

# SECONDARY CONTAINMENT



**T**he improper storage of flammable liquids in the workplace creates a dangerous environment for employees.

Flammable liquid storage areas must have secondary spill containment to prevent liquids from getting into the ground or escaping to the environment as well as to prevent spread of fire in case of fire.

Secondary containment refers to any means used to contain liquid leaks or spills if the primary container (liquid storage container) or transfer mechanism fails.

Secondary containment is only one part of effective site management for spill and leak prevention. Appropriate design and maintenance of secondary containment areas as well as the ongoing provision of training and equipment for spill prevention and response are essential.

### Volume of secondary containment

As per NFPA 30 2008 Flammable and combustible liquids No.22.11.4.10 “The secondary containment shall be designed to withstand the hydrostatic head resulting from a leak from the primary tank of the maximum amount of liquid that can be stored in the primary tank”.

It means facilities with large tanks where liquids are transferred into large containers for storage (bulk storage facilities) requires a minimum of 100 per cent of the volume of the largest container for bulk storage.

If two or more tanks are operated as a single unit, then the capacity of all such tanks should be considered when calculating the volume. As per Indonesian Minister of Manpower Regulation No. 37/2016: Capacity of secondary containment is require minimum 60 per cent of volume maximum for 2 tanks until 4 tanks and 50 per cent of maximum volume if more than 4 units of tank.

There are some requirements/regulations that suggest to additional minimum of 10 per cent for free board to contain rainwater and firewater.

To optimize the effectiveness of the secondary containment system, it needs to be inspected regularly and maintained. The following issues should be considered:

- Appropriate use of secondary containment
- The condition of all primary containers is regularly inspected – including labels and signs and for smaller containers whether the lids have been secured.
- The condition of all secondary containment structures and equipment are regularly inspected, including: bund walls and floor, sealants, damage to or cracks in casing, any new installations
- Pumps, switches, sensors and alarms are regularly checked to ensure they are in working condition.
- Accumulation of rainwater or spilt materials inside secondary containment areas or systems.



Sample of secondary containment of fuel tank.

### Reference:

- NFPA 30 2008 Flammable and Combustible Liquids
- Indonesian Minister of Manpower Regulation No. 37/2016
- Liquid storage and handling guidelines by EPA Victoria

### Disclaimer

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