



Fire Prevention & Fire Extinguisher Use

Offshore Catering Staff



After This Training You Should Be Able To:



- Evaluate a fire
- Determine if it is safe to fight
- Need for evacuation

- Identify the 3 common classes of fire
- Operate a Portable Fire Extinguisher
- Determine which extinguisher to use

Understanding Fire



Fire or **Combustion** is the result of 3 components which make a chemical reaction.

All 3 components are needed for fire

Fire Components



A fire requires Fuel.

Fuel sources can vary.

If it is combustible, it can be considered a fuel source.



A fire requires Heat.

Heat is produced from a fire and also feeds it.

Heat and an ignition source are required for a fire to burn/smolder.



A fire requires Oxygen.

Oxygen is the 3rd component in a fire.

Oxygen is required for combustion to take place.

The Fire Triangle



With the 3 components of fuel, **heat** and **oxygen** in the proper mixtures, a chemical reaction of fire or combustion takes place.

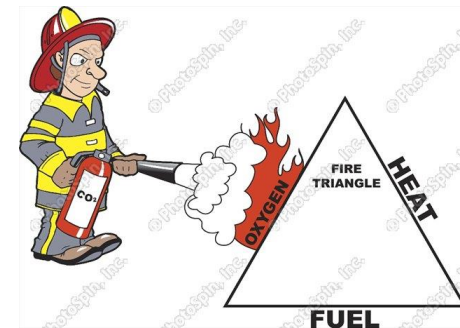
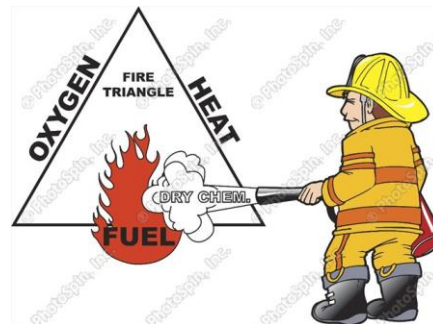
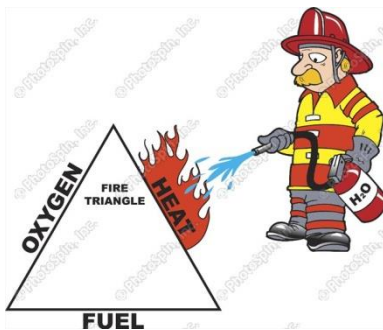
Fire or combustion will continue until at least 1 of the 3 components are eliminated.

Putting Out a Fire



Fire Fighting is the attempt to remove 1 of the 3 components in the Fire Triangle.

If you remove the fuel, heat or oxygen; the chemical reaction no longer exists, and the fire is extinguished.



Classifications of Fires



Fires are separated and classified depending on their fuel source and/or the material used to extinguish the fire.

We must understand the class of fire and what method is used to safely extinguish the fire.

Common Fire Classifications

A



**“Ordinary”
combustibles**



Paper, wood, rubber,
plastics and textiles.

B



**“Flammable
liquids”**



Oil, gasoline,
solvents

C



**“Energized
Electrical Circuits”**



Electrical equipment
and computers

D



**Industrial Related
“Special” Metals**



Raw or Finished Metals

Consider the Source!

Before attempting to extinguish a fire, consider the following tips to help you eliminate a component:



Placing a tight fitting lid on a pan fire or closing an oven door will eliminate the oxygen source.



Power sources need to be shut off on electrical fires. This will eliminate the heat, some fuel and help in preventing electrical shock or electrocution.



Fuel sources need to be shut off in a flammable liquids fire to eliminate the fuel source.



Gas valves being turned off will eliminate a fuel source.

Portable Fire Extinguishers



Fire extinguishers are good to have in the workplace (and they are required by SONOCO in all galleys).

The “Pros” of a portable extinguisher are:

- ❑ Can be CARRIED to a fire
- ❑ Weigh from 5 to 30 pounds
- ❑ NFPA Class and Rating
 - Arabic numerals according to efficiency - 4A extinguishes twice as much Class A fire as 2A

Portable Fire Extinguishers



Portable fire extinguishers also have limitations.

The “Cons” of a portable extinguisher are:

LIMITED IN:

- Capacity - 1.5 to 25 lbs. of extinguishing agent
- Range - Typically 3 to 15 feet
- Duration - Discharge their contents in only 5 to 30 seconds!

Notice to SONOCO Employees!



- **Always** sound the fire alarm immediately and activate the facility emergency plan.



- **Never** attempt to fight a fire that has grown out of control.

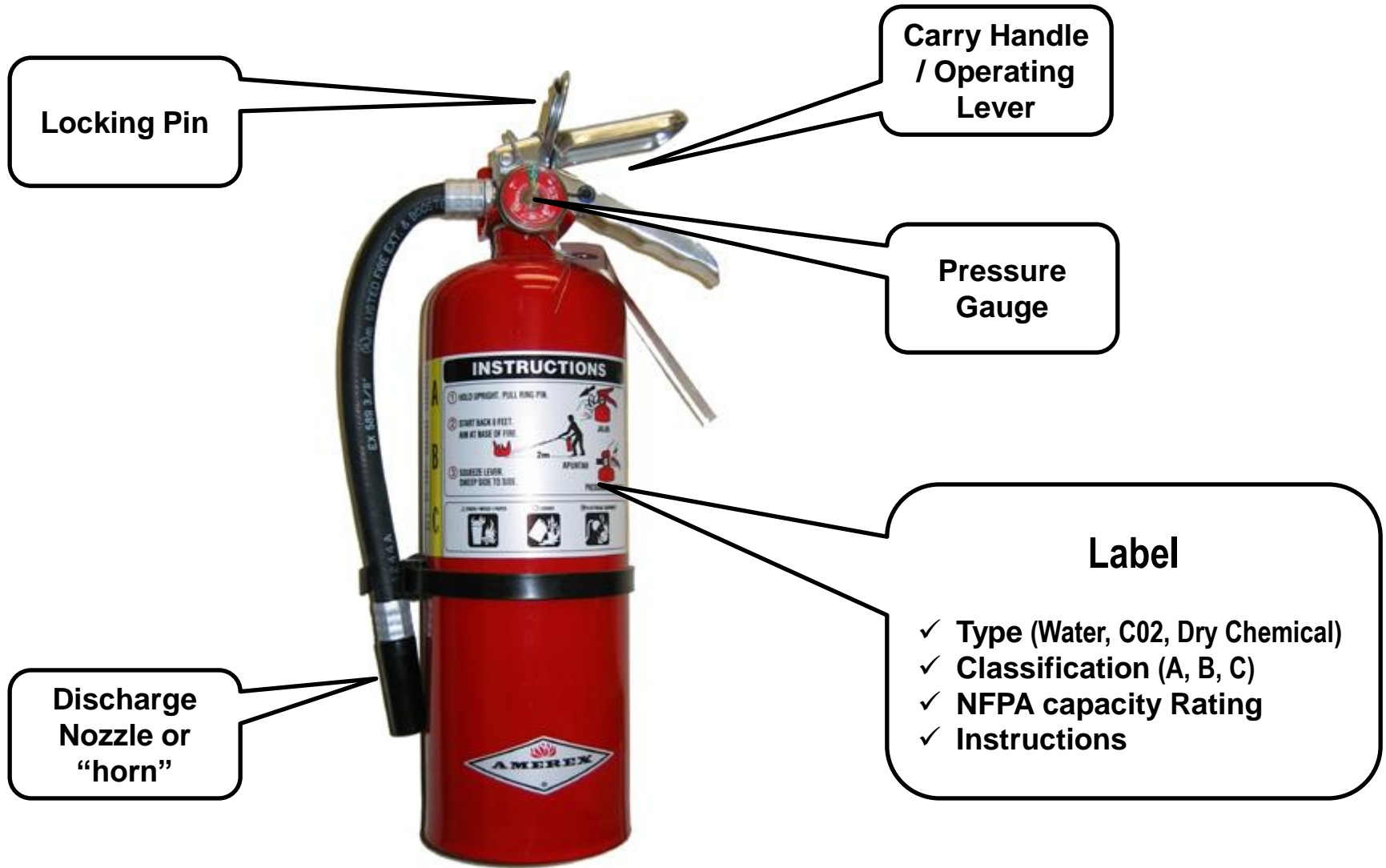


- **Never** allow yourself to get boxed in to a fire.



- **Always** fight the fire with your back to the exit working out.

Common Features



How They Work

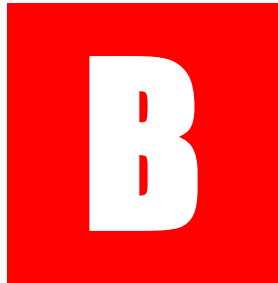


- Works by cooling.
- Numerical rating indicates amount of agent, duration, and range of discharge on test fires.
- **Area of Class A fire which a “non-expert” can extinguish, with proper training**



- ✓ *1-A is equivalent on Class-A fire to five liters of water.*
- ✓ 2-A has twice as much extinguishing agent.

How They Work



- Works by blanketing the fuel.
- Interrupts chemical reaction at fuel surface.



- Class B ratings signify the area in square feet of flammable liquid fire a unit will extinguish when used, by a trained, “non-expert.”

How They Work



- Class “C” units have no numerical rating.
- A Class “C” rating doesn’t imply any capacity.



- Only indicates that the extinguishing agent is non-conductive, safe on energized equipment
- Works by displacing oxygen, smothering fire

How They Work

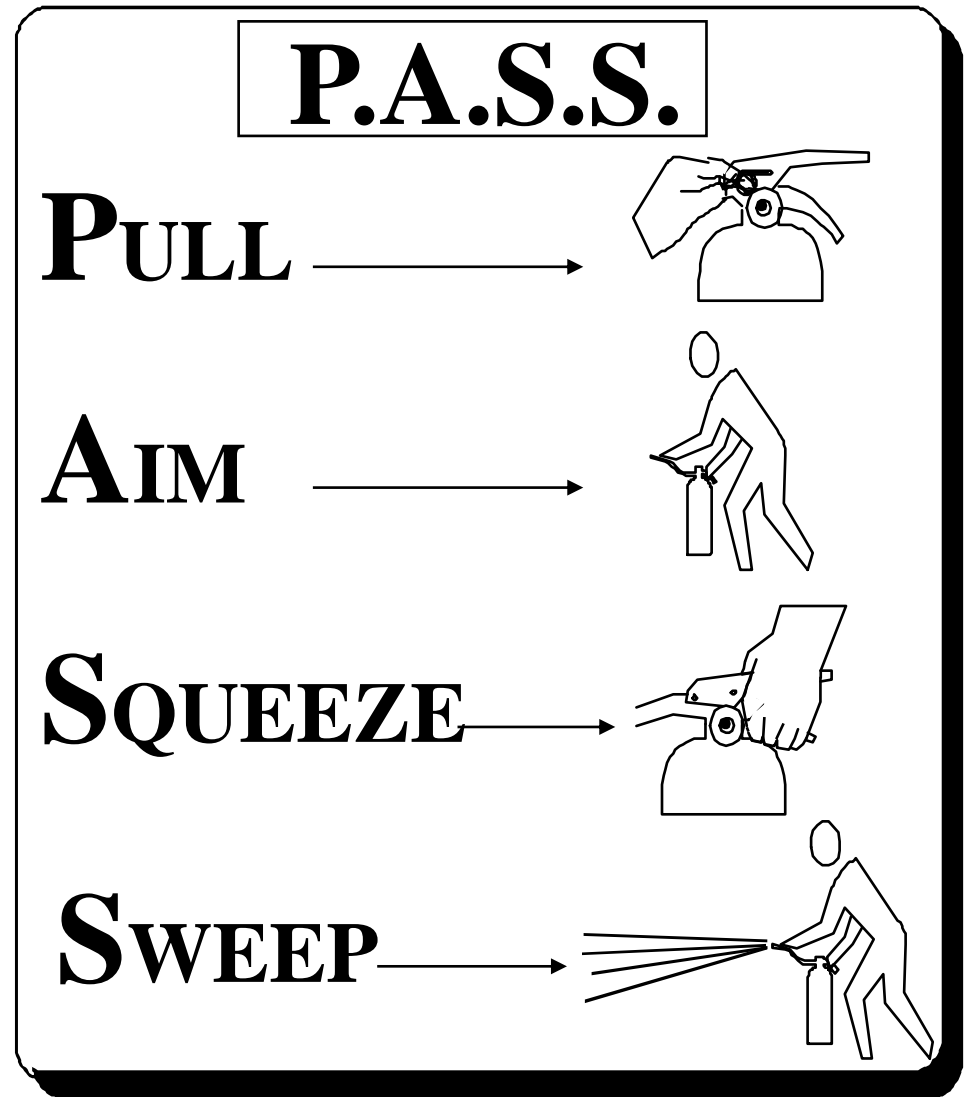


- **Interrupts the chemical reaction**
- **A Class “D” extinguisher will not cause an immediate negative reaction with the metals burning.**

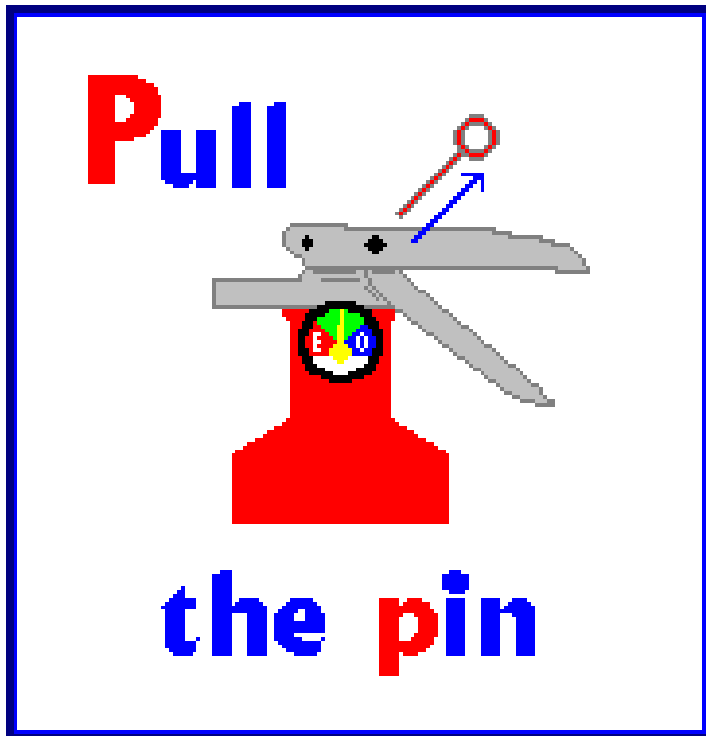
How They Work

Remember the
PASS word:

- 1. Keep your back to a clear escape route,*
- 2. Stand back 6 to 8 feet from the fire,*
- 3. Then:*



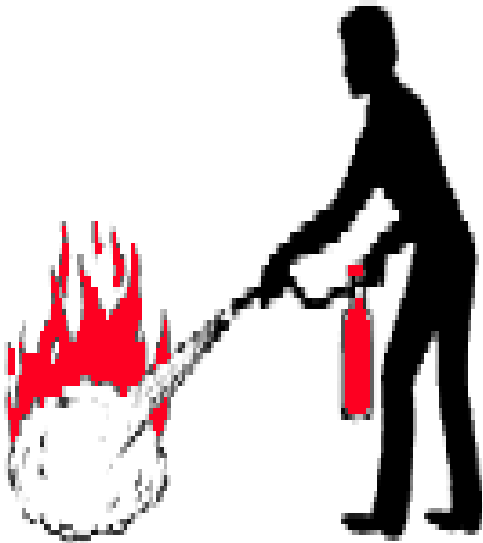
P = PULL



This will allow you to squeeze the operation lever to discharge the agent.

Check the gauge before approaching fire to make sure it is charged.

A = AIM

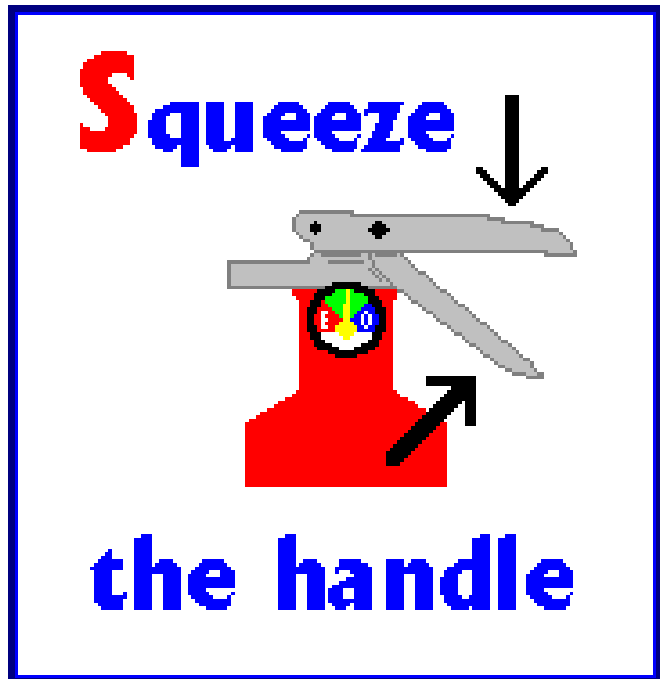


Aim LOW at the base of the fire.

Hit the base and try to smother, blanket or cool the fire at it's source.

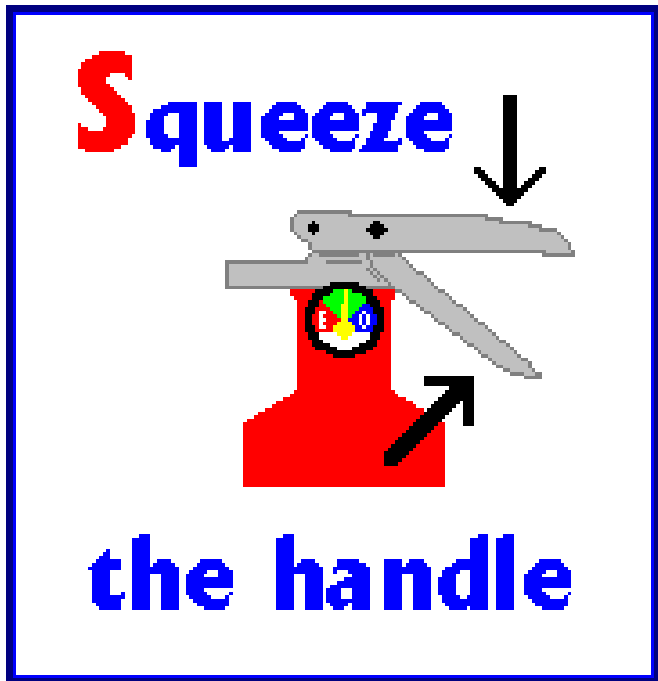
The agent will pass through the flames with no effect, you must hit the base instead of trying to hit the flames.

S = Squeeze



This will release the pressurized extinguishing agent

S = Sweep



Sweep from side to side covering the entire fire base until the fire is out.

OK, It's Out...

Now What?



- **WATCH** the fire area
 - ✓ Get an additional Extinguisher in the area
 - ✓ If the fire flares up again repeat!
 - ✓ If you can't control the fire, **LEAVE** immediately!
- Activate the fire/emergency site plan.
- Recharge or replace any used fire extinguisher!

Fire Extinguisher Types



4 common types

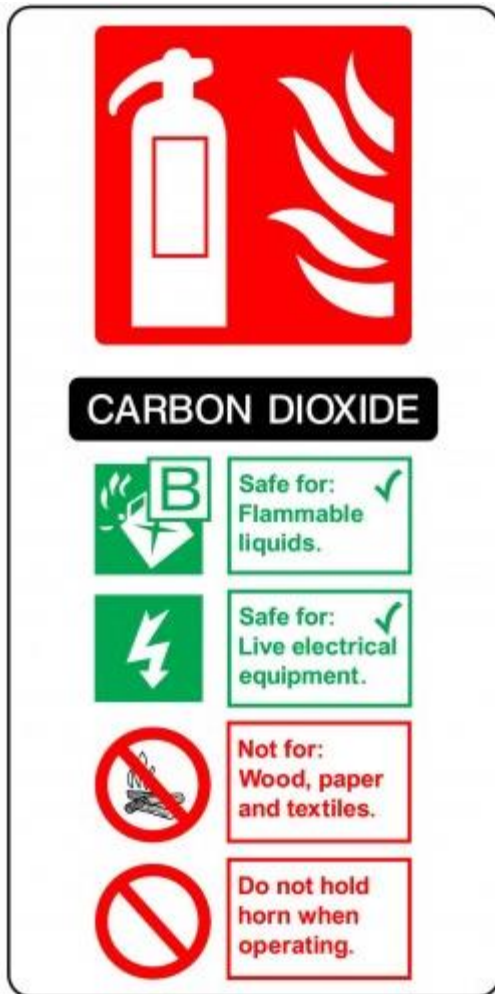
- Water
- Carbon Dioxide
- Dry Chemical
- Dry Powder

All Purpose Water



- Class A Fire
- Pressurized Water
- Pressure Gauge Present
- Cools fire/removes heat

CARBON DIOXIDE (CO2)



Class “B” or “C” fires

- 2.5 – 100 lb of CO2 gas at 150-200 psi (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

Multi Purpose Dry Chemical (ABC)



- Fine Powder
- Under Pressure
- Pressure Gauge
- Blankets to reduce heat and eliminate oxygen.

COMBUSTIBLE METAL



Class “D” combustible metal fires only

- 30 lb. pressurized dry powder optimized for specific combustible metal
- 6-8 maximum effective range
- To activate, must first open nitrogen cylinder on back to pressurize
- Extinguishes by smothering burning metals

Additional Prevention...



- Matches and Lighters should Not be carried into any area containing Flammables
- Plastic Case & Butane Lighters Are Not allowed at offshore work locations
- Know the location of Fire Extinguishers and Fire Exits
- Good Housekeeping is Required
- Proper Storage of Flammables is Required
- Become familiar with how Flammables are labeled at your facility so you can safely detect Hazards

Additional Prevention...



- **Always make sure that Extinguishers in your work area are fully charged and inspected monthly at the location by the customer.**
- **Report any damaged or discharged extinguisher immediately.**
- **NEVER block access to any fire extinguisher.**