

Ohio EPA

Division of Air Pollution Control

Engineering Guide #3

Question:

When enforcing the particulate emission rules, are bake-off ovens to be considered as an incinerator or a process? (This question was submitted by Gary Nied of the City of Cleveland, Division of Air Pollution Control, on September 24, 1979.)

Answer:

Bake-off ovens are used to burn away the organic coating or lining from a metal part or piece of equipment for the purpose of reclaiming such part or piece of equipment. The question to be resolved by this guide is whether the particulate emissions from such sources should be regulated by OAC rule 3745-17-09 or by OAC rule 3745-17-11.

OAC rule 3745-17-09(A)(1) specifies the applicability of the rule and reads as follows:

"This rule shall apply to any incinerator."

OAC rule 3745-17-09(B) specifies the emission limitations for incinerators as follows:

"No person shall cause, suffer, or allow to be emitted into the ambient air from any incinerator or incinerators, particulate emissions in the exhaust gases in excess of: 0.10 pound per one hundred pounds of liquid, semi-solid or solid refuse ***and salvageable material*** charged, for incinerators having incineration capacities equal to or greater than one hundred pounds per hour; or 0.20 pound per one hundred pounds of liquid, semi-solid or solid refuse ***and salvageable material*** charged for incinerators having incineration capacities less than one hundred pounds per hour." (emphasis added)

OAC rule 3745-17-01(B)(17) defines "salvageable material" as follows:

".....any material which is to be reduced in volume, or otherwise changed in chemical or physical properties, in order to facilitate its reuse."

OAC rule 3745-17-11(A)(1) specifies the applicability of this rule and reads as follows:

"This rule applies to any operation, process, or activity which releases or may release particulate emissions into the ambient air except (a) the burning of fuel for the primary purpose of producing heat or power by indirect heating in which the products of combustion do not come into direct contact with process materials; (b) the burning of refuse; (c) the processing of salvageable material by

burning;...."

It is clear from the wording of these provisions that the processing of salvageable material by burning is to be governed by the incinerator rule (OAC rule 3745-17-09). It is then necessary to show that the operation of a bake-off oven constitutes the processing of salvageable material by burning.

The word "burning" means "that burns." Burn is defined as "...1. a: to cause to undergo combustion, to destroy by fire... 2. a: to transform by exposure to heat or fire..."<sup>1</sup>

The purpose of a bake-off oven is to remove the coating or lining from a part or piece of equipment so that such part or piece of equipment may be saved and sold or put to some use, rather than totally disposing of it as waste. It is clear that burning does occur in a bake-off oven since the carbon and hydrogen in the organic coating or lining are oxidized or combusted.

It is also well established in the literature that such ovens are classified as incinerators. For example, the Air Pollution Engineering Manual (2nd Edition, page 496) includes a discussion of the reclamation of electrical equipment windings, wire reclamation, etc., in the section on incinerators.

Therefore, in summary, bake-off ovens should be considered as incinerators, and their particulate emissions should be governed by OAC rule 3745-17-09.

Additionally, it should be noted that sources subject to OAC rule 3745-17-09 are also governed by OAC rule 3745-17-07. In accordance with this rule, an existing emissions unit (installed prior to 1974) must meet a 20% opacity limitation, except that it "...may exceed twenty percent opacity, as a six-minute average, for not more than six consecutive minutes in any sixty minutes, but shall not exceed sixty percent opacity, as a six-minute average, at any time." New emissions units are also subject to BAT requirements, which may include a visible emission limitation that is more stringent than the visible emission limitation established in OAC rule 3745-17-07(A)(1).

#### Examples:

##### 1. Drum Burn-out Unit

A facility reclaims and recycles steel waste-containing drums. The facility uses an incinerator to burn off the organic compounds and residual waste that remain in the drum. This source is considered to be an incinerator and subject to the particulate emission limitation established in OAC rule 3745-17-09(B) because the process meets the definition of "burning," i.e., the waste is being destroyed by undergoing combustion within the primary chamber. Furthermore, the particulate emission limitation shall be based not only on the weight of the waste material charged, but shall also include the weight of the "salvageable material," which is the drum in this case. OAC rule 3745-17-11(A)(1) specifically excludes "...the processing of salvageable material by burning..." and does not apply to "bake-off" ovens or incinerators.

2. Pyrolysis Furnace

A facility reclaims the hangers used on its spray paint conveyor line. The hangers are placed within a basket and put into a pyrolysis furnace where the hangers are heated to remove the coating material. Pyrolysis is defined as a "... chemical change brought about by the action of heat..."<sup>2</sup> Therefore, per the second part of the definition of burn listed above, a pyrolysis furnace is an incinerator that is subject to OAC rule 3745-17-09(A)(1), and is not considered a process in accordance with OAC rule 3745-17-11(A)(1)(c).

<sup>1</sup>Webster's Ninth New Collegiate Dictionary, 9<sup>th</sup> Ed., pg. 189.

<sup>2</sup>Webster's Ninth New Collegiate Dictionary, 9<sup>th</sup> Ed., pg. 960.

TK/JO/MC/vs

December 13, 1979

(reviewed & revised March 19, 1986 and May 4, 2005)