

# Protection Challenges of Unlisted, Rigid, Plastic IBCs (Intermediate Bulk Containers)

I have been asked to illustrate the concern property insurers have with the storage and use of unlisted, rigid, plastic IBCs storing combustible liquids in insured facilities. There is one listed, rigid, plastic IBC in the marketplace, but very few of them are in use. There is protection criteria in NFPA 30 "Flammable and Combustible Liquid Code" for the listed IBCs, but not for the unlisted models.

The unlisted, rigid, plastic IBCs are generally a molded polyethylene container surrounded by a metal cage for reinforcing support. The IBCs are allowed to be 793 gallons in size by NFPA 30, but most are 275 to 300 gallons in size. In a fire scenario research and fire experience has shown the plastic container melts and the combustible liquid is allowed to flow its contents into the fire causing a pool fire of combustible liquid. It should be noted that once ignited combustible liquids burn just as fiercely as flammable liquids like gasoline. A pool fire of combustible liquids in a building is very challenging for any fire suppression system to control and suppress. In fact, to date, no system has been shown to control or suppress a combustible liquid pool fire. When this happens it is a "bad day" at the facility and this causes property insurers great concern.

It should be noted these IBCs are ubiquitous. They are found in bakeries containing cooking oil, textile plants containing various coatings and dyes, foundries containing binders for the molds, printers containing inks, paper mills containing additives and corrosives, machine shops containing hydraulic and lubricating oils and on and on. At the present time NFPA 30 does not permit flammable liquids (<100°F flashpoint) to be stored in any plastic IBC whether listed or not. However, any combustible liquid ( $\geq 100^\circ\text{F}$  flashpoint) are permitted to be stored and used from any plastic IBC. NFPA 30 permits up to 55,000 gallons of Class 3B combustible liquids ( $\geq 200^\circ\text{F}$  flashpoint) in unlisted, rigid, plastic IBCs in an unprotected (no sprinklers) liquid warehouse and up to 13,750 gallons of these liquids in unlisted, rigid, plastic IBCs in an unprotected (no sprinklers) general purpose warehouse. Also, NFPA 30 permits up to 15,580 gallons of Class 3B combustible liquids in an industrial operations area outside combustible liquid cabinets and/or a 2 hour fire rated storage room. The NFPA 30 allowance of these quantities of combustible liquids in containers that cannot, at present, be protected per NFPA 30 guidelines is unsettling, in fact, a great concern to property insurance companies. We see the probability of a serious pool fire leading to a large property loss and possibly loss of life.

My talk will illustrate these concerns using our experience, the experience of others, from NFPA 30 and by showing a 10 minute video produced by the Health and Safety Laboratory of the UK copywrited in 2005 entitled "Fire Risks of IBCs." This video is used by permission of the HSL.

So why are property insurers concerned about the storage and use of combustible liquids in unlisted, rigid, plastic IBCs? Here are the reasons:

- ◆ The plastic containers (IBCs) store large amounts of combustible liquids, typically 275 to 300 gallons
- ◆ The plastic containers are in many industrial and commercial occupancies
- ◆ The pool fire created by spilling the combustible liquids into the fire cannot be protected currently by the requirements of NFPA 30
- ◆ NFPA 30 permits thousands of gallons of unprotected combustible liquids in various locations
- ◆ Based on all this we see large property losses and possibly loss of life

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