

EMERGENCY FIRE SERVICES  
Police Barracks  
THEBARTON 5031

NOTES ON FIRES AND FIRE EXTINGUISHERS

1. Remember that SMALL fires can grow into BIG fires and cause considerable destruction. Consider what makes a fire and it becomes easy to prevent one.

2. A normal fire needs :-  
(a) FUEL to burn;  
(b) HEAT to make it burn;  
(c) AIR (Oxygen) to keep it burning.



3. TO STOP A FIRE: Therefore -

- (a) Take away the FUEL. Remove burning material before fire spreads.  
(b) Take away the HEAT. Except for liquid and electrical fires, there cannot be too much WATER on hand. It will put out most fires; e.g. wood, cloth, paper. These are known as deep-seated (or free burning) fires.  
(c) Take away the AIR. Smother with a bag, rug, etc. These are more efficient when wet.

4. TO PREVENT FIRE:

- (a) Keep premises clean and clear of rubbish.  
(b) Have plenty of water on hand.  
(c) Keep all fire fighting appliances in good order and ready for immediate use and KNOW HOW TO USE THEM. This applies to all occupants of premises, both family and staff.  
(d) In the event of fire, DO NOT PANIC.  
(e) Never stop fighting a fire EXCEPT to save a life.  
(f) NEVER search a burning building alone.

5. FIRE FIGHTING APPLIANCES can be as simple as a wet mop, a wet bag or blanket, a garden hose, a stirrup pump, etc. But if a fire has gained control, plenty of mops or bags will be needed. A GOOD garden hose with plenty of water at GOOD pressure is a great asset. A BAD hose is almost useless. Check hose fittings regularly.

6. To give further help, we analyse some distinctly different types of fire and some of the FIRE EXTINGUISHERS used to combat them as a means of FIRE FIRST AID.

Approval of The Fire & Accident Underwriters' Association and The Australian Standards Association is an assurance of quality.

7. The SODA-ACID EXTINGUISHER is used against DEEP-SEATED fires (e.g. wood, paper, etc.) and in fact, against all fires EXCEPT LIQUID AND ELECTRICAL FIRES.

8. The extinguisher contains water in which SODA has been dissolved. An ACID container is suspended in the head of the unit. When the acid and the Water-Soda are mixed together a GAS is formed which forces the WATER from the extinguisher.

9. There are two common types of Soda-Acid Fire Extinguishers:-

- (a) TURN OVER (or Invertible) TYPE

When this unit is turned upside-down, the acid mixes with the water-soda solution.

(b) BREAK BOTTLE TYPE

When a plunger is pushed in at the head of the extinguisher it breaks an acid bottle; then the same action takes place as with the "Turn-Over" type. Some break-bottle units are operated in an upright position and some in an inverted position.

10. Both units are simple to operate; the only difference is the method of mixing. The capacity of the usual Soda-Acid unit is two gallons. When operated, it produces a stream of 25 to 30 feet which lasts for about two minutes. It has a cooling effect and causes little or no damage. These units weigh approximately 35 lbs., and therefore light enough for most people to handle. They are painted RED, and operating instructions are set out clearly on the label. Some units have a discharge hose, and others a nozzle discharge.
- Soda-Acid Turn Over Extinguishers should be inspected and recharged every 12 to 18 months, or when used or partly used. Break Bottle Units should be inspected every 12 to 18 months and recharged every three years, or when wholly or partly used.
11. The CO<sub>2</sub> Gas Expelled Water Extinguisher - is used for protection against precisely the same fire risks as are covered by SODA-ACID extinguishers, as indeed they are both essentially water extinguishers. This GAS EXPELLED WATER unit is very quick to action and has about the same range and performance as Soda-Acid. It contains WATER and has a small cartridge (or cylinder) of CO<sub>2</sub> gas in the head.
- For operation, a plunger knob on the head is struck, releasing the gas, which forces the water through a hose and nozzle. There are two sizes in general use: 2 gallons and 1 $\frac{1}{4}$  gallons. The 2 gallon unit weighs about 35 lbs. charged, and gives stream about 35 feet long. These extinguishers are painted RED. The unit should be examined yearly and the CO<sub>2</sub> cartridge weight should be checked and refilled if underweight. The water should be replaced with a fresh supply.
12. THE HYDRAULIC HOSE REEL - is a further extinguisher using water, and therefore used for fires of wood, etc., also. It is most simple and has the great advantage of providing an unlimited supply of water under pressure. It is comprised of a very neat revolving reel on which a rubber hose is wound. A swivelling hose guide allows the operator to run the hose out in any direction at high speed. When installed, it is permanently connected to the water supply.
- To operate - the valve is opened and the hose is run out. The flow can then be controlled completely at will by use of a stop-cock nozzle at the hose's end. It can be fitted with  $\frac{3}{4}$  inch or 1 inch hose up to 120 ft. lengths. Standard lengths are 60 ft. It throws a jet of about 40 ft. at reasonable pressures. It is usually enamelled RED.
13. The FOAM (or Froth) EXTINGUISHER - can be used with effect on free burning fires, but is designed for use against liquid fires (oil, petrol etc.). It is NOT suited for fires involving electricity. The Foam Extinguisher contains Water, Soda and a Foam ingredient, and has suspended in it, a cylinder containing an Acid Salt.
- There are two common types:
- (a) Plain Cap Type - when this unit is turned upside down, the ingredients mix. Immediately the mix occurs, FOAM forms with a volume of about eight times the combined volumes of the two solutions.

- (b) Dual Seal (or Marine) type - this unit has a spring-loaded valve, sealing off the inner cylinder. The valve must be released before the unit is operated, in the same way as the Plain Cap Type. This Dual Seal Type is used on vehicles and craft in such positions where the Plain Cap type would spill and begin to operate.

The most common capacity of Foam units is two gallons. When operated it produces a stream of 25 to 30 ft. and lasts about two minutes. Foam SMOTHERS the fire and has cooling effect. The charged unit weighs approximately 36 lbs. It is painted BLUE. Generally, Foam Extinguishers do not have a hose but a simple nozzle. The unit should be recharged every 12-18 months, or when used.

14. VAPOURIZING EXTINGUISHING AGENTS - C.T.C., C.B.M., B.C.F.:

The most generally known of the vapourizing extinguishants is Carbon Tetra Chloride (CTC). Although at one time widely used and known in its familiar quart size brass pump unit, C.T.C. has largely been outlawed because of the toxic properties of the liquid and vapour.

Fire extinguisher manufacturers and fire fighting authorities have been seeking the most suitable replacement for C.T.C.

Methyl Chloroform (Trichloroethane 1.1.1.); Chloro-bromo-methane (C.B.M.); Bromo-chloro-difluoromethane (B.C.F.); - are the best known of the chemicals which have been used and tested as an alternative to C.T.C.

Of these, B.C.F. has much to offer as an effective and less toxic vapourizing extinguishing agent, and appears likely (at present), to be the most popular choice to supersede C.T.C. in this field. B.C.F. has been proven to be more effective and less toxic. It is, however, more costly.

All vapourizing extinguishants (including B.C.F.), should be regarded as toxic and not for use in confined spaces where the operator, or any other persons, may be caused to inhale the pyrolised or non-pyrolised vapours.

Because of the increasing variety of vapourizing agent extinguishers on the market, only general features are referred to in this circular.

- (1) For operation - follow the instructions which are printed on the extinguisher. All except pump type C.T.C.'s are pressure actuated.
- (2) Refer back to supplier for recharging.
- (3) Service - check by weight or pressure regularly as recommended by the supplier.
- (4) Do not inhale vapours or allow liquid to come in contact with skin.
- (5) The Australian Standard colour is YELLOW, although some makes come in chrome or other colours.

WARNING - DO NOT USE C.T.C. ON FAT FIRES!

15. The CO<sub>2</sub> (Carbon Dioxide) Extinguisher - has some effect on all types of fires, but is particularly useful against liquid and electrical fires. It is a high pressure steel bottle containing carbon dioxide only at high pressure. The cylinders are fitted with a WHEEL or SQUEEZE-GRIP type valve. It is operated by opening this valve and allowing the gas to pass to a diffuser horn, through a short tube on small units, and through a flexible hose on larger units. It has a range of about 6 ft. and has a smothering and cooling effect. The unit should be inspected yearly and weighed, but does not require recharging unless under weight. It is usually painted RED with a black band painted around the centre.

16. The DRY CHEMICAL EXTINGUISHER - Highly suitable for flammable liquid and electrical fires. It contains a specially compounded chemical. Fitted to the top of the unit, either internally or externally, is a cylinder containing CO<sub>2</sub> or dry nitrogen. Other types are pressurised - i.e. gas is in main cylinder with the powder.

To operate - a valve or seal is opened, releasing the gas into the powder. The pressure of this gas forces the powder from the Extinguisher. With units of 20 lbs size and over, the discharge of powder can then be controlled by stopping and starting it at will by the means of a squeeze-grip nozzle at the end of a short hose.

Some makes have the gas and powder already pressurised together.

The powder is non-toxic, non-corrosive, non-freezing, and will not conduct electricity. It can be easily swept up after use and will do no damage. The powder SMOTHERS the fire. The units are painted RED with a WHITE band around the centre.

The Dry Chemical Extinguisher is particularly suitable for diesel, electric, petrol and fires of a HIGHLY FLAMMABLE nature.

17. A Hand Extinguisher will NOT extinguish a MAJOR FIRE. It is most wise to call the Fire Brigade before a fire gets out of hand. It is suggested you have the Fire Brigade's telephone number by your telephone.

18. IMPORTANT: Should you have to use a hand fire extinguisher, always take time to stop and READ THE INSTRUCTIONS on the body of the extinguisher before operating.

Always take the appliance as near to the fire as safely possible before carrying out these instructions.

October, 1969.

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