

U.S. Fire Administration / National Fire Academy

*Coffee Break Training***Topic: Nonmetallic Waste Containers**

Learning Objective: The student shall be able to identify requirements for nonmetallic waste receptacles used indoors.

Polyethylene rollout waste containers often are provided by trash haulers as a service to commercial building tenants. Intended primarily for outdoor use, these containers may find their way into the structures' interior. Almost all of these inexpensive polyethylene containers have excellent weather-resistance and durability for exterior storage, but represent a huge fuel load when moved indoors.

An individual polyethylene container has a latent heat potential of about 20,020 Btu/pound (4.6 MJ/kilogram). A typical 50-gallon (0.189 m³) rollout waste container weighs 10 to 13 pounds (4.5 to 5.9 kg). In that weight range, the container alone adds from 200,200 to 260,260 Btu (211 MJ to 275 MJ) to a room.

According to the article, "Good Fuel Source" from The Council for Solid Waste Solutions, an average pound of municipal solid waste has a latent heat potential of 4,500 Btu/lb (4.6 MJ/kg). At an average 5 pounds (2.2 kg) of dry weight per gallon (m³), these trash receptacles can hold up to 250 pounds (113 kg) of waste, thus adding another 1,125,000 Btu (1187 MJ).

The model fire codes require that trash containers exceeding 40 gallons (0.151 m³) to be of noncombustible or approved combustible materials. In one code, wastebaskets of any size are regulated in jails and prisons. The concern is that these plastic containers create an extremely high fuel load and, under fire conditions, could overtax sprinkler systems.



A burning waste container emits substantial heat energy.

Plastic or other nonmetallic containers must be tested to ASTM E 1354 or NFPA 271, *Standard Method of Test for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*, which requires a limited heat release rate of 0.0264 Btu/ft²/sec (300 W/m²), and be labeled indicating their compliance.

Waste containers are a serious concern and often are overlooked. Pay special attention where smoking is allowed, hot work performed, or where there are multiple containers and no sprinkler system.

For additional information, refer to *International Fire Code*[®], Chapter 3, or NFPA 1, *Uniform Fire Code*[®], Chapter 9.