

Amendments to the Operating & Monitoring Requirements for Sweat Furnaces

Secondary Aluminum Production NESHAP

1. Background

The U.S. Environmental Protection Agency (EPA) has amended its regulations in 40 CFR part 63 subpart RRR, to control emissions from secondary aluminum production facilities, including sweat furnaces. In addition to sweat furnaces, these regulations apply to aluminum scrap shredders, thermal chip dryers, scrap dryers/delacquering kilns/decoating kilns, group 1 furnaces, group 2 furnaces (processing clean charge only and no reactive fluxing), dross only furnaces, and rotary dross coolers. The EPA published amendments to subpart RRR on September 18, 2015 that contain alternative compliance options for the operating requirements (see part 2 below) and monitoring requirements (see part 3 below) for sweat furnaces.

This document summarizes the recent amendments to the standard that apply to the owners and operators of sweat furnaces. The full version of the recently published amendments appeared in the September 2015 edition of the Federal Register (Vol. 80, No. 181, beginning on page 56700). For a summary of the original standards that applied to sweat furnaces, refer to the EPA brochure, “New Regulation Controlling Emission from Secondary Aluminum Production (Sweat Furnace Operations),” Publication No. EPA-456/F-00-004, November 2000. This brochure is available on the EPA’s Web site at: <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=000037AN.pdf>.

2. Amended Operating Requirements for Sweat Furnaces

Section 63.1505(f)(1) of subpart RRR states that the owner/operator of a sweat furnace that chooses to comply with the afterburner residence time and temperature requirements of section 63.1505(f)(1) does not have to conduct performance tests to show compliance with the emission limits in section 63.1505(f)(2) for dioxins and furans.

The rule further states in section 63.1506(a) that the owner/operator of a sweat furnace that chooses to comply with the residence time and temperature standards must also operate their sweat furnace according to the operating requirements in section 63.1506. Specifically, prior to the September 2015 amendments, the EPA interpreted subpart RRR as requiring that sweat furnaces equipped with an add-on air pollution control device to meet the engineering standards for minimum exhaust rates as contained in the publication, “Industrial Ventilation: A Manual of Recommended Practice,” published by the American Conference of Governmental Industrial Hygienists (ACGIH).

But with the September 2015 amendments, as an alternative to meeting the ACGIH guidelines, the sweat furnace owner/operator can instead show compliance by meeting the following three requirements [see section 63.1506(c)(4) of the rule for further detail]:

a. Conduct an annual negative air flow tests showing that air flows into the sweat furnace or towards the opening of the sweat furnace [section 63.1506(c)(4)(i)]. The required negative air flow monitoring techniques are described in part 3.

b. The sweat furnace owner/operator must maintain and operate the sweat furnace in a manner to minimize emissions, including emissions that escape capture by the hood, referred to as unmeasured

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emissions. The rule identifies measures that the owner/operator can use to help to minimize unmeasured emissions. Those measures include, but are not limited to the following:

- Increase the exhaust rate from the furnace with draft fans.
- Minimize the time that the sweat furnace doors are open.
- Keep building doors and other openings closed to minimize drafts that could interfere with emissions being drawn into the sweat furnace.
- Maintain burners on low-fire or pilot operation while the sweat furnace doors are open.
- Conduct periodic inspections and maintenance of sweat furnace components, including door assemblies, seals, combustion chamber refractory material, afterburner and stack refractory, blowers, fans, dampers, burner tubes, door raise cables, pilot light assemblies, baffles, sweat furnace and afterburner shells and other internal structures [section 63.1506(c)(4)(ii)].

c. The owner/operator must include in their operation, maintenance, and monitoring (OM&M) plan the procedures they will use to ensure the proper operation and maintenance of their sweat furnace as well as the procedures to be followed to minimize emissions, including unmeasured emissions. [section 63.1506(c)(4)(iii)].

3. Amended Monitoring Requirements for Sweat Furnaces

Prior to the September 2015 amendments to subpart RRR, the EPA interpreted section 63.1510(d)(2) of subpart RRR as requiring emission units equipped with add-on air pollution control devices to measure the flow rates of capture and collection systems using EPA Methods 1 and 2 tests. The 2015 amendments added alternatives to annual testing with Methods 1 and 2, including alternative methods specifically for sweat furnaces. These alternative monitoring provisions are contained in section 63.1510(d)(3). To demonstrate that they are complying with the negative air flow requirements in section 63.1506(c)(4), the sweat furnace owner/operator must do the following:

- a. Perform an annual visual smoke test to demonstrate airflow into the sweat furnace or towards the plane of the sweat furnace opening;
- b. Perform the smoke test using a smoke source, such as a smoke tube, smoke stick, smoke cartridge, smoke candle or other smoke source that produces a persistent and neutral buoyancy aerosol; and
- c. Perform the visual smoke test at a safe distance from and near the center of the sweat furnace opening.

4. Summary

As described above, the September 2015, amendments to the emissions standards for secondary aluminum production provide the owners/operators of sweat furnaces with alternative compliance options for the operating and monitoring requirements of the rule. The existing recordkeeping requirements continue to apply to these new provisions. For example, Section 63.1506(c)(4) requires sweat furnace operators to document in their OM&M plan the procedures to be used to minimize emissions, and to ensure proper operation and maintenance of sweat furnaces. Section 63.1517 has always required that sources comply with the general recordkeeping provisions in 63.10(b), which states that, among other things, records be kept of:

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- startups and shutdowns that cause the source to exceed applicable emission limits
- occurrences of malfunctions in process, air pollution control, and monitoring equipment
- maintenance performed on air pollution control and monitoring equipment and;
- results of performance tests, continuous monitoring system performance evaluations, and opacity and visual emissions observations. (This would include records such as the annual negative pressure tests, etc.)