

CHAPTER 21

INDUSTRIAL OVENS

SECTION 2101 GENERAL

2101.1 Scope. This chapter shall apply to the maintenance of industrial ovens and furnaces. The installation of industrial ovens and furnaces shall comply with the applicable provisions of NFPA 86, the *Arizona State Plumbing Code*, and the *International Mechanical Code*. The terms “ovens” and “furnaces” are used interchangeably in this chapter.

SECTION 2102 DEFINITIONS

2102.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FURNACE CLASS A. An oven or furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there is a potential explosion or fire hazard that could be occasioned by the presence of flammable volatiles or combustible materials processed or heated in the furnace.

Note: Such flammable volatiles or combustible materials can, for instance, originate from the following:

1. Paints, powders, inks, and adhesives from finishing processes, such as dipped, coated, sprayed and impregnated materials.
2. The substrate material.
3. Wood, paper and plastic pallets, spacers or packaging materials.
4. Polymerization or other molecular rearrangements.

Potentially flammable materials, such as quench oil, water-borne finishes, cooling oil or cooking oils, that present a hazard are ventilated according to Class A standards.

FURNACE CLASS B. An oven or furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there are no flammable volatiles or combustible materials being heated.

FURNACE CLASS C. An oven or furnace that has a potential hazard due to a flammable or other special atmosphere being used for treatment of material in process. This type of furnace can use any type of heating system and includes a special atmosphere supply system. Also included in the Class C classification are integral quench furnaces and molten salt bath furnaces.

FURNACE CLASS D. An oven or furnace that operates at temperatures from above ambient to over 5,000°F (2760°C) and at pressures normally below atmospheric using any type of heating system. These furnaces can include the use of special processing atmospheres.

SECTION 2103 FIRE PROTECTION

2103.1 Fire extinguishers. Portable fire extinguishers complying with Section 906 shall be provided not closer than 15 feet (4572 mm) or a maximum of 50 feet (15 240 mm) or in accordance with NFPA 10. This shall apply to the oven and related equipment.

SECTION 2104 OPERATION AND MAINTENANCE

2104.1 Furnace system information. An approved, clearly worded and prominently displayed safety design data form or manufacturer’s nameplate shall be provided stating the safe operating condition for which the furnace system was designed, built, altered or extended.

2104.2 Oven nameplate. Safety data for Class A solvent atmosphere ovens shall be furnished on the manufacturer’s nameplate. The nameplate shall provide the following design data:

1. The solvent used.
2. The number of gallons (liters) used per batch or per hour of solvent entering the oven.
3. The required purge time.
4. The oven operating temperature.
5. The exhaust blower rating for the number of gallons (liters) of solvent per hour or batch at the maximum operating temperature.

Exception: For low-oxygen ovens, the maximum allowable oxygen concentration shall be included in place of the exhaust blower ratings.

2104.3 Training. Operating, maintenance and supervisory personnel shall be thoroughly instructed and trained in the operation of ovens or furnaces.

2104.4 Equipment maintenance. Equipment shall be maintained in accordance with the manufacturer’s instructions.

