CHAPTER 25

FRUIT AND CROP RIPENING

User note:

About this chapter: *Chapter 25 provides guidance that is intended to reduce the likelihood of explosions resulting from improper use or handling of ethylene gas used for crop ripening and coloring processes. This is accomplished by regulating ethylene gas generation, regulating storage and distribution systems and controlling ignition sources. Design and construction of facilities for fruit and crop ripening are regulated by the* International Building Code® *to reduce the impact of potential accidents on people and buildings.*

SECTION 2501
GENERAL

2501.1 Scope. Ripening processes where ethylene gas is introduced into a room to promote the ripening of fruits, vegetables and other crops shall comply with this chapter.

Exception: Mixtures of ethylene and one or more inert gases in concentrations that prevent the gas from reaching greater than 25 percent of the lower explosive limit (LEL) when released to the atmosphere.

2501.2 Permits. Permits shall be required as set forth in Section 105.6.

2501.3 Ethylene generators. *Approved* ethylene generators shall be operated and maintained in accordance with Section 2506.

SECTION 2502
DEFINITIONS

2502.1 Terms defined in Chapter 2. Words and terms used in this chapter and defined in Chapter 2 shall have the meanings ascribed to them as defined therein.

SECTION 2503
ETHYLENE GAS

2503.1 Location. Ethylene gas shall be discharged only into *approved* rooms or enclosures designed and constructed for this purpose.

2503.2 Dispensing. Valves controlling discharge of ethylene shall provide positive and fail-closed control of flow and shall be set to limit the concentration of gas in air below 1,000 parts per million (ppm).

SECTION 2504
SOURCES OF IGNITION

2504.1 Ignition prevention. Sources of ignition shall be controlled or protected in accordance with this section and Chapter 3.

2504.2 Electrical wiring and equipment. Electrical wiring and equipment, including luminaires, shall be *approved* for use in Class I, Division 2, Group C hazardous (classified) locations.

2504.3 Static electricity. Containers, piping and equipment used to dispense ethylene shall be bonded and grounded to prevent the discharge of static sparks or arcs.

2504.4 Lighting. Lighting shall be by *approved* electric lamps or luminaires only.

2504.5 Heating. Heating shall be by indirect means utilizing low-pressure steam, hot water or warm air.

Exception: Electric or fuel-fired heaters *approved* for use in hazardous (classified) locations and that are installed and operated in accordance with the applicable provisions of NFPA 70, the *International Mechanical Code* or the *International Fuel Gas Code*.

SECTION 2505
COMBUSTIBLE WASTE

2505.1 Housekeeping. Empty boxes, cartons, pallets and other combustible waste shall be removed from ripening rooms or enclosures and disposed of at regular intervals in accordance with Chapter 3.

SECTION 2506
ETHYLENE GENERATORS

2506.1 Ethylene generators. Ethylene generators shall be *listed* and *labeled* by an *approved* testing laboratory, *approved* by the *fire code official* and used only in *approved* rooms in accordance with the ethylene generator manufacturer's instructions. The listing evaluation shall include documentation that the concentration of ethylene gas does not exceed 25 percent of the lower explosive limit (LEL).

2506.2 Ethylene generator rooms. Ethylene generators shall be used in rooms having a volume of not less than 1,000 cubic feet (28 m^3). Rooms shall have air circulation to ensure even distribution of ethylene gas and shall be free from sparks, open flames or other ignition sources.

SECTION 2507
WARNING SIGNS

2507.1 Where required. *Approved* warning signs indicating the danger involved and necessary precautions shall be posted on all doors and entrances to the premises.