

TerranearPMC Safety Share

Week of February 16, 2015 – Flammable Liquids

For many years, liquids with the potential of igniting were classified as either flammable or combustible. Then in 2012, OSHA made a significant revision to their hazard communication standard (29 CFR 1910.1200 – for general industry and 29 CFR 1926.59 – for the construction industry) regarding how flammables were to be classified. The specific reasoning for this major change was to have safety rules that could be easily assimilated throughout the world; hence OSHA's term, "Globally Harmonized System." Prior to 2012, OSHA maintained flammable liquid categories as Class IA, IB, IC, while combustible liquids were defined as either Class II or Class III liquids. Class IA liquids were defined as liquids with flash points below 73° F and a boiling point below 100° F, while Class IB flammable liquids had flash points below 73° F and a boiling point at or above 100° F. Class IC liquids had a flashpoint between 73 °F and 100 ° F. Meanwhile Class II liquids were defined with flash points between 100° F and 140° F while Class IIIA, had a flash point between 140° F and 200° F. Class IIIB liquids had flash point above 200° F. Without a doubt, that's a lot to digest. That's probably why most persons let the safety professionals be responsible for classifying flammable and combustible liquids!

Now along comes the new Hazard Communication standard which, in its efforts to be compatible with the rest of the world, redefined flammable liquids as either Category 1 (Flash point less than 73.4° F and a boiling point less than or equal to 95° F), Category 2 (with a flash point less than 73.4° F and a boiling point greater than 95° F), Category 3 (flash points between 73.4° F and 140° F).and Category 4 (having a flash point between 140° F and 200° F). The term combustible is no longer used. Hope you're paying attention because there will be a quiz!

Aside from OSHA's Hazard Communication Standard, the OSHA Standards that specifically discuss flammable liquids 29 CFR 1910.106, and 29 CFR 1926.152, both needed to be revised as it was necessary to maintain a consistent classification system throughout OSHA regulations.

So what about those materials that used to be combustibles or have extremely high flash points? According to the newly revised OSHA regulations, liquids with flashpoints greater than 199.4 °F (93 °C) shall be handled in accordance with the requirements for a Category 4 flammable liquid when they are heated to within 30 °F (16.7 °C) of their specific flashpoint.

The next step after flammables have been redefined is to understand how to properly use and store them. OSHA specifies that only approved containers and portable tanks shall be used for storage and handling of flammable liquids. Approved safety cans (from a nationally recognized testing laboratory such as UL or FM) or DOT approved containers shall be used for the handling and use of flammable liquids in quantities of 5 gallons or less. The exception to the rule is for those flammable liquid materials which are highly viscous (extremely hard to pour such as some greases), which may be used and handled in original shipping containers. For quantities of one gallon or less, the original container may be used, for storage, use and handling of flammable liquids.

No more than 25 gallons of flammable liquids shall be stored in a room outside of an approved storage cabinet (Storage of liquefied petroleum gas has its own standard, 29 CFR 1926.153).



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Quantities of flammable liquids in excess of 25 gallons must be stored in an acceptable/approved cabinet as specified in either 29 CFR 1910.106 or 29 CFR 1926.152. Regardless of the type of cabinet used, flammable liquids can never be stored in areas used for exits, stairways, or pathways that are normally used for the safe passage of people.

When storage cabinets are required, they need to be labeled in conspicuous lettering, "Flammable-Keep Away from Open Flames." And while most storage cabinets for flammables are metal, cabinets made of wood are acceptable; however, they need to be constructed according to OSHA requirements, per 29 CFR 1910.106, which specify that wood cabinets must be constructed with 1-inch thick plywood and painted, inside and out, with fire retardant paint.

Not more than 60 gallons of Category 1, 2 and/or 3 flammable liquids or 120 gallons of Category 4 flammable liquids shall be stored in any one storage cabinet. Not more than three such cabinets may be located in a single storage area. Quantities in excess of this amount shall be stored in an inside storage room specifically designed for flammables. These inside storage rooms shall be constructed to meet the required fire-resistive rating for their use. Such construction shall comply with the test specifications set forth in Standard Methods of Fire Test of Building Construction and Material, NFPA 251-1969.

Materials which will react with water and create a fire hazard shall not be stored in the same room with flammable liquids. In every inside storage room there shall be maintained one clear aisle at least 3 feet wide. Containers over 30 gallons capacity shall not be stacked one upon the other. Flammable liquids in excess of that permitted in inside storage rooms shall be stored outside of buildings.

Storage of containers that are outside of a building shall not be more than 60 gallons each, while the total quantity in any one area shall not exceed 1,100 gallons. Piles or groups of containers must be separated by a 5-foot clearance and must not be nearer than 20 feet to any building. Within 200 feet of each pile of containers, there shall be a 12-foot-wide access way to permit approach of fire control equipment. In addition, outside storage areas shall be graded in a manner to divert possible spills away from buildings or other exposures, or shall be surrounded by a curb or earth dike at least 12 inches high. When curbs or dikes are used, provisions shall be made for draining off accumulations of ground or rain water, or spills of flammable liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions. Storage areas shall be kept free of weeds, debris, and other combustible material not necessary to the storage.

As you can imagine, the rules and regulations for flammable liquids can get extensive and confusing. Therefore, don't just guess at what you think would be proper storage and use; contact your S&H professional for assistance!

Give me six hours to chop down a tree and I will spend the first four sharpening the axe.

Abraham Lincoln

