Oregon Department of Environmental Quality

September 29, 2016Enter EQC Meeting Date mm dd, yyyy

Oregon Environmental Quality Commission Meeting

Rulemaking Action Item No. XX

**Art Glass Permanent Rulemaking**

****This file contains the following documents:****

* **EQC Staff Report**
* **Draft rules – redline/strikethrough**
* **Draft rules – no markup**
* **Supporting documents**

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| DEQ recommendation to the EQC |

DEQ recommends that the Environmental Quality Commission adopt the proposed rules in Attachment A as part of Chapter 340 of the Oregon Administrative Rules.

## Insert the following sections from published NOTICE after the Recommendation section.

* Overview – include *Request for Other Options.*
* Freeform title
* Statement of need
* Rules affected, authorities, supporting documents
* Fees
* Statement of fiscal and economic impact
* Federal relationships
* Land use

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| Overview |

## Short summary of proposed rule changes

## Background of reasons for doing this rulemaking

## How this rulemaking addresses the reasons for doing the rulemaking

## Key policy and technical issues

## Affected parties

## Outreach efforts and public and stakeholder involvement

## Hearing testimony

## Summary of significant public comments and responses

## Effects of this rulemaking on any fees

## Brief summary of fiscal impact

**Short summary**

DEQ proposes that the Oregon Environmental Quality Commission (EQC) approve the proposed rules, making the temporary art glass rules adopted by the EQC in April 2016 permanent, but potentially with some modifications.

**Brief history**

Elevated and possibly unsafe levels of metals have been found in the air around two glass manufacturing facilities in Portland. In May 2015, DEQ received the initial results of a study the U.S. Forest Service conducted looking at moss samples as an indicator or screening tool for contaminants in the air. The study’s results showed that the moss samples in the areas near two colored art glass manufacturers contained high levels of the heavy metals cadmium and arsenic in Southeast Portland and cadmium in North Portland.

This pilot study prompted DEQ to set up air monitoring systems near a glass company in Southeast Portland. The study collected 24-hour air samples every few days over a 30-day period in October 2015. The results of DEQ’s air monitoring confirmed that the glass company was the likely source of metals air emissions. DEQ completed its quality assurance and quality control review of those samples in late January 2016. DEQ then shared its analysis of the findings with the Oregon Health Authority (OHA) and the Multnomah County Health Department.

The DEQ also identified a second area of concern near a glass company in North Portland. The glass companies were operating in compliance with the current law. One company was operating within its permit and the other company is not required to have a permit.

The U.S. Congress amended the Clean Air Act in 1990 to allow EPA to oversee the control of 188 hazardous air pollutants (HAPs) in order to protect human health. The EPA works with local and state governments to implement technologies that control the emission of these chemicals.

Benchmarks are Oregon’s protective “clean air” goals that DEQ developed to address toxic air pollutants. There are no direct regulatory requirements associated with benchmarks. In 2005, with EPA funding, DEQ measured concentrations of air toxics, including metals, at six locations in the Portland area, finding levels of many pollutants above clean air benchmarks. DEQ established air toxics benchmarksin 2006 that set guidelines for 52 pollutants.

DEQ’s work in 2006 and since then has identified levels of some toxic air pollutants that are still above Oregon’s air toxics benchmarks. This is a significant problem because toxic air pollutants are connected with serious health effects like cancer, respiratory problems and organ damage. DEQ's air toxics benchmarks are designed to be very protective air concentrations that people could breathe for a lifetime without increasing their cancer risk beyond a chance of one in a million.

Air toxics emissions from certain types of industrial businesses like colored art glass manufacturers are not fully regulated under federal requirements. Based on sampling DEQ has concluded that uncontrolled furnaces used in such colored art glass manufacturing are more likely than not to emit potentially unsafe levels of certain metals, including arsenic, cadmium, hexavalent chromium and nickel. The permanent rules that DEQ proposes for EQC adoption are intended to protect public health and the environment by ensuring the air emissions from colored art glass facilities do not cause unsafe levels of metals in the air nearby.

EQC adopted temporary rules on April 21, 2016 and this proposed rulemaking will make those rule changes permanent. If no action is taken those rules will expire 180 days after adoption, on October 18, 2016.

**Regulated parties**

The proposed rules apply to colored art glass manufacturers (CAGM) in the Portland Air Quality Maintenance Area (AQMA). DEQ is considering rule modifications that would make the proposed permanent rules apply to more sources than do the temporary rules, as noted below in the section titled “Request for other options”.

CAGMs will incur expenses to obtain air permits; submit reports to DEQ; and depending on the compliance path chosen, to install, operate and maintain emission control devices, and/or perform stack testing and dispersion modeling.

**Request for other options**

During the public comment period, DEQ requested public comment on whether to consider other options for achieving the rules’ substantive goals while reducing the rules’ negative economic impact on business.

In addition to comments on other aspects of the proposed rules, DEQ specifically requested public input on these questions:

* Should the rule be modified to apply to sources that make less than 10 tons per year of colored art glass? If so, what threshold would be appropriate? If proposing a new threshold, what is the scientific/risk based rationale for the change?
* Should the rule be modified to apply statewide, rather than only in the Portland AQMA?
* The temporary rule requires control devices be shown to capture at least 99.0% of incoming particulate matter. DEQ has received indications that, for some facilities, capturing enough particulate matter to show compliance with the 99.0% requirement may require an unmanageably long source test. DEQ seeks comment on whether replacing the 99.0% capture efficiency standard with an emissions standard at the control device outlet would be appropriate for Tier 1 or all facilities and if so, what emissions standard should be chosen. DEQ is considering a control device outlet particulate matter emission standard between 0.001 and 0.01 gr/dscf (grains per dry standard cubic foot of air) based on a range of emissions standards in federal air toxics rules.

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| Statement of Need |

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**What need would the proposed rule address?**

DEQ is addressing the need to control metals emissions from CAGM facilities. As DEQ recently determined through air monitoring and facility inspections, uncontrolled glass furnaces processing colored glass to which metal Hazardous Air Pollutants[[1]](#footnote-1) (HAP) are added emit these metals at levels that can pose an immediate threat to the health of people nearby. Recent monitoring close to a colored art glass facility with uncontrolled furnace emissions has shown metals concentrations at levels that can significantly increase risks of cancer and other health problems.

These rules are necessary to address a regulatory gap. A federal regulation called NESHAP 6S[[2]](#footnote-2) is applicable to some furnaces at the largest CAGMs, but smaller facilities and furnaces also use and emit metal HAP in quantities likely to pose an unacceptable risk to people nearby. No other state and federal standards currently apply that would limit potentially unsafe levels of metal emissions from these types of colored art glass facilities.

**How would the proposed rule address the need?**

The proposed rules would fill the regulatory gap by setting operational standards for art glass businesses that emit air toxics and potentially cause serious health effects.

The proposed rules create two tiers of CAGM based on production and furnace type. The larger Tier 2 CAGMs would be required to install emission control devices on all furnaces using metal HAP and to perform source testing and dispersion modeling to measure and limit emissions of hexavalent chromium. The smaller Tier 1 CAGMs can install emission control devices on all furnaces using metal HAP, use source testing and modeling to demonstrate that emissions are below source impact levels without controls, or stop using metal HAP in one or more furnaces.

These rules would decrease the risk from airborne metal exposure to people nearby, including children and other sensitive or vulnerable individuals.

**How will DEQ know the rule addressed the need?**

The rule requires source testing to demonstrate the effectiveness of emissions control devices and to measure emissions in several other cases (hexavalent chromium emissions from Tier 2 facilities and metal HAP emissions from Tier 1 facilities opting to operate uncontrolled furnaces). Source testing will quantify metal HAP emissions and emissions reductions.

DEQ is also performing ambient air monitoring near several CAGMs, which can verify whether metal HAP concentrations in the air people breathe have been reduced to safe levels.

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| Rules affected, authorities, supporting documents |

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**Lead division**

Operations

**Program or activity**

Program Operations

**Chapter 340 action**

|  |  |
| --- | --- |
| Repeal | OAR 340-244-0010(T), 340-244-9000(T), 340-244-9010(T), 340-244-9020(T), 340-244-9030(T), 340-244-9040(T), 340-244-9050(T), 340-244-9060(T), 340-244-9070(T), 340-244-9080(T), 340-244-9090(T) |
| Adopt | OAR 340-244-9000, 340-244-9010, 340-244-9020, 340-244-9030, 340-244-9040, 340-244-9050, 340-244-9060, 340-244-9070, 340-244-9080, 340-244-9090 |
| Amend | OAR 340-244-0010 |

**Statutory authority**

ORS 468.020, 468A.025, 468A.040, 468A.055, 468A.070 and 468A.310

**Statute implemented**

ORS 468A.025, 468A.040, 468A.055, 468A.070 & 468A.310

**Documents relied on for rulemaking**

|  |  |
| --- | --- |
| **Document title** | **Document location** |
| EQC Staff Report for Colored Art Glass Manufacturer Emissions Temporary Rulemaking | <http://www.oregon.gov/deq/RulesandRegulations/Documents/ToxicsStaff0416.pdf> |

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| Fee Analysis |

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This rulemaking does not involve the adoption of any new fees.

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| **Statement of fiscal and economic impact** |

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**Fiscal and Economic Impact**

The proposed change to make the CAGM rules permanent would have fiscal and economic impacts on businesses, DEQ, and the public. It is not anticipated to have fiscal and economic impacts on federal government, other state agencies, or local governments.

**Statement of Cost of Compliance**

**State and federal agencies**

Direct Impacts

The proposed rules would require Tier 1 CAGMs to apply for and maintain Air Contaminant Discharge Permits (ACDPs), which these businesses would not otherwise be required to have. The permit application fees (currently $7,200 per facility) and annual fees (currently $4,608 per facility) would be additional revenue to DEQ. However, those fee amounts would be offset by DEQ’s additional costs for permit writing, compliance monitoring and inspections.

Tier 2 CAGMs that must comply with the substantive requirements of NESHAP 6S will be required to have Title V operating permits whether or not the proposed rules are adopted. In this case, adoption of the proposed rules would not impact DEQ revenue or costs for these facilities. If a Tier 2 CAGM is not required by NESHAP 6S to have a Title V permit, the proposed rules would require them to get an ACDP similar to Tier 1 CAGMs. Bullseye Glass currently has an ACDP.

The US Environmental Protection Agency has been in contact with CAGMs and DEQ but they would not be directly involved in implementing the proposed rules. DEQ does not anticipate impacts to federal agencies or other state agencies besides DEQ.

Indirect Impacts

DEQ does not anticipate indirect impacts to DEQ or other state and federal agencies.

**Local governments**

DEQ does not anticipate direct or indirect impacts to local governments.

**Public**

Direct Impacts

DEQ does not anticipate direct impacts to members of the public, because they are not subject to the rule.

Indirect Impacts

The proposed rules are intended to measure and reduce emissions of metal HAPs from the CAGMs subject to the rule. Decreased emissions of metal HAPs and other particulate matter may have significant health benefits for the public, particularly those who live, work or otherwise spend significant time near a CAGM.

Cadmium, arsenic, and lead, three of the metal HAPs regulated by the rule, have been found to exceed human health-based benchmark concentrations near CAGMs. Exposure to metal HAPs through inhalation or other means is connected with serious health effects like cancer, respiratory problems and organ damage.

The compliance route chosen by many CAGMs will likely be installation of one or more particulate matter control devices such as baghouses. In addition to reducing metal HAP emissions, installation of these devices would reduce emissions of other particulate matter, including fine particulate matter (less than 2.5 microns in diameter). Fine particulate matter causes serious health problems ranging from increased respiratory and pulmonary symptoms, hospital admissions and emergency room visits to premature death for people with heart and lung disease.

Health problems have negative economic impacts to the people experiencing them, and may also affect their family members, employers, and the health care system. The proposed rules would create positive economic benefits and improvements in public health and welfare by reducing these emissions. DEQ currently does not have an estimate of avoided health impacts, but the Oregon Health Authority (OHA) is working on Public Health Assessments to estimate the health impacts of emissions from Bullseye and Uroboros. OHA plans to release those reports in late fall of 2016.

The US Environmental Protection Agency (EPA) estimated the costs and benefits of the 1990 Clean Air Act Amendments[[3]](#footnote-3), which among other things expanded regulation of air toxics and led to regulations such as NESHAP 6S. EPA’s estimate was that the health benefits of that set of regulations were 30 times the costs of compliance, with a range between 3 and 90. According to EPA, “This net improvement in economic welfare is projected to occur because cleaner air leads to better health and productivity for American workers as well as savings on medical expenses for air pollution-related health problems. The beneficial economic effects of these two improvements alone are projected to more than offset the expenditures for pollution control.”[[4]](#footnote-4) While EPA has calculated these benefits for the 1990 Clean Air Act Amendments, it is unknown whether figures would be similar for these proposed rules.

The source testing, modeling, and reporting components of the rule provide the public information about the amount and composition of emissions. This information appears to have value to members of the public, though DEQ is unable to quantify that value in monetary terms.

To the extent that metals emissions depress property values near CAGM facilities, the proposed rule may also have a positive economic impact by reversing that effect. DEQ does not have available data to quantify this.

Members of the public that are customers of CAGMs may pay higher prices, if CAGMs raise their prices to recoup their compliance costs. DEQ lacks information to estimate the impact of price increases but expects this impact on the public to be small relative to the health benefits.

**Large businesses - businesses with more than 50 employees**

Direct Impacts

Currently there are five CAGM that would be subject to the proposed rules. One of those, Bullseye Glass Company, has more than 50 employees and is therefore considered a large business for the purposes of rulemaking fiscal impact analysis.

Compliance cost may vary depending on facility-specific circumstances. In particular, Bullseye is making changes to comply with NESHAP 6S at the same time as this proposed rule. Even if this proposed rule is not adopted, Bullseye would need to install one or more baghouses to meet NESHAP 6S requirements. Because the number of baghouses that would be installed for NESHAP 6S alone is uncertain, the number of additional baghouses needed for compliance with the proposed rule is also uncertain. (Bullseye is planning for installation of a total of 4 baghouses.) DEQ has incorporated that uncertainty into this fiscal impact analysis by estimating that Bullseye would install between zero and two additional baghouses to comply with the proposed rule, over and above what they would install for NESHAP 6S compliance alone.

If no additional baghouse costs were attributable to the proposed rule, compliance with the proposed rule would cost Bullseye about $70,000 to $100,000 in initial costs for permitting, source testing, and modeling, with no ongoing costs.

If all costs for two additional baghouses were attributable to the proposed rule, compliance with the proposed rule would cost Bullseye about $578,000 to $930,000 for permitting, baghouse installation, source testing, and modeling, and ongoing costs of $54,000 to $174,000 per year to operate and monitor the baghouses.

It is possible that Bullseye may be able to offset the cost of compliance through increased prices. Bullseye is reportedly increasing prices by 12.5% in August 2016 to help pay for baghouse installation[[5]](#footnote-5). However, the potential for increasing revenue may be limited if prices are set in a market that includes competitors located outside the jurisdiction of the proposed rules.

Further details on these cost estimates can be found in Attachment A.

Indirect Impacts

To the extent CAGMs raise their prices in response to the proposed rules, the increased prices represent an indirect fiscal impact on their customers, some of whom may be large businesses. DEQ does not have sufficient information to estimate this effect.

**Small businesses – businesses with 50 or fewer employees**

Direct Impacts

Four of the five businesses subject to the proposed rules have 50 or fewer employees and are therefore considered small businesses for the purposes of rulemaking fiscal analysis.

Of these, one (Uroboros Glass Studios, Inc.) is in Tier 2 of the proposed rules. The other three (Glass Alchemy, Northstar Glassworks, and Trautman Art Glass) are in Tier 1.

Like Bullseye, Uroboros is making changes to comply with NESHAP 6S at the same time as the proposed rule. Uroboros stated that in 2015 all of their furnaces were below the throughput thresholds for NESHAP 6S applicability. But, they intend to comply with NESHAP 6S because future throughput may be higher. Uroboros plans to install one baghouse at their facility. Because that baghouse is partially attributable to this proposed rule, DEQ calculated Uroboros’ costs with between zero and one additional baghouse to comply with the proposed rule.

If no additional baghouse costs were attributable to the proposed rule, compliance with the proposed rule would cost Uroboros about $66,000 to $89,000 in initial costs for permitting, source testing, and modeling, with no ongoing costs.

If all costs for the baghouse were attributable to the proposed rule, compliance with the proposed rule would cost Uroboros $421,000 to $699,000 for permitting, baghouse installation, source testing, and modeling, and ongoing costs of $27,000 to $87,000 per year to operate and monitor the baghouse.

Facility-specific data for the Tier 1 CAGMs was not available, so their costs were estimated as a class. The proposed rule gives Tier 1 CAGMs multiple compliance options.

One option is to install an emissions control device such as a baghouse. DEQ estimates that the cost of compliance through this method is approximately $261,000 to $422,000 per facility in one-time costs and between $32,000 and $92,000 per facility in ongoing annual costs. The Tier 1 facilities are not subject to NESHAP 6S and would likely install only one baghouse per facility. All three Tier 1 CAGMs indicated that they planned to pursue this compliance option.

Alternately, Tier 1 CAGMs can operate without an emissions control device if they show through source testing and dispersion modeling that the impact of their emissions on the nearest sensitive receptor is within acceptable source impact levels. DEQ estimates that the cost of compliance via this pathway would be approximately $32,000 to $127,000 in one-time costs and $5,000 in ongoing annual costs for permitting. However, this estimate does not include the cost of reductions or changes in the type or amount of products produced, which could potentially be required in order to maintain emission impacts below limits. The proposed rules also prohibit hexavalent chromium from being used in furnaces that are using this compliance pathway. DEQ does not have sufficient information to estimate whether reduction or changes in production would be necessary.

Tier 1 CAGMs also have the option to stop using some or all of the metal hazardous air pollutants[[6]](#footnote-6) regulated by this rule completely. While this option is available, this would limit the range of glass colors that can be produced, and the lost revenue would likely make this an expensive compliance option.

Trautman Art Glass, one of the Tier 1 CAGMs, said that the proposed rules may prompt them to move their facility to a new location. That decision would depend on whether the current property owner agrees to allow installation of a baghouse, as well as other factors internal to their business. The company estimated that moving their factory and complying with the rules at the new location would cost approximately $2 million, plus lost revenue of $1 million during the moving process. DEQ does not have data to verify the necessity to move or the facility’s cost estimates for doing so.

As for large business CAGMs, it is possible that small business CAGMs may be able to offset the cost of compliance through increased prices. However, this potential may be limited if their prices are set in a market that includes competitors located outside the jurisdiction of the proposed rules.

Further details on these cost estimates can be found in Attachment A.

Indirect Impacts

To the extent CAGMs raise their prices in response to the proposed rules, it would represent an indirect fiscal impact on their customers, some of whom may be small businesses. DEQ does not have sufficient information to estimate this effect.

Summary of impact on small business (ORS 183.336)

**a. Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule.**

Four of the CAGMs subject to the proposed rule are small businesses.

**b. Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.**

Tier 1 CAGMs would be required to obtain an Air Contaminant Discharge Permit (ACDP) that they wouldn’t otherwise be required to have. Tier 2 CAGMs would be required to obtain an ACDP, if an ACDP or Title V is not already required by other regulations.

CAGMs complying using an emissions control device are required to do an initial source test and/or install a secondary device (a baghouse leak detection system or HEPA after-filter), and ongoing monitoring and reporting to show proper operation of the emissions control device.

CAGMs complying using source testing and modeling would be required to perform source testing and modeling, and may also need to do recordkeeping and reporting to show that production levels remain below limits established through that process.

**c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.**

CAGMs complying using an emissions control device would be required to install the control device, which may require replacement parts and supplies.

**d. Describe how DEQ involved small businesses in developing this proposed rule.**

DEQ allowed for a two week public comment period on the temporary rule, which is not required by law. DEQ received comments on the temporary rule from three of the four small businesses affected by the rule. DEQ proposed changes in the rules for Tier 1 CAGMs as a result of these comments.

**Documents relied on for fiscal and economic impact**

| **Document title** | **Document location** |
| --- | --- |
| Benefits and Costs of the Clean Air Act 1990-2020, the Second Prospective Study None – will delete if not needed | <https://www.epa.gov/clean-air-act-overview/benefits-and-costs-clean-air-act-1990-2020-second-prospective-study> |
| Bullseye Glass is Raising Prices To Pay for Air Filters | Portland Mercury, June 8, 2016  <http://www.portlandmercury.com/blogtown/2016/06/08/18194644/bullseye-glass-is-raising-prices-to-pay-for-air-filters> |

**Advisory committee**

DEQ appointed a fiscal advisory committee.

As ORS 183.33 requires, DEQ asked for the committee’s recommendations on:

* Whether the proposed rules would have a fiscal impact,
* The extent of the impact, and
* Whether the proposed rules would have a significant impact on small businesses and complies with ORS 183.540.

The committee met on May 27, 2016 and June 10, 2016 to review the draft fiscal and economic impact statement. Committee members were asked individually to respond to the questions listed above.

Committee members agreed that the rules would have a fiscal impact. Several members commented that there is also a fiscal impact on the US EPA. Other committee members stated that in addition to negative fiscal impacts of the rule, there are positive impacts because of avoided health impacts.

Committee members felt the range of costs reflected in the DEQ fiscal impact estimates were reasonable. Some commented that there is high uncertainty about the numbers, and some requested that the health benefits of the rule be quantified. One commented that costs could be significantly higher than the cost range given if a CAGM had to move their facility to install controls.

Committee members agreed that the rule would have a significant adverse impact on small businesses. Several members commented that small businesses located near the facilities or whose employees are located near the facilities would be negatively impacted if the rule were not implemented, because of the health impacts of uncontrolled emissions.

The committee determined the proposed rules would have a significant adverse impact on small businesses. As ORS 183.333 and 183.540 require, the committee considered how DEQ could reduce the rules’ fiscal impact on small business by:

* Establishing differing compliance or reporting requirements or time tables for small business;
* Clarifying, consolidating or simplifying the compliance and reporting requirements under the rule for small business;
* Utilizing objective criteria for standards;
* Exempting small businesses from any or all requirements of the rule; or
* Otherwise establishing less intrusive or less costly alternatives applicable to small business.

Committee members were asked whether they could suggest ways to reduce the negative economic impact of the rule while still meeting its public health and safety purpose. Several committee members commented that DEQ could reduce uncertainty for small businesses by clarifying source test requirements and whether they can operate during the period between submitting a permit application and DEQ issuing the permit. Some committee members mentioned that the rule already attempts to reduce impacts on small businesses by having different requirements for different tiers.

Committee members also stated that the current limits of the rule (only affecting CAGM in the Portland AQMA that produce 10 or more tons per year) increase the negative economic impact on the small businesses subject to the rule, because the rule is spurring competition from smaller unregulated operations, some run out of residential garages. The committee suggested that applying the rule statewide and lowering the applicability threshold from 10 tons per year to one, 100 or 1,000 pounds per year would better protect public health and reduce incentives to circumvent the rule.

**Housing cost**

As ORS 183.534 requires, DEQ evaluated whether the proposed rules would have an effect on the development cost of a 6,000-square-foot parcel and construction of a 1,200-square-foot detached, single-family dwelling on that parcel. DEQ determined that the proposed rules could affect the development cost if a house is constructed using colored art glass as a material, and if CAGM increase their prices in response to the proposed rule. However, the possible housing cost impact of these proposed changes appears to be infinitesimal because colored art glass represents an exceedingly small proportion of the development cost of a home.

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| Federal relationship |

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**Relationship to federal requirements**

ORS 183.332, 468A.327 and OAR 340-011-0029 require DEQ to attempt to adopt rules that correspond with existing equivalent federal laws and rules unless there are reasons not to do so.

The proposed rules add requirements additional to those in federal requirements. Air toxics emissions from certain types of industrial businesses like colored art glass manufacturers are not fully regulated under federal requirements. Based on sampling DEQ has concluded that uncontrolled furnaces used in such colored art glass manufacturing are more likely than not to emit potentially unsafe levels of certain metals, including arsenic, cadmium, hexavalent chromium nickel and selenium. The permanent rules that DEQ proposes for EQC adoption are intended to protect the public health and the environment by ensuring the air emissions from colored art glass facilities do not cause unsafe levels of metals in the air nearby.

What alternatives did DEQ consider if any?

The only alternative that would not require rules in addition to federal requirements would be to not adopt these rules. DEQ considered but did not pursue this alternative because air monitoring measured metals at levels that can pose an immediate threat to the health of people nearby.

DEQ considered regulating all CAGMs the same but did not pursue this alternative because of the comments received from the public on the difference between Tier 1 and Tier 2 CAGMs.

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| Land Use |

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**Land-use considerations**

In adopting new or amended rules, ORS 197.180 and OAR 340-018-0070 require DEQ to determine whether the proposed rules significantly affect land use. If so, DEQ must explain how the proposed rules comply with state wide land-use planning goals and local acknowledged comprehensive plans.

Under OAR 660-030-0005 and OAR 340 Division 18, DEQ considers that rules affect land use if:

* The statewide land use planning goals specifically refer to the rule or program, or
* The rule or program is reasonably expected to have significant effects on:
  + Resources, objectives or areas identified in the statewide planning goals, or
  + Present or future land uses identified in acknowledged comprehensive plans

To determine whether the proposed rules involve programs or actions that affect land use, DEQ reviewed its Statewide Agency Coordination plan, which describes the DEQ programs that have been determined to significantly affect land use. DEQ considers that its programs specifically relate to the following statewide goals:

**Goal Title**

5 Open Spaces, Scenic and Historic Areas, and Natural Resources

6 Air, Water and Land Resources Quality

9 Ocean Resources

11 Public Facilities and Services

16 Estuarial Resources

Statewide goals also specifically reference the following DEQ programs:

* Nonpoint source discharge water quality program – Goal 16
* Water quality and sewage disposal systems – Goal 16
* Water quality permits and oil spill regulations – Goal 19

**Determination**

DEQ determined that these proposed rules do not affectland use under OAR 340-018-0030 or DEQ’s State Agency Coordination Program.

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| Stakeholder and public involvement |

Insert information from NOTICE here

* Advisory committee
* EQC involvement
* Public notice

CHANGE FROM FUTURE TO PAST TENSE

**Advisory committee**

**Background**

DEQ convened the Art Glass Permanent Rulemaking 2016 Fiscal Advisory Committee. The committee included representatives from colored art glass manufacturers, environmental groups and neighborhood air quality groups and met two times. The committee’s web page is located at: [Art Glass Permanent Rules 2016 Advisory Committee](http://www.oregon.gov/deq/RulesandRegulations/Pages/Advisory/Aartglass2016.aspx)

The committee members were:

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| **Name** | **Representing** |
| Abe Fleishman | Northstar Glassworks |
| Al Hooton | Glass Alchemy, Ltd |
| Amanda Jarman | Eastside Portland Air Coalition |
| Chris Winter | CRAG Law Center |
| Eric Durrin | Bullseye Glass Company |
| Jacob Sherman | South Portland Air Quality |
| Mark Riskedahl | NW Environmental Defense Center |
| Paul Trautman | Trautman Art Glass |

All five CAGMs subject to the rule were invited to participate on the committee. Uroboros Glass Studios, Inc. declined to participate.

**Meeting notifications**

To notify people about the advisory committee’s activities, DEQ:

* Sent GovDelivery bulletins, a free e-mail subscription service, to the following lists:
  + On May 17 DEQ sent a one-time notice to: Subscribers of Air Quality 2016 Permanent Rulemaking, Air Toxics State-wide, Cleaner Air Oregon Regulatory Overhaul, DEQ Public Notices, News Releases, Portland Air Toxics Solutions, Rulemaking and Toxics Reduction Strategy subscribers to describe how to sign up for advisory committee meeting notices, and
  + People who signed up for the advisory committee bulletin.
* Added advisory committee announcements to DEQ’s calendar of public meetings at [DEQ Calendar](http://oregon.gov/deq/Pages/Events.aspx).

**Committee discussions**

The committee’s discussions are described under the Statement of Fiscal and Economic Impact section above.

**EQC prior involvement**

The EQC met on March 15, 2016 to consider the temporary CAGM rules. After a public comment period and revisions to the rule, the EQC approved the rule at a second meeting on April 21, 2016.

**Public notice**

DEQ provided notice of the proposed rulemaking and rulemaking hearing on June 15, 2016 by:

* Filing notice with the Oregon Secretary of State for publication in the Oregon Bulletin on June 15, 2016,
* Notifying the EPA by email,
* Posting the Notice, Invitation to Comment and Draft Rules on the web page for this rulemaking; located at: [Art Glass Permanent Rules 2016](http://www.oregon.gov/deq/RulesandRegulations/Pages/2016/Rartglass2016.aspx),
* Emailing 9906 interested parties on the following DEQ lists through GovDelivery:
  + Subscribers of Air Quality 2016 Permanent Rulemaking
  + Air Toxics State-wide, Cleaner Air Oregon Regulatory Overhaul
  + DEQ Public Notices
  + News Releases
  + Rulemaking
  + Toxics Reduction Strategy
* Emailing the following key legislators required under [ORS 183.335](http://www.leg.state.or.us/ors/183.html):
  + Senator Chris Edwards, Chair, Senate Environment and Natural Resources Committee
  + Representative Jessica Vega-Pederson, Chair, House Energy and Environment Committee
  + Senator Lee Beyer
* Emailing advisory committee members,
* Postings on Twitter and Facebook
* Posting on the DEQ event calendar: [DEQ Calendar](http://oregon.gov/deq/Pages/Events.aspx)

## **Request for other options**

During the public comment period, DEQ requested public comment on whether to consider other options for achieving the rules’ substantive goals while reducing the rules’ negative economic impact on business. This document includes a summary of comments and DEQ responses.

## **Public hearings and comment**

DEQ held one public hearing. Five people commented orally during the public hearing. In addition, DEQ received 151 written comments through DEQ’s online comment tool, email, and in hard copy. Later sections of this document include a summary of comments received, DEQ’s responses, and a list of the commenters. Original comments are on file with DEQ.

## **Presiding Officers’ Record**

### **Hearing 1**

Meeting location: Conference room EQC-A, 10th floor of 811 SW 6th Avenue, Portland, Oregon

Meeting date and time: 6:00 p.m. on July 19th, 2016

Presiding Officer: Joe Westersund

The presiding officer summarized procedures for the hearing including notification that DEQ was recording the hearing. The presiding officer asked people who wanted to present oral comments to complete a registration form.

DEQ Permit Writer George Davis summarized the content of the public notice for this rulemaking, as required by Oregon Administrative Rule 137-001-0030. This summary took about 45 minutes and included staff responses to questions about the rulemaking.

Seven people attended the hearing in person (not counting DEQ staff) and an unknown number listened remotely via phone or watched via webinar. Five people commented orally and two of those also submitted hard copy written comments at the hearing. A summary of the oral comments is below.

| Name | Organization | Comment Topics | Submitted Hard Copy Comments |
| --- | --- | --- | --- |
| James Knox | Northstar Glassworks | Rule should apply to all CAGMs, not just ones producing 10 tons/year. Rules should apply statewide or nationwide. 99.0% baghouse capture efficiency standard should be changed to a grain loading standard. |  |
| Abe Fleishman | Northstar Glassworks | Rule should apply to all glass manufacturers using metal HAPs, not just ones producing 10 tons/year. Rules should apply statewide or nationwide. 99.0% baghouse capture efficiency standard would cost ~$350k and should be changed to a more cost-effective test that measures actual emissions, like a grain loading standard. 65 to 85% of cadmium used in a glass batch volatilizes and cadmium should be more regulated than in the temporary rule. |  |
| Greg Pourget | Portland Clean Air | DEQ should regulate diesel emissions, Bullseye glass, other glass manufacturers like Owens Brockaway Glass and General Glass. Regulation should be health-based. DEQ should be more responsive and transparent. |  |
| Chris Mini | Tabby Glass | Existing definitions could unintentionally regulate glass artists who do kiln work or glassblowing. These facilities reheat pre-made glass and don’t emit metal HAPs. Need better definition of ‘melt’ and ‘furnace’, and to not use term ‘molten glass’. | Yes |
| Katharine Salzmann | Speaking as individual | Should regulate all heavy metals used by CAGMs. Health benchmarks should be more protective. There should be no uncontrolled emissions of any HAPs in Oregon. | Yes |

DEQ added all names and affiliations of hearing participants who presented testimony to the commenter section of this staff report. DEQ added all written and oral comments presented at the hearing to the summary of comments and agency responses section of this staff report.

|  |
| --- |
| Summary of comments and DEQ responses |

For public comments received by the close of the public comment period, the following table organizes comments into 60 categories. DEQ’s response follows the summary. Original comments are on file with DEQ.

DEQ changed the proposed rules in response to comments described in the response sections below.

**Comment 1: Flexibility**

DEQ should give more compliance time and flexibility to CAGMs

**Response**

DEQ is confident that the requirements and deadlines in the proposed rules are achievable by all affected facilities. DEQ is also committed to work with all affected companies to issue necessary emission control device approvals and test plan approvals as quickly as possible.

We have revised the rule to reduce source testing costs and uncertainties by replacing the 99% capture efficiency standard with a standard at the baghouse outlet. In addition, DEQ added a pathway for facilities to apply for an extension of time to comply in 340-244-9005.

**Comment 2: Don't shut down**

DEQ should consider the economic effect on glass artists. DEQ should not shut down the glass industry.

**Response**

The proposed permanent rules are intended to ensure that CAGMs operate in a way that is protective of human health and the environment. We are confident that facilities can meet these requirements while continuing to serve their customers.

**Comment 3: Don't increase glass prices**

If compliance with the rule is expensive, glass will be too expensive for glass artists to buy.

**Response**

CAGMs must operate in a way that does not harm the health of their neighbors. DEQ believes the proposed rule requirements provide that protection to facility neighbors in a way that is also achievable for the affected facilities.

**Comment 4: Other facilities**

The pollution measured around Bullseye may be coming from other sources. DEQ should have collected more wind direction and velocity data. It is likely that metals pollution near Bullseye is actually coming from fly ash used in making cement at the Lehigh Cement facility. There may be other point sources and mobile sources of these pollutants.

**Response**

Data collected in late 2015 near Bullseye measured significant concentrations of metal HAPs in air. Subsequent air data showed very marked reductions in these HAPs once these materials were taken out of Bullseye’s production process and controls were installed. This demonstrates that Bullseye was clearly the source of these significant elevation in air data. DEQ’s work to identify and control remaining sources of air toxics around the Bullseye facility is ongoing. Both the Bullseye and Lehigh facility are completing new controls and management practices to address residual elevated hexavalent chromium detections in recent monitoring events.

**Comment 5: Statewide**

DEQ should apply this rule statewide instead of only in the Portland area.

**Response**

Based on comments received, DEQ is proposing that the permanent rule apply statewide. While there are no known air quality problems related to CAGM operations outside the Portland area, applying the rule statewide gives all Oregonians protections from current and potential future CAGM emissions and helps provide a “level playing field” for CAGMs that install the controls necessary to comply.

**Comment 6: 500 lb/year**

DEQ should lower the applicability threshold of the rule so that all facilities making at least 500 lbs per year (or even a smaller amount) of HAP-containing glass are regulated.

**Response**

DEQ proposes to lower the applicability threshold from 10 tons per year of colored art glass to 5 tons per year of colored art glass.

DEQ proposes to lower the applicability threshold based on comments that suggest lowering the threshold, and because DEQ has received information that indicates that the three smaller colored art glass facilities in the Portland AQMA that DEQ intended to regulate under the temporary rules may actually fall below the current 10 ton per year threshold. However, in proposing to lower the threshold, DEQ also does not wish to make the threshold so low that the rule would encompass facilities whose primary purpose is the production of items made from colored glass, such as glass art pieces or other glass items, and that might make small quantities of glass for special purposes.

Five tons per year is 10,000 pounds per year, and DEQ assumes a typical working year is 50 weeks. To produce 10,000 pounds of glass in a year, a CAGM would have to produce an average of 200 pounds of glass per working week. Producing this much glass per week would require two small glass making furnaces, each making 50 pounds of glass two times per week. DEQ considers this level of production to reasonably represent a level that defines an art glass manufacturing operation, but is high enough to exclude facilities whose primary purpose is the production of items made from colored glass.

DEQ acknowledges that at this time there is no information available to quantify the metal HAP emissions from colored art glass manufacturing operations, and that the proposed 5 ton per year threshold is therefore somewhat arbitrary. However, the proposed threshold is consistent with the intent of the temporary CAGM rules, which was to rapidly require emission controls on CAGMs.

**Comment 7: All metals**

The rule should regulate all heavy metals or all hazardous air pollutants (HAP), not just arsenic, cadmium, chromium, lead, manganese and nickel.

**Response**

DEQ agrees that the proposed rules should apply to all HAPs likely to be emitted by CAGMs, and has expanded the list of HAPs regulated by the proposed rules to add selenium. Selenium has been detected in the air near Bullseye at concentrations close to health screening levels. The proposed rules prohibit the use of the listed HAPs in uncontrolled furnaces after the applicable compliance dates.

**Comment 8: 99.9%**

The temporary rule requires CAGMs to show that their baghouses capture 99.0% of incoming particulate matter. Baghouses can capture more than that, and DEQ should require them to demonstrate that they are capturing 99.9%.

**Response**

DEQ agrees that baghouses are capable of capture efficiencies higher than the 99.0% standard in the temporary rule. DEQ has learned that there are practical problems with demonstrating capture efficiency with a source test, particularly for the smaller (Tier 1) facilities.

To show 99.0% (or 99.9%) capture efficiency with a source test, a facility needs to test the inlet and the outlet of the baghouse. The inlet concentration would need to be at least 100x (or 1,000x) of the outlet concentration. Chemical tests are not accurate below a certain threshold (the method reporting limit, MRL) and if a reading is below the MRL then the sample concentration is assumed to be the MRL.

To show 99.0% capture efficiency, the source test must be run until the inlet sample is at least 100x the MRL. Unfortunately that takes a very long time, especially at Tier 1 facilities (~ one week per test run), because their baghouse systems pull in a lot of air from the room and are very dilute. Long test runs are expensive and prone to error. One facility, Northstar, reported that they were quoted a cost of $350k for a source test, which may be more than the cost of buying and installing a baghouse.

DEQ is proposing a rule revision so that facilities will have to meet an emissions standard of 0.005 gr/dscf (grains of particulate per dry standard cubic foot of air) rather than a baghouse capture efficiency standard. This is a standard type of emissions testing for other facility types and will reduce source testing costs.

**Comment 9: Health benchmarks**

DEQ should modify the health benchmarks in the rule to make them more protective, especially the 36 ng/m3 daily average source impact level for hexavalent chromium. The 36 ng/m3 can't be exceeded without also exceeding the 0.08 ng/m3 annual limit. Health benchmarks should take into account sensitive populations.

**Response**

DEQ has partnered with the Oregon Health Authority (OHA) to rely on their expertise in estimating environmental risks and setting health benchmarks.

Because chronic exposure to pollutants can cause harm through different mechanisms than intense, acute exposures, OHA recommended that DEQ incorporate an annual and 24 hour limit on chromium emissions from Tier 2 facilities. Facilities are bound by both limits, so the most stringent is the one that matters.

DEQ is proposing to change the 36 ng/m3 limit based on new information submitted by OHA. OHA recommended that DEQ revise the 24 hour health benchmark for hexavalent chromium to 5 ng/m3. 5 ng/m3 is the intermediate minimal risk level (MRL) established by the Agency for Toxic Substances and Disease Registry (ATSDR).

The health based Ambient Benchmark Concentrations and the daily maximum ambient concentration limits recently developed by DEQ and OHA all include conservative assumptions that encompass the protection of sensitive populations such as children, the elderly, and people who are health-impaired. With respect to chromium VI, the rules also limit long-term exposure to sensitive human receptors located in places such as schools, daycare centers and hospitals, and limit short-term exposure at any location off of the facility’s property.

OHA is beginning a process to review and revise other health benchmarks. If OHA revises other benchmarks as part of that process, the updated data could be incorporated into the art glass rule in a future rulemaking.

**Comment 10: All glass factories**

This rule should be changed to regulate all glass factories (such as Owens Brockaway and General Glass), not just CAGMs

**Response**

The purpose of the proposed rules is to regulate emissions of certain HAPs from colored art glass manufacturers. As noted in another response, it is making glass using raw materials that contain the specified HAPs that makes a facility potentially subject to the proposed rules.

DEQ has reviewed other glass making facilities and believes that currently there are five facilities that meet the proposed definition of colored art glass manufacturer (CAGM): Bullseye, Uroboros, Northstar, Troutman Art Glass and Glass Alchemy. DEQ is proposing to make this rule apply statewide, and other CAGMs may be identified in the future.

Owens Brockway makes container glass, some of which is colored brown or green, but does not deliberately use raw materials that contain the specified HAPs. The colors in the container glass are achieved using iron oxides, and iron is not a HAP. Owens Brockway is regulated under other rules and is required to have a Title V air permit, but does not meet the definition of CAGM and is not regulated under the proposed rule.

General Glass was also identified by commenters. General Glass manufactures glass products starting from sheet glass, but General Glass does not make glass in the sense of melting raw materials or cullet to produce glass and therefore does not meet the definition of CAGM and is not regulated under the proposed rule.

**Comment 11: Health-based**

This rule's requirements are technology-based, but the rule restrictions should be health-based

**Response**

DEQ has begun the Cleaner Air Oregon rulemaking process to develop a statewide risk-based air toxics permitting program that will cover many industry types. There will be many opportunities for public input and participation in that process. The approach proposed in the art glass rule is a combination of risk and technology based approaches. It requires emission control devices to reduce the rate at which CAGMs emit metals, which is a technology-based requirement. It also incorporates elements of a risk-based program by establishing health based acceptable source impact levels for chromium usage at Tier 2 facilities.

For rules to be only health based may be ideal, but the availability of emission control technology and its ability to control emissions must also be taken into account.

**Comment 12: Translate**

DEQ should provide translation for non-English speakers and specific outreach to communities of color and low-income communities.

**Response**

DEQ can provide language translation for meetings or written materials upon request. Please contact DEQ and let us know if there is a specific community or language group that wants to request this.

**Comment 13: Air permits on website**

DEQ should make air emissions permits publicly available through its database

**Response**

Making air permit records accessible to the public via DEQ’s website is a good suggestion but outside the scope of this rulemaking process.

**Comment 14: NESHAP 6S**

This rule is less stringent than NESHAP 6S in some ways, so it should not apply to furnaces that are subject to NESHAP 6S.

**Response**

The proposed rules are designed to apply even at furnaces that are subject to NESHAP 6S. At furnaces subject to both regulations, the restrictions of both regulations would apply and not just one or the other.

**Comment 15: Can't operate until permit issued**

Facilities should not be able to operate until the public has had a chance to comment on the proposed permit and DEQ has issued it.

**Response**

Because the process of issuing a permit is long, it is DEQ’s policy that when a new rule is put in place, existing facilities can continue to operate during the period between submitting an application and when DEQ issues the permit. Facilities do not have to wait until the permit is issued to begin operating.

**Comment 16: More public comment**

The public should be able to comment at more steps in the process, including commenting on source test plans and pollutant dispersion modeling.

**Response**

Opportunities for public participation are a required and valuable part of DEQ’s rulemaking process. For this rulemaking DEQ convened a fiscal advisory committee, held a public hearing, and accepted public comment via our website as well as email.

The proposed rule requires all Tier 1 and Tier 2 CAGMs to obtain air permits. As part of DEQ’s process for issuing air permits the public has an opportunity to comment on whether DEQ has correctly applied the rules and statutes to the proposed permit. The public can also request a public hearing.

Soliciting and responding to public comment takes significant time and effort, and DEQ is not able to do that at all steps in the process.

**Comment 17: Health-based applicability**

DEQ should base the applicability threshold on the amount of metals used (lbs/year) and their relative health risks, rather than on the amount of glass. Some glass contains concentrated HAP and other recipes are very dilute. Also, some HAP like hexavalent chromium are more dangerous than others.

**Response**

DEQ agrees that setting an applicability threshold based on health risks is a good idea; however this approach would add technical complexity that DEQ intends to address through the development of a health-based air toxics permitting rule (Cleaner Air Oregon) that may incorporate this concept.

**Comment 18: Don't apply to glass users**

Because of the way that 'melt' and 'furnace' are used in the rule, it may apply to some art glass users that are remelting glass rather than making it from powdered raw materials.

**Response**

It is not DEQ’s intent to regulate glassworking. DEQ’s intent is to regulate the HAP emissions from the process of making colored art glass using raw material that contains specified HAPs. The process of remelting pre-made glass would not be regulated under this rule, unless glassmaking HAPs are being added (in a form such as a powder or as a special concentrated frit). DEQ is proposing to change the definition of raw material to make this distinction clearer.

**Comment 19: EJ**

DEQ has a legal obligation to do a demographic analysis to make sure the proposed rule does not have disproportionate adverse impacts on communities of color.

**Response**

DEQ has considered whether the proposed rule would result in distinct adverse impacts on communities of color, and has concluded that it will not. The purpose of this rule is to reduce art glass manufacturers' emissions of metal HAPs to surrounding communities. With the proposed change to apply it statewide, the rule does not differentiate based on the location of the facilities, nor does it encourage or discourage the location of the facilities in any particular area. All communities that are impacted by this source category would also benefit from the protection of the rules.

Some commenters have suggested that the facilities regulated by this rule are in wealthy areas, and that the source category should be defined differently so that disadvantaged communities would benefit more. Several commenters mentioned Owens Brockway and General Glass as glass-related facilities that they felt should be regulated by the rule.

Owens Brockway makes container glass, some of which is colored brown or green, but does not deliberately use raw materials that contain the specified HAPs. The colors in the container glass are achieved using iron oxides, and iron is not a HAP. Owens Brockway is regulated under other rules and is required to have a Title V air permit, but does not meet the definition of CAGM and is not regulated under the proposed rule.

General Glass manufactures glass products starting from sheet glass, but does not make glass in the sense of melting raw materials or cullet to produce glass and therefore does not meet the definition of CAGM and is not regulated under the proposed rule.

**Comment 20: BLDS**

DEQ should require baghouse leak detection

**Response**

DEQ is proposing that, in addition to the grain loading test, Tier 2 facilities be required to either install baghouse leak detection systems (BLDS) or HEPA after-filters on each baghouse. DEQ feels that HEPA after-filters, like BLDS, provide added assurance that the baghouse remains effective over time.

Because emissions from Tier 1 facilities are more dilute, DEQ proposes that they can either perform the grain loading test, install a BLDS, or install a HEPA after-filter.

**Comment 21: Grain loading**

DEQ should replace the 99.0% capture efficiency test with a "grain loading" test at the baghouse outlet, with limit on filterable particulate matter set at 0.005 gr/dscf.

**Response**

DEQ is recommending this change.

**Comment 22: EPA Method 29 at outlet**

DEQ should allow Tier 2 facilities to use Method 29 to measure total chromium at the baghouse outlet and assume all of it is hexavalent chromium, instead of using Method 0061 to measure hexavalent chromium or measuring at the baghouse inlet and estimating the outlet emissions based on capture efficiency.

**Response**

DEQ agrees that this method is conservative (because it assumes the worst case, that all chromium is in the hexavalent form) and is proposing a change to the rule language to allow this.

DEQ is also proposing to

**Comment 23: 0.2 lb/ton**

DEQ should allow facilities to meet the NESHAP 6S limit (0.2 lb of particulate emitted per ton of glass produced) instead of demonstrating 99.0% capture efficiency from the baghouse.

**Response**

DEQ is proposing a change to the rule to eliminate the capture efficiency standard and replace it with an outlet PM grain loading limit of 0.005 gr/dscf. (Tier 2 facilities would be required to perform the outlet grain loading source test. Tier 1 facilities could perform the grain loading test or install a baghouse leak detection system or HEPA after-filter.) The 0.2 lb/ton NESHAP limit would apply in addition to the grain loading standard at furnaces that are subject to NESHAP 6S.

**Comment 24: No metals in uncontrolled furnaces**

CAGMs should not be allowed to use any metals in uncontrolled furnaces

**Response**

Under the proposed rules Tier 2 CAGMs are not allowed to use glassmaking HAPs in an uncontrolled furnace. Tier 1 CAGMs would not be able to use glassmaking HAPs in an uncontrolled furnace unless they had done source testing and air dispersion modeling to show that doing so does not pose a risk to people nearby. Some glassmaking HAPs are newly added to the list in this proposal and have a later compliance date.

**Comment 25: Thermal oxidizers**

CAGMs should be required to use better control devices such as thermal oxidizers

**Response**

Thermal oxidizers are not effective in reducing metal emissions. Fabric filters (baghouses) are effective against metal particulates and appear to be the control devices most facilities will use to comply with the rule requirements.

**Comment 26: No chromium**

CAGMs should not be allowed to use chromium in any form, because it transforms to hexavalent chromium.

**Response**

DEQ believes that control devices such as baghouses are highly effective and that, if following the proposed regulations, CAGMS can use glassmaking HAP including chromium without undue impact to human health and the environment. Tier 2s facilities are required to source test and set usage limits in order to keep their impact below health benchmarks.

**Comment 27: Emissions monitoring**

DEQ should require monitoring of emissions rather than monitoring of the control devices

**Response**

DEQ does not agree that this type of monitoring should be required. DEQ believes the testing required by the rule is sufficient to demonstrate the performance of the emission control devices

**Comment 28: Baghouses not effective**

In the Bullseye source test, the capture efficiency for chromium was less than for particulate matter. Baghouses are not effective if pollution is in a gas state or in very small particles.

**Response**

The temporary rules, adopted in April, 2016, required a test to determine how much chromium III was converted to chromium VI. To ensure that the test would give a valid result, which requires capturing a large enough sample, the rules required testing at a baghouse inlet, before the filters in the baghouse reduce the amount of pollutant in the exhaust gases.

The temporary rules included a provision for setting maximum chromium usage rates that would keep a Tier 2 CAGM’s ambient chromium VI impacts from exceeding the health-based levels specified in the rules. To do this, it was also necessary to learn the actual emission rate of chromium VI, which the amount of chromium VI coming out of the baghouse (i.e. from the baghouse outlet). At that time, DEQ assumed that baghouse control efficiency for chromium VI would be the same as the baghouse control efficiency for particulate matter since DEQ expected all chromium VI to be in particulate form. Therefore, the rules also required testing for particulate matter both at the baghouse inlet and outlet (i.e. before and after the filters). By testing before and after the filters, the particulate matter removal efficiency could be calculated, and this removal efficiency could then be used to calculate the chromium VI emission rate.

In June, Bullseye performed this testing and also took an extra sample of chromium at the baghouse outlet. Based on the inlet and outlet testing for chromium, the calculated efficiency for chromium removal was significantly less than 99.0 percent, whereas the removal efficiency for particulate matter was over 99.0 percent.

Since the test only gave one data point for chromium removal efficiency, DEQ does not consider this to definitively show that the removal efficiency of chromium VI is less than 99.0 percent because there may be an unknown error in that single test. Other possible explanations for this result are: some of the chromium particles are so small that the baghouse does not capture all of them, or some of the chromium is in a gaseous form and passes through the baghouse as condensable matter. DEQ does not consider the last explanation very likely, but regardless of why the chromium removal efficiency appears to be low, the test result calls into question the assumption that the chromium removal efficiency is the same as the particulate matter removal efficiency. DEQ has therefore taken a different approach in the proposed permanent rules.

Rather than relying on testing for chromium at the baghouse inlet and using removal efficiency to calculate the chromium emission rate, DEQ is now proposing that the chromium emission rate be measured directly at the baghouse outlet. This will provide the information needed to set maximum usage rates that will keep a Tier 2 CAGM’s ambient chromium VI impacts from exceeding the health-based levels specified in the rules. With this change in approach, testing for particulate matter removal efficiency is no longer necessary and the requirement to test for particulate matter removal efficiency has been replaced with a simpler test in the proposed rules.

Finally, although the June source test result suggests that the chromium control efficiency for a baghouse is less than 99.0 percent, it also suggests that the chromium emissions are controlled to a significant extent, and DEQ still considers baghouses to be appropriate emission control devices for CAGM emissions.

**Comment 29: Cumulative health effects**

Rule should take into account cumulative/interactive effects instead of pretending that people are exposed to a single pollutant in isolation

**Response**

The health benchmarks incorporated into the proposed rule were developed with the help of the Oregon Health Authority. OHA is beginning a process to revise those benchmarks and if revised, DEQ could incorporate those changes in a future update to the art glass rule.

**Comment 30: Self-reported data**

Self-monitoring is insufficient. DEQ should conduct ongoing inspections.

**Response**

The proposed rule would require all affected facilities to get a DEQ permit. DEQ performs inspections of permitted sources on a regular basis.

**Comment 31: Best Available Technology**

CAGMS should have to demonstrate on an annual basis that they are using the best available technology to limit toxic emissions from their facilities.

**Response**

DEQ believes that existing technology can reduce CAGM emissions to levels below health benchmarks. If improved technologies are developed in the future, DEQ could revisit this rule in a future rulemaking.

**Comment 32: Future additions**

The rule should include a clause to allow for the future regulation of other materials from glass manufacturing if found to exceed either short and/or long term health standards for air shed quality.

**Response**

The proposed rules include OAR 340-244-9090, which allows DEQ to set a limit on a CAGM’s use of a glassmaking HAP if that HAP is determined to pose an unacceptable risk to human health in the area of a CAGM. However, the rule would not allow DEQ to add materials to the list of glassmaking HAPs without going through a new rulemaking process. If new information comes to light DEQ could revisit the rule, or in an emergency the Governor's office could order DEQ to take action.

With respect to other materials that may be emitted, DEQ is working on the development of a larger state-wide rule (the Cleaner Air Oregon rule) to regulate air toxics emissions from industrial emissions sources. This larger rule is expected to provide a uniform program for the regulation of air toxics emissions. The rule is being developed over 2016 and 2017, with significant information gathering and opportunity for public input.

**Comment 33: Precautionary principle**

Where health impacts are uncertain, DEQ should err on the side of being more protective of health. Limits should reflect sensitive populations.

**Response**

The health benchmarks incorporated into the proposed rule were developed with the help of the Oregon Health Authority. OHA is beginning a process to revise those benchmarks and if revised, DEQ could incorporate those changes in a future update to the art glass rule.

**Comment 34: Facility limits vs furnace limits**

Rule should set per-facility emission limits so that cumulative impact of multiple furnaces does not exceed health benchmarks.

**Response**

The emissions limits in the proposed rule (chromium usage limits for Tier 2 facilities and limits for Tier 1 facilities that choose the 'source test and model' compliance pathway) are on a facility-wide basis and not a per-furnace basis.

**Comment 35: Cr6 conversion**

Rule should assume that all trivalent chromium converts to the more dangerous hexavelent chromium form in glass production.

**Response**

Tier 2 facilities are required to set production limits to make sure that chromium emissions are below health benchmarks. To set those production limits, the proposed rules allow CAGMs two options: assume that 100 percent of chromium emitted is in the form of hexavelent chromium, or conduct testing to quantify the emissions of hexavalent chromium. The choice of which option to use is up to the individual CAGMs; however, all testing procedures must be approved by DEQ.

**Comment 36: Enforcement**

There should be heavy fines for violations, a plan for repeat offenders, and the ability to shut facility down if it poses an immediate risk to the public and environment.

**Response**

DEQ follows established enforcement procedures in Oregon Administrative Rule Chapter 340, Division 12. Fines are based on the amounts and procedures specified in these rules, and include provisions for increasing fines for repeated violations.

In addition, under Oregon Revised Statute 468.115, if DEQ finds that air pollution presents imminent and substantial endangerment to the public health, at the Governor’s direction, DEQ can issue a cease and desist order against the person or persons responsible for the pollution. The order can be effective for no more than 10 days and may be renewed by order of the Governor.

**Comment 37: Cold shops**

Rule should regulate dust and wastewater from cutting and cold processing of glass

**Response**

Particulates from cutting and grinding operations are larger and heavier, and much less likely to be emitted to the outside of the facility. This rule does not regulate water emissions.

**Comment 38: NESHAP**

DEQ should not rely on the NESHAP to protect neighbors

**Response**

This rule is in addition to and more stringent than the federal NESHAP Subpart SSSSSS.

**Comment 39: September 1st**

DEQ should apply the new rules by September 1st

**Response**

DEQ disagrees that the rules should apply to all heavy metals by September 1, 2016. When rules that require the installation of emission control devices are adopted, agencies must give the affected facilities time to design, obtain building permits, obtain the emission control device and install it. When the temporary rules were adopted, the Tier 2 CAGMs were given until September 1, 2016 to comply with the rules. The Tier 1 CAGMs were contacted sometime after the Tier 2 CAGMs, and had less warning that they would be regulated, so were given an extra month. If the rules become applicable statewide, as proposed, CAGMs outside the Portland AQMA will need time to comply and DEQ has proposed to give them until April 1, 2017.

In addition to the above considerations, only the Environmental Quality Commission has the authority to approve new rules. The EQC will meet on September 29th to consider DEQ's proposal and changes approved by the EQC would not take effect retroactively.

**Comment 40: Video**

DEQ should get modern video recording equipment and broadcast and post all public meetings.

**Response**

DEQ has recorded and posted some recent meetings but currently does not have the equipment or staff expertise to produce high-quality video. DEQ is considering requesting funding for this.

**Comment 41: Other facilities (2)**

Ambient concentrations didn't decrease after the temp rule was put in place, so the pollution must be coming from other sources.

**Response**

Concentrations have remained fairly consistent during this time, however Bullseye ceased using metal HAPs well in advance of the enactment of the temporary rules. Therefore, no specific reductions would have been expected. There was one spiking event in May, which again was clearly attributable to Bullseye, which resulted in the implementation of new restrictions above and beyond the temporary rules in order to protect public health.

**Comment 42: Batch vs continuous furnace**

The only rule change needed is to 'close the loophole on the definition of batch production' so that furnaces that are kept hot are subject to NESHAP 6S. DEQ should not add other regulation.

**Response**

EPA's current interpretation of NESHAP Subpart SSSSSS is that furnaces that are kept hot meet the definition of 'continuous furnace' and are subject to 6S if all other applicability criteria are met. However, 6S applies only to individual furnaces that produce 50 tons per year of colored glass using any of 6 listed HAPs. Many of the HAP-emitting furnaces at CAGMs would not be subject to 6S. The proposed rule applies to all furnaces at Tier 1 and Tier 2 CAGMs that produce any amount of colored glass using any of a larger list of HAPs.

**Comment 43: Visible emissions**

Are CAGMs subject to a limit on visible emissions?

**Response**

Visible emissions from colored art glass manufacturers are subject to another rule, Oregon Administrative Rule 340-208-0110. DEQ will include permit conditions to implement this rule in permits issued to CAGMs.

**Comment 44: No rules without public comment**

DEQ should never propose rules without going through public comment

**Response**

The EQC has authority to adopt temporary rules without public notice when there is a need to act quickly, as there was in early 2016 for the temporary art glass rules. As a safeguard against abusing the temporary rulemaking authority, temporary rules are only effective for six months and then either expire or can be renewed/revised through the normal rulemaking process, which includes full public notice and opportunity to comment on the rules.

**Comment 45: Public notice for permitting actions**

The public should be notified about any proposed permits.

**Response**

Public notice is given for all proposed air quality permits, with the public notice procedures varying depending on the type of permit. Public notice requirements are specified in Oregon Administrative Rule Chapter 340, Division 209, available on DEQ’s website or through the State of Oregon website. To receive email notification of public notices, please go to DEQ’s website at http://www.oregon.gov/DEQ/pages/index.aspx and click on “Public Notices” on the left side of the page, then click on the link “Sign up for email notifications when this page is updated” near the top of the page.

**Comment 46: Fugitive emissions**

The rule should monitor and restrict fugitive emissions.

**Response**

By their very nature, fugitive emissions are difficult to control. DEQ’s observations of gas-fired glass-making furnaces indicate little or no fugitive emissions during normal operation. Fugitive emissions may occur during charging of raw materials, which happens several times at the beginning of the glass-making process. However, it is an operational necessity that the furnace be opened during charging and the possibility of some fugitive emissions during that time is unavoidable. If DEQ determines that operational practices need to be limited to reduce fugitive emissions, DEQ already has the authority to establish such limits under OAR 340-226-0120

**Comment 47: Cumulative effects of multiple facilities**

The rule should account for the additive effects of emissions from multiple facilities affecting the same geographic area.

**Response**

In addition to this rulemaking that regulates CAGMs, DEQ is also working on a larger rulemaking to develop an air toxics program that will apply more broadly to air toxics emissions. While the larger air toxics program may be able to consider comments such as this, the CAGM rules have limited scope and applicability and are intended only to address only one industrial sector.

**Comment 48: Ambient monitoring**

DEQ should continue long term ambient air monitoring near glass factories.

**Response**

DEQ has limited resources for air monitoring, and has a responsibility to monitor around the state, not just near the glass factories. DEQ is continuing to monitor near the glass factories at this time, but the monitors will eventually have to be relocated so that monitoring can be done at other locations.

**Comment 49: Recordkeeping**

The rule should require CAGMs to maintain a list of all hazardous materials kept on site and used in glass furnaces

**Response**

DEQ’s air quality program is concerned with emissions of pollutants into the atmosphere. As such, DEQ can require facilities to keep records of air emissions and of activities and materials that contribute to those emissions. The proposed rule requires Tier 2 CAGMs to keep daily records of all glass formulations produced. DEQ may include additional recordkeeping requirements when issuing permits to CAGMs.

Other hazardous materials that may be on site at a facility or that may be emitted to other media (e.g. water or landfill) would be regulated by other programs and are outside the scope of the air quality program.

**Comment 50: Allow uncontrolled furnaces if under grain loading standard**

Facillities should be able to operate without control devices if their emissions are below the grain loading standard listed in the rule.

**Response**

The proposed grain loading standard is only intended to ensure that control devices are working. The grain loading standard is not intended to show health protectiveness because grain loading does not measure the facility's HAP emissions. Further, this rule has been developed in advance of the risk-based rules that DEQ is currently working on. Without those rules in place, DEQ does not have a basis for establishing health-based criteria for all the glassmaking HAPs. Instead, DEQ has taken the protective approach of requiring emission control devices.

**Comment 51: Address all HAP sources**

This rule should address all HAP sources

**Response**

This rule is specifically targeted to address CAGM emissions. The Cleaner Air Oregon rulemaking is underway and will more broadly address HAP emissions from other sources.

**Comment 52: Permit fees**

DEQ should lower the costs for the permits Tier 1 facilities will be required to get so that they are no more than $2-4,000 per year.

**Response**

Permit fees for Air Contaminant Discharge Permits (ACDP), the type that Tier 1 facilities would be required to have, are set in rule across multiple facility types and are not specific to this proposed rule. The class of ACDP permit these facilities would be required to have currently has a $7,200 application fee and $4,608 annual fee per facility.

**Comment 53: Cadmium**

CAGMs shouldn't be able to use cadmium in an uncontrolled furnace

**Response**

Under the proposed rule (and earlier temporary rule) Tier 2 facilities are not allowed to use cadmium in an uncontrolled furnace. Tier 1 facilities would only be able to use cadmium in an uncontrolled furnace if they performed source testing and dispersion modeling to show that emissions would not exceed health benchmarks.

**Comment 54: EPA Method 5**

The source test requirement at OAR 340-244-9070(2)(h) should require EPA Method 5, not DEQ Method 5.

**Response**

DEQ is proposing to replace the 99.0% baghouse capture efficiency standard with a grain loading standard of 0.005 gr/dscf (grains of particulate matter [PM] per dry standard cubic feet of air). Grain loading is based on filterable PM as measured using DEQ Method 5.

The grain loading standard is intended to check that the control device is working. Baghouses are a form of filter and can only control filterable emissions, so the grain loading standard is based on filterable PM. EPA Method 5 does not separate the filterable and condensable forms of PM.

**Comment 55: 99% - limit run length**

The 99% capture efficiency test is unworkable. DEQ should set a limit for the run length and sampling volume, and specify that the facility passes if inlet PM is non-detect at that point.

**Response**

DEQ recognizes that determining compliance with the 99.0% capture efficiency standard can lead to unreasonably long and expensive source tests, particularly for Tier 1 facilities that have very dilute emissions streams. DEQ is proposing to replace the 99.0% capture efficiency standard with other means to ensure that the baghouse is working. Tier 2 facilities would be required to meet a grain loading standard of 0.005 gr/dscf at the outlet of the control device and install either a baghouse leak detection device or a HEPA filter. Tier 1 facilities would be required to either meet the grain loading standard or install a baghouse leak detection device or install a HEPA filter.

**Comment 56: Wait until Cleaner Air Oregon**

DEQ should wait to propose a permanent rule until the Cleaner Air Oregon rulemaking finishes. Otherwise, the rule for art glass manufacturers may have different or incompatible requirements.

**Response**

The current, temporary rules on art glass manufacturers will expire on October 18th, 2016, and cannot be extended. DEQ is moving to regulate colored art glass manufacturers (CAGMs) in response to data that showed residents near CAGMs were exposed to unhealthy air, in some cases exceeding acute (24-hr) health benchmarks. DEQ feels that these permanent rules are needed now. It is not yet known whether the Cleaner Air Oregon rulemaking will supersede this rule or leave it in place.

**Comment 57: How does DEQ interpret 340-244-9090?**

The proposed 340-244-9090 says that DEQ "must set a limit on the CAGM’s use of the metal HAP of concern" if ambient concentrations pose an unacceptable risk. How would this work in detail? Doesn't this presuppose the result of the Cleaner Air Oregon rulemaking?

**Response**

The proposed language at OAR 340-244-9090 would give DEQ the authority to act if, despite the rule, DEQ determined that CAGM emissions were found to still be posing an unacceptable risk to people near them. Such a determination would be made in consultation with the Oregon Health Authority but the details are otherwise not specified. DEQ feels this discretion is appropriate because of the potentially actute risks posed by CAGM emissions. The Cleaner Air Oregon rulemaking may supersede this rule or leave it in place.

**Comment 58: Fuel-fired furnaces**

The proposed rule treats electrically heated and fuel-fired furnaces differently in the thresholds between Tier 1 and Tier 2. Are emissions really that different? The 100 tpy threshold for a facility with only electrically fired furnaces to become Tier 2 should be lowered.

**Response**

DEQ is not aware of data comparing the relative emissions of fuel-fired and electrically heated furnaces. However, the physics of fuel-fired furnaces are likely to result in higher emission rates. DEQ is lowering the applicability threshold for the rule to 5 tpy but is not proposing to adjust the Tier 1 / Tier 2 threshold for electrically fired furnaces at this time.

**Comment 59: Facilities under threshold**

What requirements will apply to CAGMs that are under the threshold?

**Response**

The proposed rule only applies to facilities that produce 5 or more tons per year (previously 10 tpy) of glass containing the specified HAPs. It does not impose requirements on CAGMs who are below that threshold.

**Comment 60: Measure actual emissions**

Facilities should be required to measure and report actual emissions.

**Response**

The rule requires facilities to measure parameters of their emission control devices to ensure that they are operating correctly. Source testing to measure actual emissions costs thousands of dollars, and doing so on an ongoing basis would be cost-prohibitive.

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| **Commenters** |

## Comments received by close of public comment period

The table below lists number of commenters people and organizations that submitted public comments about the proposed rules by the deadline. Original comments are on file with DEQ.

Use of the two alternate formats for listing commenters; either a list or a table.

**Commenter 1** NAME

AffiliationORGANIZATION

This commenter submitted comments under categories Cross reference to comment category using ##, ##, ##, and ## format in the *Summary of comments and DEQ responses* section above.

**Commenter 2** NAME

AffiliationORGANIZATION

This commenter submitted comments under categories Cross reference to comment category using ##, ##, ##, and ## format in the *Summary of comments and DEQ responses* section above.

**Commenter 3** NAME

AffiliationORGANIZATION

This commenter submitted comments under categories Cross reference to comment category using ##, ##, ##, and ## format in the *Summary of comments and DEQ responses* section above.

**OR**

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| **List of Commenters** | | | | |
| **#** | **Name** | **Organization** | **Comment Category** | **Hearing #** |
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Add more commenters by copying and pasting additional commenter sections here.

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| Implementation |

## **Notification**

The proposed rules would become effective upon filing on approximately September 29, 2016mmm, dd, yyyy. DEQ would notify affected parties by:

Describe Notification (PARTIES AND METHOD USED TO PROVIDE NOTICE)

## **Compliance and enforcement**

* Affected parties -Text
* DEQ staff - Text

## **Measuring, sampling, monitoring and reporting**

* Affected parties - Text
* DEQ staff - Text

## **Systems**

* Website - Text
* Database - Text
* Invoicing - Text

**Training**

* Affected parties - Text
* DEQ staff - Text

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| Five-year review ORS 183.405 |

**Requirement**

Oregon law requires DEQ to review newrules within five years after EQC adopts them. The law also exempts some rules from review. DEQ determined whether the rules described in this report are subject to the five-year review. DEQ based its analysis on the law in effect when EQC adopted these rules.

## **Exemption from five-year rule review**

None of these proposed rules are exempt from the five-year review under ORS 183.405(4) and 183.405 (5) of the Administrative Procedures Act.

DELETE THIS PARAGRAPH IF NO RULES ARE SUBJECT TO FIVE YEAR REVIEW:

## **Five-year rule review required**

No later than September 29, 2021, DEQ will review the newly adopted rules for which ORS 183.405 (1) requires review to determine whether:

* The rule has had the intended effect
* The anticipated fiscal impact of the rule was underestimated or overestimated
* Subsequent changes in the law require that the rule be repealed or amended
* There is continued need for the rule.

DEQ will use “available information” to comply with the review requirement as allowed under ORS 183.405 (2).

DEQ will provide the five-year rule review report to the advisory committee to comply with ORS 183.405 (3)

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1 Footnote Times Roman 12

**WORD PROBLEM**

The extra column on the right corrects a Word error that prevents vertical alignment in last column of a Word table.

Maggie 5/1/2012

2 Footnote Times Roman 12

1. The metal HAP governed by the proposed rule include arsenic, cadmium, chromium, lead, manganese and nickel. [↑](#footnote-ref-1)
2. National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources, 40 CFR Part 63 Subpart SSSSSS. [↑](#footnote-ref-2)
3. “Benefits and Costs of the Clean Air Act, 1990 to 2020”, <https://www.epa.gov/clean-air-act-overview/benefits-and-costs-clean-air-act> [↑](#footnote-ref-3)
4. <https://www.epa.gov/clean-air-act-overview/benefits-and-costs-clean-air-act-1990-2020-second-prospective-study> [↑](#footnote-ref-4)
5. Portland Mercury, “Bullseye Glass is Raising Prices To Pay for Air Filters”, June 8, 2016. [↑](#footnote-ref-5)
6. The glassmaking HAPs regulated by the proposed rule include arsenic, cadmium, chromium, lead, manganese, nickel and selenium. [↑](#footnote-ref-6)