State of Oregon
Department of Environmental Quality Memorandum

Date: July 1, 2025

To: Environmental Quality Commission

From: Leah Feldon, Director

Subject: Agenda item H, Informational item**:** Volatile Organic Compounds 2025 Rulemaking
July 10-11, 2025, EQC meeting

Purpose of item

DEQ will inform the commission about a rulemaking to limit volatile organic compounds (VOCs) in consumer products and architectural and industrial maintenance (AIM) coatings in preparation for proposed EQC action this fall. This rulemaking is intended to modernize limits for VOCs in consumer products and AIM coatings as a proactive measure to reduce emissions of ozone precursors in Oregon and reduce public health impacts associated with VOCs and ozone.

Prior EQC involvement

In 1995, the commission approved rules to limit VOCs in consumer products, spray paint and architectural coatings while the Portland-Vancouver Air Quality Management Area (AQMA) was in non-attainment for ozone. The rules adopted in 1995 were subsequently repealed in 1999 after the EPA promulgated a federal rule to reduce VOC emissions from these product categories which was believed to provide comparable benefits.

Background

Volatile organic compounds are a diverse and ubiquitous class of compounds found in many different products that consumers and industry utilize – in products ranging from deodorants and baby wipes to windshield wiper fluids to wood coatings and adhesives. Several major biogenic sources, such as trees and the combustion of biomass and debris in wildfires, also emit volatile organic compounds. Regardless of the source, these compounds have an important impact on air quality and public health, as they contribute to the formation of ground-level ozone. Ground-level ozone is classified as one of the six "criteria" air pollutants due to its significant public health impacts. In the air, VOCs can contribute to the formation of fine particles ($PM_{2.5}$) and regional haze, which are both regulated under the Clean Air Act in addition to ozone.

Research suggests that historically, U.S. inventories likely underestimated the contribution of this product sector to VOC emissions. An analysis of data from the National Emissions Inventory for 2020 in Oregon shows that consumer products and AIM coatings are the second-largest source of VOC emissions in human-caused sectors, second only to mobile sources, and greater in magnitude than emissions from non-mobile source fuel combustion, industrial processes, or gas stations. Further analysis of emissions inventory data demonstrates that among consumer products and architectural and industrial maintenance coatings, the top emitters of VOCs are: 1) coatings and related products, personal care products, household products, and adhesives and sealants.

This rulemaking may also yield co-benefits by reducing exposure to toxic VOCs, which are linked to both immediate and long-term health risks, including hormonal disruption, asthma, and cancer. VOC exposures are often highest for communities of color, who also experience the greatest cumulative health risks associated with environmental pollutants and toxics. Actions to reduce the VOC content of products in Oregon can benefit these communities by reducing one important type of exposure related to cumulative health burdens.

In 1992, the ambient ozone concentrations exceeded the health-based standards, known as the National Ambient Air Quality Standards, in the Portland-Vancouver area. The EQC passed rules that set regulations on the VOC content for certain consumer products and coatings as part of strategies associated with DEQ's State Implementation Plan to reduce pollutants, like VOCs, that contribute to the formation of ground-level ozone. The Portland-Vancouver area was in non-attainment until 1997 when the EPA accepted Oregon's demonstration that the federal ozone standard was being met and that appropriate ozone control measures were in place. In 1998 the EPA took action to set federal standards for VOC emissions from consumer products that provided similar emissions reduction benefits to those that Oregon adopted. The EQC repealed the Oregon-specific consumer product rules in 1999 to reduce redundancies and simplify regulatory requirements for consumer products.

Since 1997, Oregon has maintained attainment status for ozone in all areas of the state. Still, in recent years, several areas have exhibited average ozone concentrations very close to the federal ozone standard. These areas include some of Oregon's most densely populated cities, such as Portland, Salem and Medford. For example, the design value (the 3-year average of the fourth-highest daily maximum average ozone concentration) for 2022-2024 was 69 ppb (Fig. 1), whereas the federal standard is 70 ppb. The 1 ppb difference between the federal standard and Portland's 2022-2024 design value demonstrates a small margin and a high risk for non-attainment, especially if Oregon were to be impacted by an increase in VOCs from sectors such as transportation.

Additional areas, such as Medford, Hermiston and Eugene also have design values that suggest the need to curb ozone precursor emissions to both protect public health and prevent non-attainment (Fig. 2).

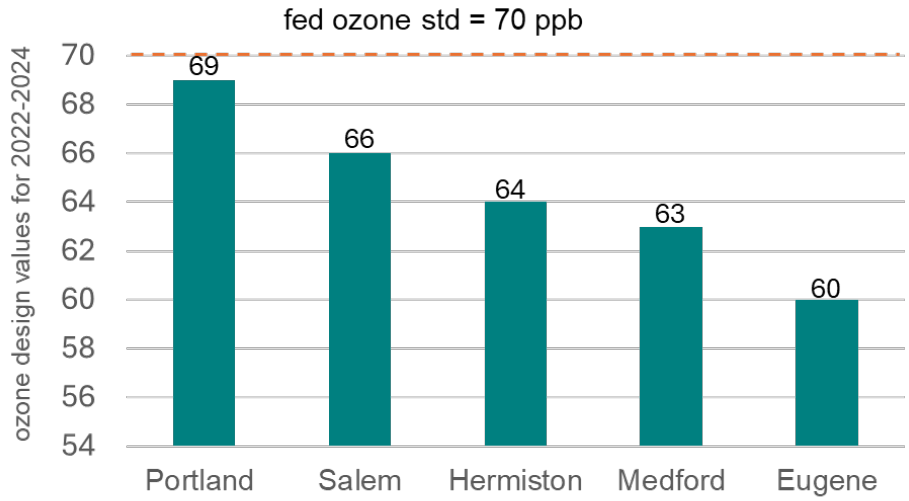

Figure 1. Design values for 2022-2024 for areas in Oregon trending close to the federal standard for 8-hour ozone concentrations (source: EPA).

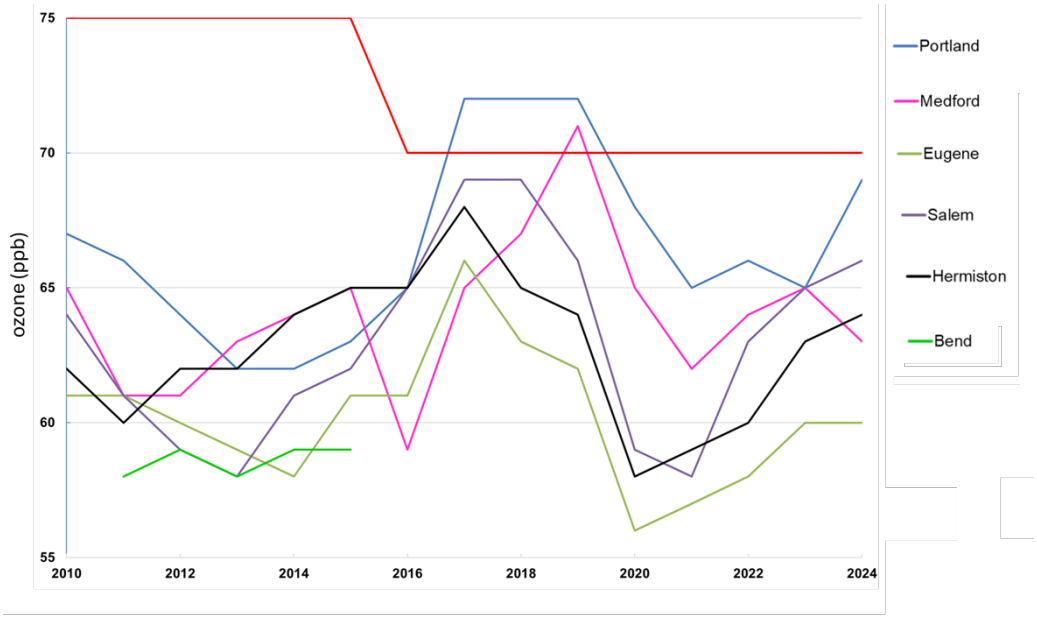

Figure 2. Ozone design values for select areas in Oregon, 2010 - 2024 (source: EPA).

Regulatory context

Consumer products and coatings are one sector that Canada and many states or jurisdictions in the U.S. regulate to reduce VOC emissions. To date, there are approximately 20 other states or jurisdictions across the U.S. that have passed regulations to limit VOCs in consumer products and AIM coatings (or are in the process of doing so). that are more stringent than those adopted by the federal government, including regional partners of DEQ in California, Utah, Colorado and Clark County in Nevada, and 11 states in the Ozone Transport Commission which

covers states on the east coast. Canada adopted new regulations limiting VOCs in consumer products effective in 2023. DEQ has been in conversations with state and regional partners to understand better how these entities manage their consumer products and coatings programs and how to tailor a regulatory program to fit the resources and needs in Oregon.

Using the national emissions inventory, DEQ's analysis suggests VOC emissions may be reduced by 10–23%, depending on which regulatory model is employed. Further emissions reduction benefits would likely be observed if the coatings industry were regulated. DEQ is working to better characterize the emissions reduction benefits before making a recommendation to the commission. One example is an analysis by Colorado's Regional Air Quality Council (see page 22), which suggests that regulating architectural and industrial maintenance coatings can result in approximately twice as much additional emissions reduction as from consumer products alone.

This rulemaking would add provisions to Chapter 340 and create a new Division (274) for these Oregon Administrative Rules. Specifically, this rulemaking would add requirements to OAR for:

- Limits on the VOC content applicable to specific product categories
- A sell-through provision to minimize impacts on small businesses, meaning that businesses will have a window in which to continue to sell non-compliant products purchased before new standards go into effect
- Noncompliance penalties for applicable manufacturers, distributors and/or vendors, etc.
- Alternative compliance pathways for certain products

This rulemaking will include an enforcement component, with provisions that require manufacturers to submit product formulation information upon DEQ's request. The rulemaking team is working to ensure that implementation plans are manageable, and where possible, leverage data from other programs, such as those administered by California Air Resources Board (CARB).

Key issues

DEQ examined several existing regulatory models in this rulemaking and assessed the potential benefits and drawbacks of these models. Utilizing model rules as the basis for this rulemaking helps ensure that DEQ proposes an approach that has been effectively used in other states, reduces the administrative burden associated with the rule-writing efforts, and allows for the industry to comply more easily.

The primary regulatory model that DEQ examined is established by CARB in conjunction with local air districts. Due to historical and current issues with ozone attainment in California, particularly in the Los Angeles metropolitan area, CARB has regulated consumer product emissions of VOCs since 1989, with 26 rulemakings since then to refine and strengthen the stringency of their rules. CARB also developed standards for architectural and industrial maintenance coatings that local air districts can choose to adopt and implement. Currently, 18 out of 34 local air districts in California have adopted CARB's suggested standards for architectural and industrial maintenance coatings.

CARB's program to limit consumer products includes a multi-million-dollar budget and features, among other aspects: robust research with product surveys, a compliance and enforcement team, rule-writing specialists, as well as a laboratory team that tests products. The VOC standards that CARB has in place for consumer products are among the most stringent in the U.S., except for those in the South Coast Air Quality Management District.

Two additional regulatory models have been adopted by other states or jurisdictions in the U.S., both of which were developed by the Ozone Transport Commission (OTC) to match many aspects of CARB's consumer product rules and architectural and industrial maintenance coating standards. There are five "phases" of the OTC model rules for consumer products, with phase V representing the most stringent standards, similar to the 2015 version of CARB's regulations. There are two phases of the architectural and industrial maintenance coating model rule from OTC, with phase II representing a more stringent version that is similar to CARB's current regulatory model for these products.

Both the CARB and OTC rules have exceptions for industrial and manufacturing settings, so neither of these regulations imposes significant additional standards for facilities that are already regulated under stationary source permitting requirements. Instead, the rules largely apply to products used in and around the household, at construction sites, and in other non-industrial or non-manufacturing settings.

DEQ has convened four rulemaking advisory committee meetings to advise the agency on which regulatory model to recommend to the commission. The rulemaking advisory committee includes members from consumer products and coatings industry associations, an Oregon paint manufacturing company, a public health department, several advocacy groups, as well as community-based organizations focused on health for underserved populations.

Discussions at the rulemaking advisory committee meetings have centered around:

1) Potential public health benefits of the various regulatory models,
2) Consistency with product standards in other states,
3) Appropriately designing implementation requirements of a regulatory program to fit the ability of DEQ to administer the program, and
4) Minimizing impacts on small businesses and consumers.

DEQ plans to hold 1-2 additional RAC meetings to: 1) review draft rules, 2) discuss fiscal impacts, and 3) identify details necessary for regulatory implementation.

EQC involvement

The Air Quality Division at DEQ intends to bring a rule proposal to the commission for action in November of 2025.

Supporting materials

A. Volatile Organic Compounds 2025 Rulemaking webpage
B. Ozone Transport Commission's Model Rule (Phase V) for Consumer Products
C. Ozone Transport Commission's Model Rule (Phase II) for Coatings

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Translation or other formats

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