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Bake-off Ovens

Background

Bake-off, burn-off, or clean-off ovens (referred to in this document as bake-off ovens) are typically used by painting operations to clean cured paint off of paint hooks or other metal parts through the use of heat. Because of how these units operate, the Nebraska Department of Environmental Quality (NDEQ) considers bake-off ovens as incinerators. The purpose of this document is to present the NDEQ's regulatory evaluation.

Regulatory Evaluation

The main factors considered when NDEQ determined that bake-off ovens were incinerators included: 1) the definition of "incinerator" in Chapter 1 of [Nebraska Administrative Code Title 129 - Nebraska Air Quality Regulations](#); and 2) the description of an incinerator in Chapter 22, Section 006 of Title 129.

1. Title 129, Chapter 1 defines an incinerator as "any furnace used in the process of burning solid waste." NDEQ has determined that the paint is a solid waste since it needs to be removed from the hooks and disposed of in some manner, whether through the use of solvents, grinding, incineration, etc. Bake-off ovens use heat to reduce the paint on the hooks to ashes, which falls under this definition.
2. Chapter 22, Section 006 specifies that "each incinerator shall consist of (a) refractory lined combustion furnace(s) employing adequate design parameters necessary for maximum combustion of the materials to burned, and shall be designed to vent the products of combustion through an adequate stack, duct, or chimney." The bake-off ovens reviewed fall under this description. All have a primary combustion chamber with refractory (heat resistant) lining and are exhausted through a stack, duct, or chimney, which, in most cases, also serves as the secondary combustion chamber.

Questions & Answers

- *Does an incinerator have to have a direct flame?*

The definition of incinerator in Title 129 is "any furnace used in the process of burning solid waste." Since Title 129 does not contain a definition of "burning", we look to common knowledge or a standard dictionary definition for clarification. Webster's II New Riverside University Dictionary defines the act of burning as "to damage or injure by fire, heat, or a heat-producing agent." Since heat and heat producing agent are contained in the definition, NDEQ has concluded that a direct flame is not a requirement for a unit to be considered an incinerator.

- *Are bake-off ovens pyrolyzers?*

Yes. Pyrolyzers use the process of pyrolysis to chemically change the coatings on paint hooks due to heat. At the conclusion of the pyrolysis process, the coatings on the hooks are turned into ash. Due to the fact that the pyrolysis process uses heat to chemically change coatings on paint hooks to ash, the terms "burning" and "pyrolysis" can be used interchangeably. Therefore, the NDEQ has determined that pyrolyzers are bake-off ovens.

- *Does the U.S. Environmental Protection Agency (EPA) consider these units to be incinerators?*

Currently, the EPA has not regulated these units under the federal New Source Performance Standards (NSPS) or the National Emission Standards for Hazardous Air Pollutants (NESHAP). However, the description of medical waste incinerators found in the EPA's Compilation of Air Pollution Emission Factors AP-42 is consistent with the incinerator description found in Chapter 22 of Title 129.

- *Do bake-off ovens emit all of the same pollutants as other incinerators?*

No. While some of the pollutants are expected to be the same, bake-off ovens should not emit as many hazardous air pollutants and heavy metals as municipal waste incinerators. The types of pollutants emitted will vary depending upon the paint being burned.

- *Are bake-off ovens subject to air quality permitting requirements?*

Yes. Title 129, Chapter 17, Section 001.03 requires that an air quality construction permit be obtained prior to installation of new incinerators. Title 129, Chapter 5, Section 001.02B requires that all incinerators receive a class II air quality operating permit, unless a class I permit is required. Given that the NDEQ has determined that bake-off ovens are incinerators, each bake-off oven at a source is subject to the permitting requirements found in Title 129, Chapters 5 and 17.

Produced by: Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402) 471-2186. To view this, and other information related to our agency, visit our web site at <http://deq.ne.gov>.