (NESHAP) for Group IV Polymers and Resins[1] (Docket ID: EPA-HQ-OAR-2024-0274; FRL-12650-01-OMS)**

Dear Administrator Zeldin:

The American Lung Association offers the following comment on EPA's information collection request (ICR) for National Emission Standards for Hazardous Air Pollutants (NESHAP) for Group IV Polymers and Resins. EPA's work to protect people from toxic air emissions, including those produced from facilities manufacturing these widespread polymers and resins, is central to its mission to protect human health and the environment.

The information that is being collected through this ICR to ensure legal compliance[2] applies to facilities that produce various synthetic polymers and polymer resins in Group IV that are used in the manufacture of widely used thermoplastics of everyday life. These compounds for which emission limits - National Emission Standards for Hazardous Air Pollutants (NESHAPs) - are set include acrylonitrile butadiene styrene (ABS), styrene acrylonitrile (SAN), methyl methacrylate butadiene styrene (MMABS), nitrile resin, polyethylene terephthalate, (PET), polystyrene (PS), and styrene acrylonitrile (SAN).[3]

**Consumer products:** These polymers and polymer resins are integral to the manufacture of a vast number of everyday items including packaging materials, automotive parts, and consumer goods. Examples include: ABS in children's toys (e.g. LEGO bricks[4]), electronic housings, and automotive parts;[5] SAN in kitchenware, cosmetic containers, and household appliances;[6] MMABS in medical devices and transparent parts;[7] MMBS in impact-resistant products like

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[1] Federal Register :: Agency Information Collection Activities; Submission to the Office of Management and Budget for Review and Approval; Comment Request; NESHAP for Group IV Polymers and Resins (Renewal) - (EPA ICR Number 2457.05, OMB Control Number 2060-0682)

[2] eCFR :: 40 CFR Part 63 Subpart JJJ -- National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins

[3] Group IV Polymers and Resins: National Emission Standards for Hazardous Air Pollutants (NESHAP) | US EPA; EPA Fact Sheet: Final Amendments To The Air Toxics Standards For Nine Chemical Sector Source Categories

[4] www.ChemistryIsLife.com - The Chemistry of Legos

[5] Acrylonitrile Butadiene Styrene - an overview | ScienceDirect Topics

[6] Styrene-Acrylonitrile Copolymer - an overview | ScienceDirect Topics

[7] Methyl Methacrylate Butadiene Styrene

safety helmets and packaging;[8] PS in disposable cutlery, insulation materials;[9] PET in plastic beverage bottles, food containers, synthetic fibers;[10] and nitrile resin used in gloves, seals, gaskets.[11]

Such a variety of products and the range of their uses means the footprint of these polymers and resins is enormous and the toxic emissions from their manufacture needs to be strictly controlled and closely monitored protect public health and environment.

**Health Impacts of Group IV Polymers and Resins production:** Group IV Polymers and Resins emit several hazardous air pollutants (HAPs) during their production which pose mutagenic and carcinogenic risks:

- Acrylonitrile used in the production of ABS and SAN resins is a known carcinogen and can cause respiratory issues and skin irritation.[12]
- Styrene, emitted during the production of polystyrene and other styrene-based resins, can affect the central nervous system, causing headaches, fatigue, and dizziness[13]
- Methyl Methacrylate used in MABS and MBS resins can cause irritation of the eyes, skin, and respiratory tract[14]
- Ethylene Glycol produced during the production of PET resins can cause respiratory and cardiovascular issues[15]

**Health Impacts of post-production and post-use plastic pollution**: Group IV Polymers and Resins such as PS, PET, and ABS are widely used in consumer plastics that degrade over time, releasing microplastics and nanoplastics into the environment that harm human health[16] and the natural ecosystems. Additionally, the production and disposal of these polymers and resins contribute to overall plastic pollution.

Respiratory Impacts: Tiny plastic particles, when breathed in, can lodge deep in the lungs, causing inflammation and potentially leading to chronic respiratory diseases.

Toxic Chemical Impacts: Microplastics can carry toxic chemicals like heavy metals and persistent organic pollutants (POPs), which can be inhaled along with the particles. These pollutants are known to disrupt endocrine functions and are associated with reproductive problems, cancers, and other health issues.

Inflammation: Inhaled microplastics in the respiratory system can trigger inflammatory responses, exacerbating conditions like asthma and other chronic lung diseases.

Systemic Effects: Inhaled microplastics can enter the bloodstream and potentially reach other organs, affecting their function over time.

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[8] ABS Resins - an overview | ScienceDirect Topics
[9] Polystyrene - Chemical Safety Facts
[10] Sustainability Life Cycle Environmental Impacts of PET Plastic Water Bottles
[11] Nitrile Rubber - an overview | ScienceDirect Topics
[12] Acrylonitrile | Medical Management Guidelines | Toxic Substance Portal | ATSDR
[13] Styrene | Public Health Statement | ATSDR
[14] NJ Dept of Health and Senior Services. Hazardous Substance Fact Sheet: Methyl Methacrylate
[15] HEALTH EFFECTS - Toxicological Profile for Ethylene Glycol - NCBI Bookshelf
[16] Breathing Plastic: The Health Impacts of Invisible Plastics in the Air - Center for International Environmental Law

**NESHAPs and Control Technologies**: The large number of these synthetic polymers and polymer resins and their applications in the manufacture of the vast scale of consumer products and special function plastics, the known health and environmental harms of the hazardous air pollutants (HAPs) emitted during the production of these polymer resins, and the added impacts of the plastic pollution from post-use breakdown of these products require strong NESHAPs for each new and existing thermoplastic product process units (TPPU) and associated equipment that produce Group IV Polymers and Resins.[17]

We ask that EPA review the emission standards for these organic HAPs, which were last amended in 2014, and set the most stringent emission limits that can be achieved through current technologies to minimize their impact on human health and the environment.

**Compliance and enforcement:** Emission limits and any related regulations are only as effective as their compliance and enforcement. We ask that EPA ensure strict oversight of monitoring and reporting requirement compliance. EPA must ensure that facilities install and operate continuous monitoring systems, report any accidental leakages or malfunctions immediately to EPA and post this information on their website in real time to keep surrounding communities informed and to protect their health. Transparency of reporting is a critical component of effective compliance.

Additionally, we ask EPA to:
**Better protect health from microplastics**: Regulations developed through inter-agency efforts to reduce exposure to airborne microplastics (by minimizing the use of plastic products, improving indoor air quality, adopting policies that reduce plastic pollution, etc.) could all help to protect public health and the natural environment over long term. EPA has an opportunity to take the lead in these efforts drawing from its proven regulatory processes related to other pollutants.[18]

**Advance safer non-toxic alternatives to the hazardous Group IV Polymers and Resins:** In addition to regulating the hazardous emissions from Group IV Polymers and Resins, we ask EPA to support research and collaboration to find nontoxic, safer alternatives to these toxic compounds. Some potential alternatives include:
Bio-based BPA Alternatives: some non-toxic, bio-based alternatives to bisphenol A (BPA) currently exist, e.g. furan-based amine and phenolic compounds derived from renewable resources like plant sugars and phenols which offer required properties of plastics but with reduced toxicity.[19]

[17] eCFR :: 40 CFR Part 63 Subpart JJJ -- National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
[18] Karetnick, A. R. *et al.* (March 25, 2024). From Particles to Policy: Microplastics at the Crossroads of Regulation and Litigation. Blogpost from Morgan Lewis.
[19] U.S. Army Combat Capabilities Development Command Army Research Laboratory (DEVCOM ARL) develops Non-toxic, bio-based BPA alternative | TechLink

Plant-based Resins: Some completely plant-based resins made from agricultural waste that are currently on market are non-toxic, biodegradable, and can be used in various applications, including furniture and insulation foams.[20]
Polybenzoxazines: These are a new generation of bio-based plastics synthesized from bio-sourced elements like eugenol, which offer a sustainable alternative for high-performance materials.[21]

Thank you,

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[20] Plantics | Bio-based Industries Consortium (BIC) - EU
[21] Polybenzoxazines, a new generation of bio-based plastics | Luxembourg Institute of Science and Technology