Explaining Flash Point

Flash Point Is:

- Lowest temperature at which sufficient vapor is given off to form ignitable mixture
- Vapor density of flammables heavier than air
- **Vapors**, not liquid, that burns
Chart 1: Classification By Flash Point

- **Class III B**: 200°F (93.3°C)
- **Class III A**: 140°F (60°C)
- **Class II**: 100°F (37.8°C)
- **Class IC**
  - Boiling Point: 73°F (22.8°C)

Definitions:
- **Combustible Liquid**
- **Flammable Liquid**
## Chart 2: Typical Flammable/Combustible Liquids

<table>
<thead>
<tr>
<th>Classification</th>
<th>Chemical</th>
<th>Flash Point</th>
<th>Boiling Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class III B (at or above 200°F)</td>
<td>Lubricating Oil, Turbine, Hydraulic Brake/Trans Fluid</td>
<td>400°F (204°C) 250-450°F (121-232°C)</td>
<td></td>
</tr>
<tr>
<td>Class III A (at or above 140°F)</td>
<td>Heavy Fuel Oil No. 6 Aniline</td>
<td>150-270°F (66-132°C) 158°F (70°C)</td>
<td>364°F (184°C)</td>
</tr>
<tr>
<td>Class II (at or above 100°F)</td>
<td>Mineral Spirits Kerosene (Fuel Oil No.1)</td>
<td>104°F (40°C) 100-162°F (38-72°C)</td>
<td>300°F (149°C) 304-574°F (151-304°C)</td>
</tr>
<tr>
<td>Class I C (at or above 73°F)</td>
<td>Xylene Turpentine</td>
<td>63°F (17°C) 95°F (35°C)</td>
<td>292°F (144°C) 300°F (149°C)</td>
</tr>
<tr>
<td>Class I B (below 73°F) (boils at or above 100°F)</td>
<td>Methyl ethyl ketone Acetone Gasoline</td>
<td>16°F (-9°C) -4°F (-20°C) -45 °-36°F (-43 °-38°C)</td>
<td>176°F (80°C) 133°F (56°C) 100-400°F (38-204°C)</td>
</tr>
<tr>
<td>Class I A (below 73°F) (boils below 100°F)</td>
<td>Pentane Ethyl Ether</td>
<td>&lt;40°F (&lt;-40°C) -49°F (-45°C)</td>
<td>97°F (36°C) 95°F (35°C)</td>
</tr>
</tbody>
</table>
Ignition Temperature

Minimum temperature to which flammable liquid vapor in air must be heated to initiate self-sustained combustion independent of the original heat source.

Common Ignition Sources

- Smoking
- Mechanical Sparks
- Frictional Heat
- Static Electric Discharge
- Spontaneous Ignition
- Hot Surface
- Open Flames
- Heat Producing Chemical Reactions
- Lightning
Explosive Range of Flammables

Percentage range of liquid vapor in air by volume within which ignition can occur.

<table>
<thead>
<tr>
<th>Ignition Material Temperature</th>
<th>Lean Mixture</th>
<th>Rich Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Oil No. 1 410°F (210°C)</td>
<td>5%</td>
<td>9%</td>
</tr>
<tr>
<td>Xylene 869°F (465°C)</td>
<td>1.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Gasoline 536-853°F (280-456°C)</td>
<td>1.4</td>
<td>7.6</td>
</tr>
<tr>
<td>Pentane 500°F (260°C)</td>
<td>1.5</td>
<td>7.8</td>
</tr>
</tbody>
</table>
How Fire Occurs

The Fire Triangle

1. **Heat:** Ignition Source
2. **Fuel:** Flammable Liquids, Vapor
3. **Oxygen:** Air

Example of how a safety can is designed to reduce the risk of fire

<table>
<thead>
<tr>
<th>Leg</th>
<th>Is Controlled by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat</td>
<td>Flame Arrester, Self-Close Lid</td>
</tr>
<tr>
<td>Fuel</td>
<td>Self-close Lid, Leaktight Gasketed Lid</td>
</tr>
<tr>
<td>Oxygen</td>
<td>Leaktight Gasketed Lid</td>
</tr>
</tbody>
</table>

All three legs of the triangle must be present for a fire to start.
Simple tips

Remember it’s not the flammable liquid itself that burns, but rather, the invisible vapor

- Consult the MSDS sheet
- Think “covered” or “closed” container
- Think “approved” equipment
- Properly ground and vent
- Stay away from ignition sources
- Follow established procedures and regulations

use approved equipment
Easiest-to-use Type I Safety Can: Easy to Fill, Easy to Pour!

- 100% lead-tested  
- 100% lead-free

3½” flame arrester allows deeper, secure insertion of gas nozzle when filling

Wide mouth and large capacity bowl contains splashes and reduces spill overs

Exclusive hinged design – now you can fill the can without removing the funnel

Durable 100% polypropylene resists chemicals and stands-up to heavy use

Rugged 24-gauge premium coated, lead-free steel is finished with a high-gloss powder coat paint to resist corrosion. UV protection and hardness factor stands up to rough use for extended life

Tri-lingual warning label

100% Leak tested – each and every can is tested under pressure to guarantee leakproof construction

Large ½” grip lip along bottom edge makes it easy to grip with fingers to support can during pouring

Complies with OSHA 20 CFR 1910.106 & NFPA Code 30 requirements

FM Approved; UL & ULC listed. Accepted container under CARB

Wider free span on lid opening allow easier insertion of gas nozzle

Comfortable rounded handle allows single-handed downward push allows to open lid. Swings free for easy carrying of heavy loads

Leakproof, spring-loaded self-closing lid offers pressure relief and vents between 3 and 5 psig

Counterbalance design leverages the weight of the liquid against the opening mechanism for easy pouring

Internal dual-density flame arrester dissipates heat to prevent flashback ignition

Reinforcing ribs strengthen the walls for extra "bumper guard" protection

An approved container

Not more than 20 liter (5.3) gallon capacity
Transfer flammable liquids safely using approved safety cans and antistatic wires for bonding and grounding.
Store flammables in specially designed, approved Safety Cabinets

PROTECT AGAINST DISASTER!

Protect workers, reduce fire risks, and improve productivity by storing hazardous liquids in NFPA and OSHA compliant safety cabinets.
Use specially designed, approved oily waste cans for solvent soaked rags and wipes

Protect your facility from fires that can start due to spontaneous combustion, sparks, or careless use of smoking material.
Oily Waste Cans

Ideal for use by printing operations, construction sites, machine shops, furniture refinishers, warehouse facilities, auto repair shops, marinas, or manufacturing plants.

- Galvanized steel body with red, yellow, or silver powder coat finish
- Round construction and raised, flow-through base dissipate heat
- Self-closing lid limits oxygen to reduce the risk of spontaneous combustion
- Sturdy foot pedal is opens the lid with a simple tap of the toe
- Carry handle for portability

Use approved containers
So many features make this the product of choice

• Easy-open and easy-close, lid securely interlocks to prevent spills. Large 16 qt galvanized steel liner pail removes for easy cleaning.

Attractive design in five designer colors hides cigarette litter.

Covered opening keeps rain out and discourages trash from being dropped in.

Molded-in graphics easily identify opening for cigarette butt disposal.

Low maintenance, high density polyethylene construction with flame retardant additive won’t rust, dent, crack or peel and resists fading.

Innovative Cease-Fire® design limits the flow of oxygen to safely and quickly extinguish cigarettes to reduce the risk of fire.

1½” opening permits easy use and promotes good housekeeping. Extinguishing snuff spot.

Large internal neck cavity minimizes “clogging.”

Cease-Fire® technology minimizes “chimney effect” found in other units.

Internal drip-lip prevents tar condensation from escaping keeping exterior clean.

Broad 16½” base for stability.

Fire tested and approved for safety

Molded-in tie-down notches on both sides provide security from theft or severe weather.

Use approved equipment to safely collect cigarette butts
Use proper drum handling equipment when transferring flammables from larger to smaller containers.
Horizontal Dispensing
Gravity Flow method

Vertical Dispensing
Pump Method
Safety Can
Thank you for your time.
Remember these simple tips to reduce your fire risks

Have a safe day!