Safety Cans – Flammable Liquid Storage

Date: _____________________________________________  Time: _________________________
District: __________________ Site: ______________________  Department: ___________________
Manager/Supervisor Name: _____________________________________________________________

Gasoline is the most common flammable liquid manufactured and used. Because virtually everyone uses gasoline it is often assumed that everyone is familiar with its dangerous properties. However, as familiarity breeds contempt (or at least carelessness) it may be a good idea to review this highly hazardous material.

Here are some brief but important items to remember when dealing with gasoline.

- Gasoline as a liquid does not burn. It is the vapors that the liquid gives off that burns.
- Vapors usually can not be seen but frequently travel long distances to a source of ignition. Thus the gasoline can be located a great distance from an actual ignition source.
- Gasoline gives off enough vapor to flash, when exposed to an external ignition source at temperatures as low as -45°F! In other words, hazardous vapors are almost always being released-unless you work in temperatures colder than -45°F.
- Gasoline vapors are heavier than air. Vapors will settle to the ground and flow similar to a liquid. This is why gasoline vapors tend to find their way into drains, sewer lines, basements and other low spots.
- Gasoline must be mixed with air before it can burn. It does not take much gasoline to make an ignitable mixture. If the gas-to-air mixture contains as little as 1.4% gasoline by volume, it can be ignited with explosive force.
- It has been said that the potential energy in a one gallon can of gasoline is equal to numerous sticks of dynamite.
- A gasoline/air mixture can be ignited by a hot surface, a smoldering object such as a cigarette, an open flame, or even a static spark.
- Practice good hygiene after handling gasoline. Wash hands and other areas that may have come in contact with gasoline. Avoid prolonged inhalation of vapors as gasoline contains benzene, a known carcinogen.

What can you do to avoid a gasoline disaster? The following tips are good advice when handling or using gasoline.

- Never use gasoline for anything other than it's intended purpose, as a fuel. Never use it as a cleaning solvent!
- **Store gasoline in UL approved safety containers**
- Never smoke when anywhere near gasoline. Shut off all equipment before refueling and allow it to cool off first. Inspect all fuel hoses, pipes and pumps frequently. Fix leaks now!

Storage

Gasoline was chosen as a fuel for the same reasons that make it so dangerous. It is easily vaporized, easy to ignite and explodes powerfully when ignited. Never let yourself become complacent around this volatile liquid that we use everyday.

Gasoline is an extremely flammable liquid fuel. It should always be handled and stored properly in order to reduce the likelihood of fires and explosions. Personal injuries ranging from first degree burns to fatalities can result from improper handling and storage practices. **Safety cans** are designed to control the flammable vapors of gasoline and to provide a safe and convenient means for storage and transfer. Underwriters Laboratories (UL) **approved** safety cans should be used to carry, dispense, and store gasoline in quantities up to five gallons.

Failure to use approved **metal** containers for flammable or combustible liquids has often been cited by compliance officers. However, OSHA revised the rule on safety cans (1926.152(a)(1), allowing D.O.T. approved **plastic** safety cans. It was further determined that these plastic containers need not be equipped with a spring closing lid, spout cover and flash arresting screen.
Nevertheless, many state safety codes and jurisdictions will allow only metal safety cans on the worksite, at least until local codes are changed. Whatever standards must be followed, it is important to understand the features and benefits of a safety container so that you and your co-workers can best guard against fire or explosion.

**Approved safety cans have several basic design qualities:**

1. They have a spring loaded cap that closes the spout automatically when released. Tension in the spring forces the cap closed and provides a leak proof seal.
2. The spring tension is also designed to lift the cap slightly in the event of excessive internal vapor pressure inside the can. This automatically vents off vapors at approximately five psi internal pressure, to prevent the can from rupturing or exploding if it is exposed to excessive outside heat.
3. The spout is also equipped with a flame arrester screen designed to prevent outside fire from reaching the gasoline inside the can. This is the same type of screen that is found in marine gasoline engine carburetors. With the screen in place, if the can is involved in a fire, the vapors will burn around the spout, but will not permit an internal fire or explosion. This screen must not be removed or damaged. Sometimes safety cans are also used to hold thick liquids such as lubrication oil, which is not recommended. Since the heavy liquid will not pass through the screen, the screen is often removed, defeating an important safety feature of the container.

Finally, it is extremely dangerous to carry gasoline--even in a safety can--in the trunk of a vehicle. If the trunk heats up from the sun, the contents of the can will expand and pressure will raise the spring loaded cap. This permits vapors to accumulate in the trunk, and an explosion may result.

Do your part to prevent fires that can lead to serious burns, loss of life and significant property damage. Whether it is required or just good sense, always use approved safety cans when handling gasoline or other flammable liquids. Periodically inspect the cap, spring and flame arrester screen as well, to be sure it will provide the safety you expect.

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**Suggested SIPE Safety Videos:**

None Available