

Fire Extinguisher Selection and Use

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Fire is one of the most feared dangers in homes and around farmsteads. Abundance of combustible materials, remote locations and lack of adequate water tend to make rural fires extensive and costly.

Prevention of fires should be a primary concern of all rural families. But, in case a fire should occur, being prepared can minimize losses from any fire.

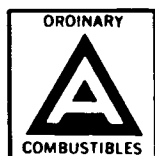
Fighting a fire yourself should be your third priority. **First**—get people out. **Second**—turn in an alarm to local fire fighters giving correct family name and location. (If you do not have fire department telephone number, call operator.) **Third**—fight fire only if you can do it safely with proper extinguishing material at hand.

How a Fire Burns

To understand how fire can be controlled, become familiar with three factors that must be present for fire to burn: AIR (oxygen); FUEL (something that will burn); and HEAT (something to ignite and to continue burning). If any one factor is removed, the fire will go out.

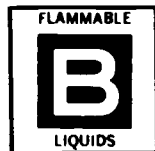
Classes of Fires

Portable fire extinguishers provide the most practical means of quick fire control. To intelligently select extinguishers, standard fire classifications must be understood.



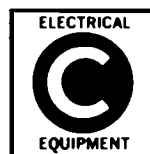
green

Class A Fires—ordinary combustibles such as wood, cloth, paper, rubber, straw and hay. Water which quenches and cools is the best extinguishing agent for these fires.



red

Class B Fires—oil, grease, paint, flammable liquids or specific agricultural chemicals. Class B fires are extinguished by smothering to exclude oxygen or interrupt flame (chain breaking).



blue

Class C Fires—electrical wiring and equipment. Water *should never* be used on electrical fires until source of electricity is shut off because of shock hazard. CO₂ (carbon dioxide) is the preferred extinguishing agent. It doesn't leave a residue to corrode electrical equipment or cause difficult clean-up problems.

Extinguisher Ratings

Portable fire extinguishers are rated by Underwriters' Laboratories, Inc. according to fire extinguishing potential for each class of fire. The rating is a number and letter combination, i.e., 2-A or 6-B. The letters (A, B, or C accompanied by framed symbol and color code) indicate class of fire for which extinguisher is suitable. This information is printed on the Underwriters' Laboratory classification tag affixed to extinguisher.

Class A extinguishers—the numeral indicates approximate fire extinguishing potential. A unit rated 2-A would be expected to handle 100 square feet of typical wood test fire; 6-A would retard fire on about 300 square feet.

Class B extinguishers—the numeral indicates approximate amount of active ingredient in extinguisher. Each unit of active ingredient will extinguish 2 to 2½ square feet of deep layer flammable liquid fire. A unit rated 2-B should extinguish 5 square feet of flammable liquid fire; 10-B should extinguish 25 square feet.

Class C extinguishers—no numbers are used.

Some extinguishers such as dry chemical types are multi-purpose, suitable for Class A, B and C fires. They are multi-rated as 4-A 16-B:C.

Selecting an Extinguisher

The correct fire extinguisher available in a handy location can sharply reduce fire loss. Select extinguishers that best fit your needs. Consider classes of fires to be controlled (Class A, B, or C), effective range of extinguisher, capacity and rating, maintenance required, advantages and disadvantages. Use chart on next page to assist in your decision.



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Label

Look for these items on extinguisher label:

1. Clearly marked operating instructions
2. What to do with extinguisher after discharging
3. Clearly marked maintenance instructions
4. Clearly marked rating (Example: 2-A 10-B:C)
5. Underwriters' Laboratories (UL) and/or Factory Mutual (FM) approval.



Underwriters' Laboratories, Inc.
Inspected
2.5 GALLON HAND FIRE EXTINGUISHER
CLASSIFICATION A-1 NO.

UNDERWRITERS' LABORATORIES



FACTORY MUTUAL

Size and Type

Homes—use the multi-purpose “ABC” dry chemical extinguisher rated 1-A 10-B:C as an ideal all around unit. A dry chemical extinguisher rated at a minimum of 5-B:C may be used for fires involving electrical wiring and appliances, electronic equipment, heating oil, solvents, paints and flammable liquids which might be used or stored in house or basement. Also, keep a container of bicarbonate of soda (baking soda) or table salt near your stove to smother pan or oven fires—never use flour for this purpose.








A 2½-gallon pressurized water extinguisher or a ⅝-inch reinforced garden hose with nozzle are useful for combating common household Class A fires involving bedding, waste baskets, drapery, upholstered furniture, rugs and clothing. A CO₂ or Halon extinguisher may be considered for areas such as a photo lab or on electronic equipment where you do not want to clean the “mess” of a dry chemical. In confined areas, both CO₂ and Halon may pose a suffocation and/or health threat to the user.

Farm machinery—combines, pickers, or tractors where fires could involve stalks, straw, or oil should have a multi-purpose “ABC” extinguisher rated at 2-A 10-B:C to offer protection for oil fires and give moderate help with the Class A part of the burning material.

Autos and trucks—multi-purpose dry chemical extinguisher rated 2-A 10-B:C would give good protection for autos and farm trucks or pickups used to haul hay, straw, or grain.

Caution—many small, unapproved fire extinguishers in squeeze-type plastic or aerosol-type containers are available. Most are of very little value on fires of any size. These are frequently demonstrated on a small fire in a pie tin which they have capacity to extinguish. However, such demonstrations only serve to give consumer a false sense of security because they are not effective on a fire of greater size. A little more invested in an approved, rated extinguisher is a wise decision towards greater fire protection.

PORTABLE FIRE EXTINGUISHER SE

TYPE OF EXTINGUISHER	W A T E R		LOADED STREAM	CARBON DIOXIDE
	STORED PRESSURE	PUMP TANK	STORED PRESSURE	
				
SIZES COMMONLY IN USE (NOMINAL CAPACITY)	2½ Gal.	2½ and 5 Gal.	2½ Gal.*	2½ 20 lb.
CLASSIFICATION OF FIRES		Yes	Yes	Yes
		No	No	Yes
		No	No	Yes
EXTINGUISHING AGENT	Water	Water	Alkali-Metal Salt Solution	Carbon Dioxide
APPROXIMATE HORIZONTAL RANGE	30-40 ft.	30-40 ft.	30-40 ft.*	3 to 8
APPROXIMATE DISCHARGE TIME	1 Minute	1 to 2 Minutes	1 Minute*	8 to Sec.
MINIMUM INSPECTION & MAINTENANCE	MONTHLY: Inspection In			
HYDROSTATIC MINIMUM TEST INTERVAL	5 Yrs.		5 Yrs.	5 Yrs.
PROTECTION REQUIRED BELOW 40° FAHRENHEIT. No extinguisher can be stored at over 120° Fahrenheit	Yes	Yes	No	No












* CAPACITY OF AGENT IN DISPOSABLE UNITS MAY BE LESS THAN SHOWN U

▲ DISPOSABLE UNITS MUST BE THROWN AWAY AFTER ANY USE.

* ADDITIONAL AGENT CAPACITY, HORIZONTAL RANGE AND DISCHARGE TIME

SECTION

Underwriters' Laboratories Classifications & Characteristics NFPA Maintenance Requirements

D R Y C H E M I C A L										HALOGEN- ATED AGENTS
REGULAR OR ORDINARY		POTASSIUM BICARBONATE "PURPLE K"		POTASSIUM CHLORIDE KCL		MULTI-PURPOSE "ABC"		POTASSIUM BICARBONATE/UREA		
STORED PRESSURE*	CARTRIDGE OPERATED	STORED PRESSURE*	CARTRIDGE OPERATED	STORED PRESSURE*	CARTRIDGE OPERATED	STORED PRESSURE*	CARTRIDGE OPERATED	STORED PRESSURE	CARTRIDGE OPERATED	
										
2 to 30 lbs.*	4 to 30 lbs.*	2 to 30 lbs.*	4 to 30 lbs.*	2 to 30 lbs.*	4 to 30 lbs.*	2 to 30 lbs.*	4 to 30 lbs.*	11 to 23 lbs.*	11 to 23 lbs.*	2½ to 5 lbs.
No	No	No	No	No	No	Yes	Yes	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sodium-Bicarbonate Base		Potassium Bicarbonate Base		Potassium Chloride Base		Ammonium Phosphate Base		Potassium Bicarbonate/Urea Base		Halon 1301 & 1211
5 to 20 ft.*	5 to 20 ft.*	5 to 20 ft.*	5 to 20 ft.*	5 to 20 ft.*	5 to 20 ft.*	5 to 20 ft.*	5 to 20 ft.*	5 to 30 ft.*	5 to 30 ft.*	4 to 8 ft.
8 to 25 Sec.*	8 to 25 Sec.*	8 to 25 Sec.*	8 to 25 Sec.*	8 to 25 Sec.*	8 to 25 Sec.*	8 to 25 Sec.*	8 to 25 Sec.*	20 to 31 Sec.*	20 to 31 Sec.*	8 to 10 Sec.
— SEMI-ANNUALLY: Complete maintenance which may include recharging. certain locations more frequent inspection may be required.										
5 Years on Stainless Steel, or Soldered-Brass Shells. 12 Years on Aluminum, Brazed-Brass or Mild-Steel Shells.										12 Yrs.
No	No	No	No	No	No	No	No	No	No	No

PER NOMINAL CAPACITY.

MAY BE AVAILABLE IN WHEELED UNITS.

Location

Most home fires occur in the kitchen or in the heating system. Place extinguisher where it is in plain view and convenient to both kitchen and heating system but out of reach of small children and not subjected to unnecessary heat or physical abuse. Avoid locating extinguishers right next to where fire is apt to develop—you may not be able to reach it when needed due to smoke, heat, or flames.

The best location in most farm building situations is just inside the door or entrance to building. Have an extinguisher located no more than 50 feet from work areas in barns, shops, feed rooms, etc. If fuel is stored some distance from a building, consider erecting a storage box for the extinguisher 10 to 20 feet from the fuel pumps or tanks. Always include an extinguisher on each tractor, combine, farm truck and automobile.

Use Tips

When using water on a Class A fire direct stream at base of fire, not into middle of flame. Hold finger over nozzle to form a spray pattern rather than a solid stream to maximize cooling effect. Use a side-to-side motion to wet entire burning surface. Break apart and soak deep-seated fires. Always stand by and be prepared to add more water should fire flare up again.

When attacking an LP gas fire, shut off flow of fuel as soon as possible. Take steps to prevent raw gas from reaching a hot spot and reflash.

Warning—do not use water on flammable liquids (water will spread the flame), or on electrical fires (water may conduct shock to operator).

When using regular dry chemical, direct discharge at base of flames just above where material is burning. Begin on upwind side of fire using a side-to-side motion as you progress. When flame subsides, continue to discharge to prevent reflash.

Use multi-purpose "ABC" dry chemical in same manner as regular dry chemical on Class B and C fires. On Class A fires, coat all exposed surfaces and stand by in case of a rekindle.

Carbon dioxide has limited range of only 3 to 8 feet—so get in close. Do not be alarmed by noise created by discharging CO₂. Begin on upwind side and sweep slowly side-to-side. Continue to discharge

to prevent reflash. On electrical fire, when using dry chemical and CO₂, shut off power as soon as possible to remove possible fire source, lessen damage, and reduce shock hazard.

Maintenance

All types of extinguishers must be taken to a competent fire extinguisher service establishment to be recharged after use, even if only a small amount has been discharged. Then return extinguisher promptly so it is in place when needed. A discharged or misplaced extinguisher is useless.

Inspect extinguisher annually or oftener to assure reliable fire protection. Weigh unit from time to time to determine if it has been partially (or totally) discharged.

Certain chemical (dry) extinguishers which contain powder should be turned upside down or shook once a month to keep powder from settling and solidifying. Also, these extinguishers may need to be discharged completely about every year or two and recharged by local fire station or other qualified extinguisher service.

Prevention

Fire prevention is the most economical and practical method to avoid fires. Take a minute and check your prevention program:

- ☐ Are your home and service buildings free of litter and rubbish?
- ☐ Do you enforce "No Smoking" rules in hazardous areas?
- ☐ Are yards and lots free of weeds, tall grass, brush, trash, etc.?
- ☐ Is wiring adequate and recently inspected?
- ☐ Do children respect fire, not play with matches?
- ☐ Are heating system and portable heaters checked regularly?
- ☐ Are flammable liquids and fuels properly used and stored?
- ☐ Do you have lightning protection and has it been inspected?

PREVENTION and PROTECTION provide fire safety.

This fact sheet prepared and approved for publication by Extension Service, Oregon State University.



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