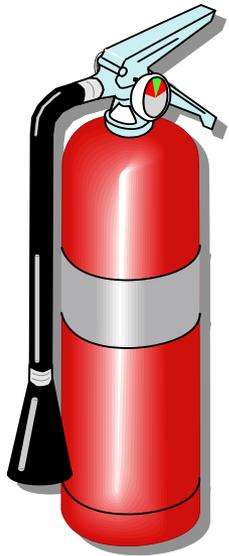




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**Fire Safety &
Fire Extinguisher Use**

Fire Safety & Fire Extinguisher Use

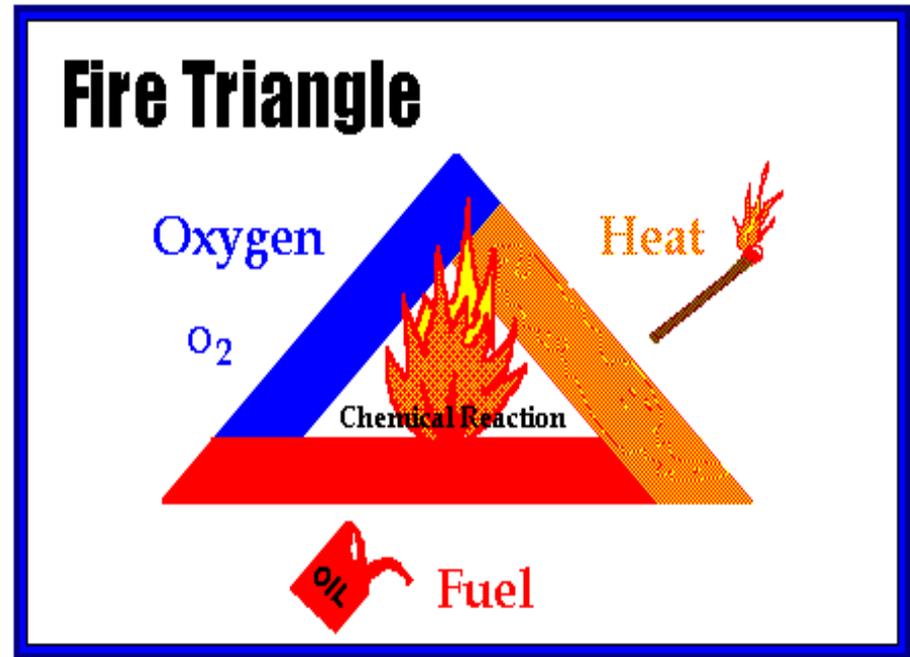
Objectives

- Understand the combustion process and different fire classes
- Understand fire extinguisher types, operating procedures
- Understand basic firefighting concepts:
 - **R.A.C.E.**
 - **P.A.S.S.**

Fire Safety & Fire Extinguisher Use

The Combustion Process

- Three components
- Need all three components to start a fire
- Fire extinguishers remove one or more of the components.





Fire Classes



A Trash Wood Paper

A



- wood
- paper
- cloth
- etc.

B Liquids Grease

B



- gasoline
- oil
- grease
- other solvents

C Electrical Equipment

C



- computers
- fax machine
- other energized electrical equip.

COMBUSTIBLE



METALS

- magnesium
- sodium
- potassium
- titanium
- other flammable metals



Fire Classes (cont.)



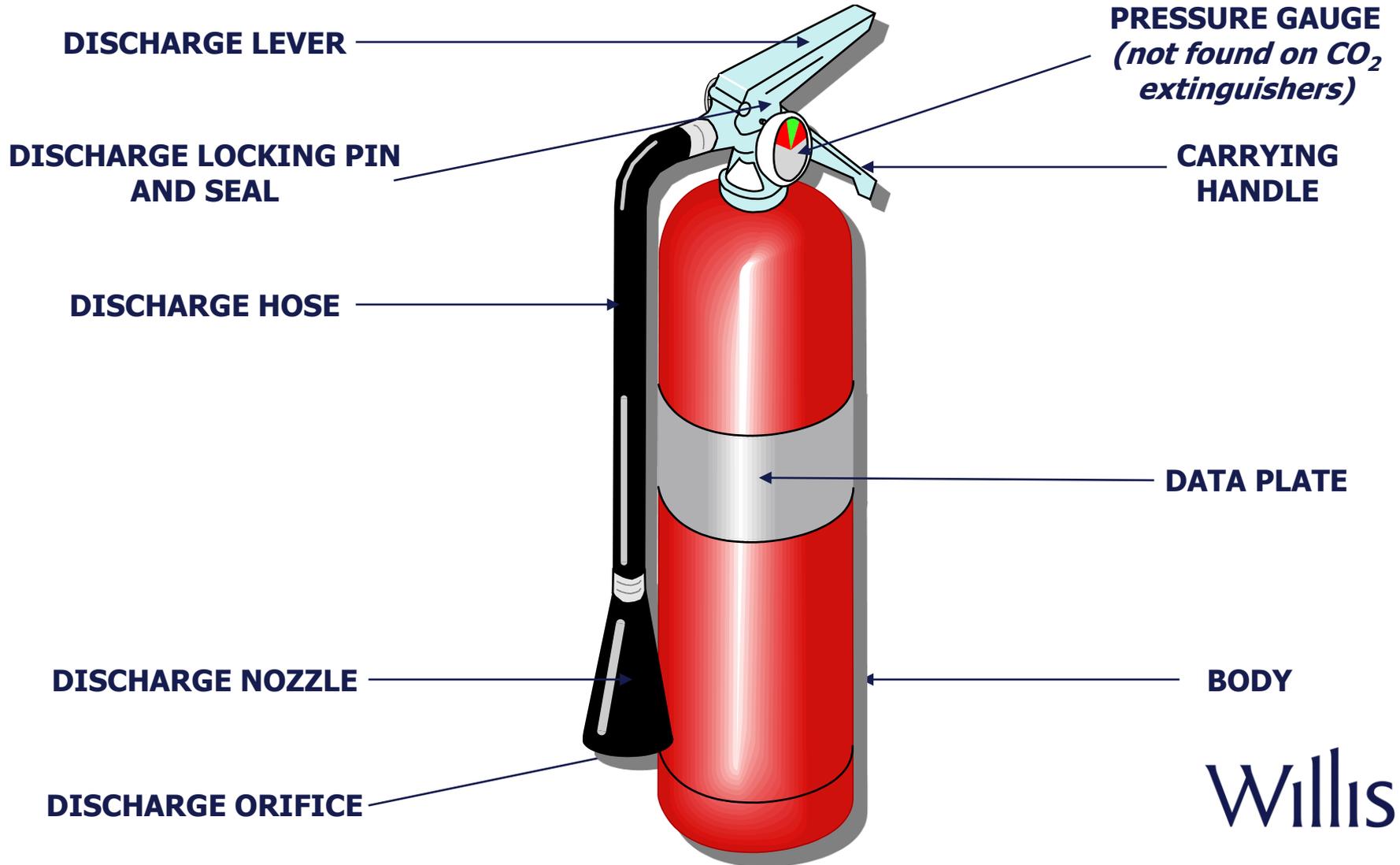
CLASS K FIRES

- Recently recognized by NFPA 10
- Fires involving combustible oils, lards and fats in commercial cooking.



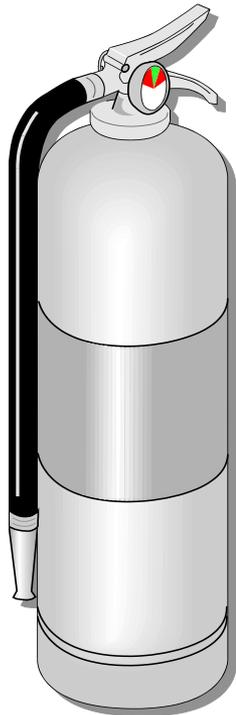
K Cooking Media

Fire Extinguisher Anatomy



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Fire Extinguisher Types



A Trash Wood Paper



B Liquids Grease



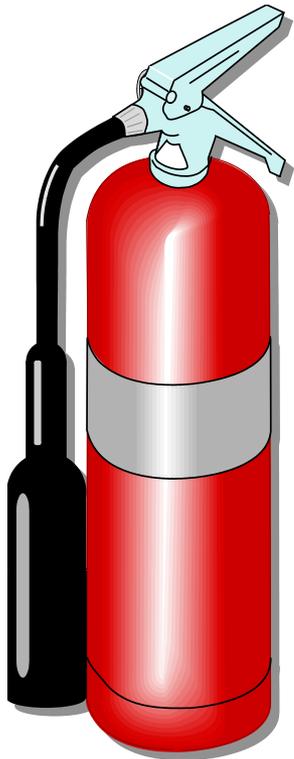
C Electrical Equipment



PRESSURIZED WATER

- Class "A" fires only
- 2.5 gal. water
(up to 1 minute discharge time)
- Has pressure gauge to allow visual capacity check
- 30-40 ft. maximum effective range
- Can be started and stopped as necessary
- Extinguishes by ***cooling*** burning material below the ignition point.

Fire Extinguisher Types (cont.)



A Trash Wood Paper



B Liquids Grease



C Electrical Equipment

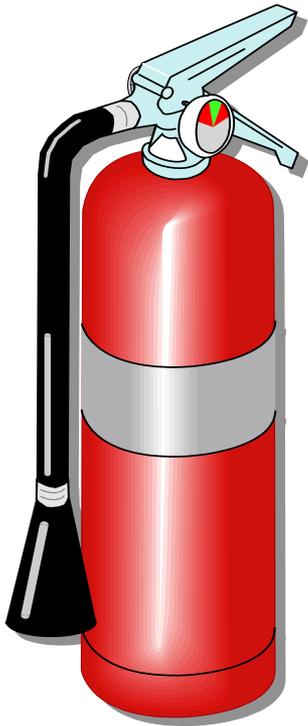


CARBON DIOXIDE (CO₂)

- Class "B" or "C" fires
- 2.5-100 lb. of CO₂
(8-30 seconds discharge time)
- Has NO pressure gauge--capacity verified by weight
- 3-8 ft. maximum effective range
- Extinguishes by smothering burning materials
- Effectiveness decreases as temperature of burning material increases.

Fire Extinguisher Types (cont.)

MULTIPURPOSE DRY CHEMICAL



A Trash Wood Paper



B Liquids Grease



C Electrical Equipment



- Class "A", "B", or "C" fires
- 2.5-20 lb. dry chemical
(*ammonium phosphate*
8-25 seconds discharge time)
- Has pressure gauge to allow visual capacity check
- 5-20 ft. maximum effective range
- Extinguishes by *smothering* burning materials.

Fire Extinguisher Summary

<i>EXTINGUISHER TYPE</i>	<i>WORKS BY</i>	<i>EFFECTIVE AGAINST</i>
PRESSURIZED WATER	COOLING	
CARBON DIOXIDE	SMOTHERING	 
MULTIPURPOSE DRY CHEMICAL	SMOTHERING	  

Fire Emergency Response

R

Rescue



A

Alarm

C

Contain



E

Extinguish

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Fighting the Fire

P

Pull the pin

A

**Aim low at
the base of flames**

S

Squeeze the handle

S

Sweep side to side



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Firefighting Decision Criteria

- Know department emergency procedures and evacuation routes
- Know locations of extinguishers in your area and how to use them
- Always sound the alarm regardless of fire size
- Avoid smoky conditions
- Ensure area is evacuated
- Don't attempt to fight unless:
 - Alarm is sounded
 - Fire is small and contained
 - You have safe egress route (can be reached without exposure to fire)
 - Available extinguishers are rated for size and type of fire
- If in doubt, evacuate!



“DON'T ATTEMPT TO FIGHT UNLESS YOU ARE TRAINED”

Fire Safety & Fire Extinguisher Use

Summary

- Combustion Process (*Fire Triangle*)
- Class A, B, C, D, K fires
- Types of portable fire extinguishers:



- Operating procedures
- Capabilities and limitations
- Basic firefighting concepts: **R.A.C.E.**
P.A.S.S.

Quiz Question 1

- Fire extinguisher marked with an A is used on:
 - A) oil fires
 - B) Electrical fires
 - C) paper material fires
 - D) none of the above

Quiz Question 2

- Fire extinguishers marked with a B can be used on:
 - A) Paper, trash
 - B) Oil or Grease
 - C) Electrical
 - D) Non of the above

Quiz addendum

- How else you can kill a grease fire?
 - A) Smother
 - B) Baking Soda
 - C) A&B

Quiz Question 3

- Fire extinguisher marked ABC can be used on:
 - A) Wood, Paper
 - B) Electrical
 - C) Liquids and grease
 - D) All of the above

Quiz Question 4

- Fire Extinguishers marked with D are used for
 - A) Combustible chemicals
 - B) Magnesium
 - C) Potassium
 - D) other flammable metals
 - E) all of the above

Quiz Question 5

- For what fires is a Halon Fire Extinguisher being used?
- Guess 1
- Guess 2
- Guess 3
- Guess 4

Halon

- Halon fire extinguisher is important device to have, especially for emergency situations. It contains a gas that interrupts the chemical reaction that takes place when fuels burn. Halon fire extinguisher is often used to protect valuable electrical equipment since they leave no residue.
- Such on expensive computers, server rooms, etc.
- Since Halon manufacturing was banned, a hunt has been on for something that works as well. According to the Halon Alternatives Research Corp., more than 20 different kinds of alternatives exist as direct replacements.
- Halon Replacement
 - Those categories are inert gases and halocarbon compounds.