An Environmental Management Fact Sheet for Auto Salvage Yards on...

Aluminum Sweat Furnaces

EAD ENVIRONMENTAL ASSISTANCE DIVISION

What is an Aluminum Sweat Furnace?

Aluminum sweat furnaces are used to recycle scrap aluminum into ingots or blocks. The aluminum scrap is often contaminated with oils, coatings and flux or other contaminants, which can generate highly toxic dioxins and furans when the furnace is operated. Consequently, the U.S. EPA is regulating all aluminum sweat furnaces in the U.S. These units are typically used at salvage yards and metal recycling facilities.

If I have or want to operate a Sweat Furnace, what is required?

In order to comply with the EPA Maximum Achievable Control Technology (or MACT) standard, the furnace must either pass a dioxin/furan emission test or operate and maintain an afterburner that destroys dioxins/furans. Additional record keeping and monitoring requirements also apply.

Why do these furnaces need to be permitted?

Recovering aluminum from scrap such as beverage cans, foundry returns, auto salvage parts and dross can release toxins into the air. Eleven heavy metals, several organic compounds (including dioxins, furans, and polycyclic organic matter), and acid gases such as hydrogen chloride and chlorine have been identified in the release of "back yard built" smelting operations. Health effects associated with exposure to these air toxics include: cancer, respiratory irritation, and damage to the nervous system. By complying with the Air regulatory requirement, the release of these identified toxins can be reduced significantly.

Permits from Vermont's Air Pollution Control Division are required for the installation and operation of all sweat furnaces. The federal MACT requirements (40 CFR §63.1500 RRR) will be included as part of these state permits.

- ☞ Sweat furnaces must be operated and maintained with an afterburner, which has a combustion chamber residence time of 0.8 seconds at or above a temperature of 1600 ºF. Performance testing is not required if control mechanisms on the unit are operated and maintained to meet the preceding specifications.

- ☞ The sweat furnace must not discharge emissions in excess of 0.80 nanograms of dioxin/furan Toxic Equivalents per dscm ($3.5x10^{-10}$ grams per dscf) at 11% oxygen.

New and existing sweat furnaces are required to obtain permits from the Vermont Air Pollution Control Division. For more information visit:

www.anr.state.vt.us/dec/air/pages/permits.htm

Environmental Assistance Division
Vermont Agency of Natural Resources
Department of Environmental Conservation
103 S. Main St., Waterbury, VT 05671-0411

9/02
EAD@anrmail.anr.state.vt.us
http://www.anr.state.vt.us/dec/dec.htm
EAD Hotline 800-974-9559, 802-241-3589 (out-of-state)

Monitoring Required

Install, calibrate, maintain and operate a device that continuously records the operating temperature of the afterburner. The device must record the temperature in 15-minute block averages and determine the average temperatures for each 3-hour block period. An inspection of each afterburner must occur at least once a year and the results recorded. Further monitoring and inspection details may be found §63.1510(g).

Reporting Required

Each sweat furnace owner must submit a notification of compliance status report within 60 days after March 24, 2003. The rule requires a complete performance test report be submitted for each affected source and emissions unit, unless control mechanisms on the unit already meet emission specifications. The rule also requires a startup, shutdown and malfunction plan/report. This must contain specific procedures to be followed for operating and maintaining during periods of startup, shutdown, and maintenance. Records must be maintained as required under §63.10(b).

Existing sweat furnaces must comply with MACT requirements by March 24, 2003. A new furnace must demonstrate compliance with the regulation prior to the initiation of operation. To access the rule on-line:

http://www.epa.gov/ttn/atw/alum2nd/alum2pg.html

For more information, contact any of the following individuals:

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Glossary of Terms:

RRR - Subpart RRR is the U.S. EPA's designation for the National Emission Standards for Secondary Aluminum Production

MACT - U.S. EPA's term for Maximum Available Control Technology. These standards, required by the 1990 Clean Air Act, are designed to control the emissions of hazardous air pollutants by means of stringent air pollution reduction measures. Each subpart corresponds to an emissions category and categories are determined by facility type.

nanograms – a unit of measurement equal to 1E-9; this is one billionth of a gram or 0.00000454 pounds

dscm – a unit of measurement meaning dry standard cubic meter

dscf – a unit of measurement meaning dry standard cubic feet

Dioxins and furans – These are a group of highly toxic, cancer-causing organic pollutants. For this rule, dioxins and furans includes the tetra-, penta-, hexa-, and octachloroinated dibenzo dioxins and furans.