

Oregon Department of Environmental Quality

May 5, 2016

Oregon Environmental Quality Commission Meeting

Temporary Rulemaking Action Item: I

Air Quality 2016 Temporary Rules

Colored Art Glass Manufacturing

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| Differences from 04/21/16 Staff Report |

In the EQC’s regular meeting on April 21, 2016, under agenda item I, the EQC adopted proposed temporary rules for the regulation of Colored Art Glass Manufacturers (CAGMs), OAR 340-244-9000 through 9090.

Subsequent to EQC’s adoption of the proposed rules, DEQ found that the rules included a substantive technical error. DEQ therefore proposes that EQC adopt a correction to the temporary rules. The proposed correction involves only revising the rule text; DEQ does not propose to alter the effective date or the expiration date of the temporary rules.

OAR 340-244-9000 through 9090 impose requirements on CAGMs, including requirements for Tier 2 CAGMs to install emission control devices, and requirements for Tier 1 CAGMs to either install emission control devices, demonstrate that the requirements for an exemption from installing emission control devices are met, or to request a permit condition prohibiting the use of certain metal Hazardous Air Pollutants (HAPs). When emission control devices are installed, the rules also require emission testing to demonstrate that the emission control devices meet 99.0 percent removal efficiency using a specified emission test method. The error is that the rules specify the wrong test method.

As adopted, the rules specify the use of a test method referred to as DEQ Method 5 to demonstrate the removal efficiency. The rule should instead specify EPA Method 5. Both test methods are used to measure particulate matter emissions, but EPA Method 5 tests only for filterable particulate matter, while DEQ Method 5 tests for both filterable and condensable particulate matter. Why EPA Method 5 should be specified is explained in more detail below.

In an exhaust gas stream, some material is present in solid form, and some is present in vapor form. The solid particles are captured by a filter and are called filterable particulate matter. Gases and vapors pass through a filter without being captured but condense to form liquid droplets when cooled to ambient conditions. The term condensable particulate matter refers to the vapors that can condense to liquids but are not captured by a filter. *Total* particulate matter includes both filterable and condensable particulate matter, but many emissions standards apply only to filterable particulate matter.

DEQ Method 5 measures total particulate matter; that is, both filterable and condensable particulate matter. EPA Method 5 measures only filterable particulate matter. The picture to the left illustrates the emission sampling system (referred to as the sample train) for DEQ Method 5. At upper left is a glass filter holder, which holds a filter disk. The filter captures the filterable particulate matter. The filter is heated to prevent condensation on the filter. To the right of the filter are a number glass tubes known as impingers, which are placed in an ice bath. The cold impingers are used to condense and capture the condensable particulate matter. After sampling is completed, the amount of particulate matter on the filter and in the impingers is measured.

The sample train for EPA Method 5 is similar but does not include the impingers, and therefore only measures the filterable particulate matter.

One of the primary purposes of OAR 340-244-9000 through 9090 is the control of metal HAP emissions from CAGMs. DEQ expects the CAGMs to use baghouses to control metal HAP emissions. At the operating temperature of a baghouse, the metal HAPs will be in the form of solid particulate matter.

A baghouse is essentially a large air filter and is analogous to the filter in the sample train. Like the filter, a baghouse only captures filterable particulate matter. To properly measure the efficiency of the baghouse, it is appropriate to use a test method that measures only what the baghouse removes, which is filterable particulate matter. For this reason, the rule should specify EPA Method 5 as the test method associated with baghouse removal efficiency, not DEQ Method 5. DEQ therefore proposes to correct the rules to specify that the 99.0 percent removal efficiency requirement is based on EPA Method 5. This correction is in OAR 340-244-9070(1), and requires replacing “DEQ Method 5” with “EPA Method 5 (filterable PM only)”.

One of the other requirements in OAR 340-244-9000 through 9090 is that CAGMs must apply for an air permit. In air permits, DEQ establishes Plant Site Emission Limits (PSELs), which are limits on the total emissions of criteria pollutants from a facility. Criteria pollutants include particulate matter. For the purpose of PSELs, DEQ counts total (filterable plus condensable) particulate matter. DEQ therefore has an interest in determining the total particulate matter emissions from CAGMs. For this reason, the emission testing that is required for the emission control devices still specifies DEQ Method 5, but only the filterable particulate matter measured in the test will apply to the control device removal efficiency.

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| DEQ recommendation to the EQC  |

DEQ recommends that the Environmental Quality Commission:

Determine that failure to act promptly would result in serious prejudice to the public interest or the interests of the parties concerned as provided under the Justification section of this staff report.

Adopt TEMPORARY rules as proposed in Attachment A as part of chapter 340 of the Oregon Administrative Rules to be effective on filing with the Oregon Secretary of State.

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| Overview |

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 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 undertook last October, and in recent weeks, 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 temporary rules that DEQ proposes for EQC adoption are intended to immediately 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.

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| Statement of need  |

**What need is DEQ trying to address?**

DEQ is addressing the urgent need to control metals emissions from colored art glass manufacturing facilities. As DEQ recently determined through air monitoring and facility inspections, uncontrolled glass furnaces processing colored glass to which arsenic, cadmium, chromium and nickel are added likely 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 showed metals concentrations at levels that can significantly increase risks of cancer and other health problems.

These rules are necessary to address a regulatory gap. No other state or federal standards currently apply to limit potentially unsafe levels of metal emissions from these types of colored art glass facilities. Waiting for longer-term state or federal solutions could result in unacceptably long periods of additional health risk for people living nearby.

National Emission Standards for Hazardous Air Pollutants (NESHAP) are stationary source standards for hazardous air pollutants. Hazardous air pollutants (HAPs) are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.

Many times the NESHAPs apply to only major sources which are sources with 25 tons per year of total HAPs or 10 tons per year of an individual HAP. In some cases the NESHAPs regulate some smaller or area sources of HAPs. But in cases where there is no NESHAP for smaller sources, or where a source is too small to be regulated by an area source NESHAP, DEQ does not have air toxics regulations that apply. Even if the potentially relevant NESHAPs applied, individual furnaces at the facilities may not be subject to the emissions reduction requirements, and emissions may still have an unacceptable impact on the public.

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

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

The proposed rules create two Tiers of colored art glass manufacturers based on production and furnace type. By prohibiting use of chromium VI, cadmium and arsenic prior to installation of emission control devices at larger colored art glass facilities, the temporary rules would immediately decrease risk from airborne metal exposure to people nearby, including children and other sensitive or vulnerable individuals. By prohibiting use of chromium III until DEQ establishes a maximum allowable usage rate, the temporary rules will ensure that facilities are not emitting potentially dangerous amounts of chromium VI.

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| Justification ORS 183.335(5) |

**What would the consequences be of not taking immediate action:**

The consequences of the EQC not taking immediate action to adopt the proposed rules would be that emissions from colored art glass manufacturers could continue to cause elevated and possibly unsafe levels of metals in the Portland area.

The two larger colored art glass manufacturers have been operating for 36 and 42 years, respectively. Now that DEQ has verified monitoring and inspection data to show that the facilities have uncontrolled furnace emissions that can significantly increase risk of cancer and other diseases, the emissions must be controlled immediately to prevent any additional health burden to those already exposed and any unacceptable health risk to all people nearby.

DEQ is concerned about all potentially unsafe levels of metals, but in particular arsenic, cadmium and chromium VI. Arsenic exposure at high levels over a long period of time may cause developmental delay in children, but it’s not known for sure. Long-term arsenic exposure is also linked to skin color changes, nerve damage, skin cancer, and cancers of the lung, bladder, and liver. Cadmium remains in the body for about 28 years and any additional accumulation can contribute to cancer risk or kidney damage. It is imperative to avoid unacceptable exposure to arsenic and cadmium for children at nearby childcare facilities and schools. Since chromium III heated in furnaces can produce some percentage of chromium VI, and this compound is acutely toxic and carcinogenic, the proposed rules to test for and set up an allowable usage rate of chromium III are immediately necessary to avoid any further public exposure to chromium VI.

The proposed action is to adopt rules to require colored art glass manufacturers to install emission control devices on glass-making furnaces. The proposed rules also prohibit using arsenic, cadmium and chromium VI and establish procedures to set levels of allowable chromium III usage that would protect public health. Under the conditions in glass production furnaces, some percentage of chromium III transforms to chromium VI.

**Who are the affected parties:**

The affected parties are the public, colored art glass manufacturers and users of colored glass.

The public would suffer the consequences if immediate action was not taken since elevated levels of metals are connected with serious health effects like cancer, respiratory problems and organ damage.

Colored art glass manufacturers will incur expenses to obtain air permits; report regularly; install emission control devices; and to test those devices to ensure optimum operation and compliance with standards or exempt furnaces from control device installation requirements.

**How will the temporary rule avoid or mitigate the consequences of not taking immediate action:**

A temporary rule would avoid or mitigate consequences by requiring emission control devices on glass-making furnaces to reduce the metal emissions.

The control devices that the colored art glass manufacturers will install are required to have removal efficiencies of 99% or higher. The requirement to install emission control devices would reduce metal emissions to levels that DEQ and the Oregon Health Association believe would be safe for the public. If smaller manufacturers elect not to install emissions control devices they must demonstrate that the impacts from their furnaces are below acceptable health based impact levels. Larger colored art glass manufacturers must install emission control devices on glass-making furnaces that use all of the metals regulated by the rule.

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| Rules affected, authorities, supporting documents |

Lead division - Operations

Program or activity – Program Operations

Chapter 340 action

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| 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.310

Statute implemented ORS 468A.025, & 468A.040

Documents relied on for rulemaking - None

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| Housing costs - [ORS 183.534](http://www.leg.state.or.us/ors/183.html) |

OPTION 1 – impact

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 the proposed rules could affect the development costs if the homeowner wanted colored art glass installed in the dwelling. The costs for additional permits, emission control or process equipment could be passed through by businesses providing products and services for such development and construction. DEQ cannot quantify the impact at this time because the available information does not indicate whether the costs would be passed on to consumers and any such estimate would be speculative.

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| EQC Prior Involvement  |

There has been no prior EQC involvement because this is a temporary rule.

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| Stakeholder and public involvement |

At the March 15, 2016 meeting, the EQC granted the public request for two weeks to review the proposed temporary rule. Enter committee name hereThe comment period ended on March 30, 2016 at 5 p.m. DEQ received approximately 1200 comments, about 520 from Oregonians and about 670 from people around the United States and the world.

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| Summary of comments and DEQ responses |

DEQ accepted public comments on the proposed rules. DEQ summarized the comments and created a general summary response to the comments. Those summaries and responses are included in a separate document titled “Summary of Comments and DEQ Summary Responses.”

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|  Implementation  |

**Notification**

If approved, the proposed rules would become effective upon filing with Secretary of State, approximately April 22, 2016mmm, dd, yyyy. DEQ would notify affected parties by Describe Notificationsending information to all affected permit holders and other potentially affected facilities by email. DEQ would also post the announcement of the adopted rules on the DEQ website.

**Compliance and enforcement**

Affected parties - Current DEQ rules require that DEQ place new and amended standards into Title V and Air Contaminant Discharge Permit permits. Once the new and amended standards are incorporated into a permit, DEQ is required to inspect pollution control systems or prevention methods and to review monitoring data and compliance reports as part of their routine compliance inspections. Inspections may identify violations of emission limits and standards.

DEQ staff - The permit writing team and enforcement staff would develop internal compliance and enforcement guidance on the proposed rules for permit writers and inspectors.

Measuring, sampling, monitoring and reporting

Affected parties – The proposed rules will require affected parties to source test either uncontrolled glass-making furnaces or the emission control device on a glass-making furnace and report those results to DEQ. Affected parties must report each week the records of the daily amount of arsenic, beryllium, cadmium, chromium III, chromium VI, cobalt, lead, manganese, nickel, and selenium used in all batches produced.

DEQ staff – DEQ staff will review the source test results for accuracy and the daily usage reports to ensure compliance with the proposed temporary rules.

**Systems**

Website - If EQC approves the proposed rules, DEQ’s headquarters office would update its website with information about the proposed rules.

Invoicing – If new or modified permits are required, DEQ would invoice the affected facilities.

**Training**

Affected parties - If EQC approves the proposed rules, DEQ plans to contact affected facilities to explain the rule changes.

DEQ staff – The permit writing team staff would develop internal guidance on the proposed rules for permit writers and inspectors. If additional training is needed, training meetings would be held before or in conjunction with those for affected facilities.