

Fire Protection Notice No. 11

NOTES ON FIRE EXTINGUISHERS (SUITABILITY AND MAINTENANCE)

This pamphlet is about fire extinguishers and is intended mainly for the use of registered Fire Service contractors. It sets out the main regulations (nos. 5, 6, 7, 8, 9 and 12) governing the installation of fire service equipment and then goes on to explain the uses to which various types of extinguishers may be put. There is a Chinese version in addition to the English version.

FIRE SERVICES ORDINANCE (Chapter 95)

Extracts from the FIRE SERVICE (INSTALLATION AND EQUIPMENT) REGULATIONS 1997

Regulation 5

No person shall sell or supply any portable equipment which is not included in the equipment list.

Regulation 6

- (1) Subject to paragraph (2), no fire service installation or equipment shall be installed in any premises by any person other than a registered contractor.
- (2) Paragraph (1) shall not apply to any portable equipment which is not required by law to be installed in any premises.

Regulation 7

- (1) Subject to paragraph (2), no person other than a registered contractor shall maintain, inspect or repair any fire service installation or equipment which is installed in any premises.
- (2) Paragraph (1) shall not apply to any portable equipment which is not required by law to be installed in any premises.

Regulation 8

The owner of any fire service installation or equipment which is installed in any premises shall :-

- (a) keep such fire service installation or equipment in efficient working order at all times; and

- (b) have such fire service installation or equipment inspected by a registered contractor at least once in every 12 months.

Regulation 9

- (1) Whenever a registered contractor installs, maintains, repairs or inspects any fire service installation or equipment in any premises, he shall within 14 days after completion of the work issue to the person on whose instructions the work was undertaken a certificate and forward a copy thereof to the Director of Fire Services.
- (2) A certificate issued under paragraph (1) shall state :-
 - (a) the address of the premises in which the work was carried out;
 - (b) a description of the fire service installation or equipment concerned ;
 - (c) the date of the completion of the work;
 - (d) the nature of the work carried out; and
 - (e) whether or not the fire service installation or equipment is in efficient working order.
- (2A) A certificate issued under paragraph (1) shall be signed by the person authorized to do so under regulation 3A of the Fire Service (Installation Contractors) Regulations (Cap 95 sub. leg.) and any person who signs a certificate which is false or misleading in any material particular commits an offence and is liable on conviction to a fine of \$5000.
- (3) Any registered contractor who :-
 - (a) contravenes paragraph (1); or
 - (b) issues or forwards a certificate thereunder, or a copy thereof, which is false or misleading in a material particular, commits an offence and is liable on conviction to a fine of \$5000:

Provided that where the certificate was signed by a person other than the registered contractor, the registered contractor shall not be convicted of an offence under sub-paragraph (b) if he proves that he exercised all due diligence to prevent the commission of the offence.

Regulation 12

Any person who contravenes any of the provisions of regulation 5, 6, 7 or 8 shall be guilty of an offence and shall be liable on conviction to a fine of \$5000.

Carbon Dioxide Type Extinguishers

Use:

On electrical fires, flammable liquids, delicate equipment, important documents, or fires in confined spaces.

Note:

Vapours will asphyxiate. Withdraw to open air after use.

Maintenance:

This type of extinguisher should be examined every 12 months and the following maintenance carried out :-

- (i) The total weight should be checked against that recorded when the extinguisher was put into service. If a loss of weight of more than 10 percent is detected, the extinguisher should be discharged and returned to the suppliers for examination, test and recharging.
- (ii) The body of the extinguisher should be examined and, if there are signs of damage or extensive external corrosion, the extinguisher should be discharged and returned to suppliers for examination, test and recharging.
- (iii) The discharge horn and hose should be checked to see that it moves freely and should be replaced if damaged is detected.
- (iv) Hydraulic pressure test should be carried out every five years on the cylinder in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (v) Unserviceable extinguisher should be discharged prior to disposal.



Water Type Extinguishers

Use:

On fires involving woods, textiles and paper.

Never:

On fires involving electrical or flammable liquids or metals.

Maintenance:

This type of extinguisher should be examined every 12 months and the following maintenance carried out :-



(GAS-CARTRIDGE TYPE)

- (i) The vent holes in the cap should be checked for cleanliness and freedom from obstruction.
- (ii) Remove the headcap to check the liquid level. The liquid should be topped up as necessary.
- (iii) The nozzle, strainer and internal discharge tube should be checked for cleanliness and free from obstruction. Defective items shall be replaced.
- (iv) The gas cartridge should be weighed and the weight checked against that marked on the cartridge. The cartridge should be renewed if a loss of more than 10 per cent of the contents is recorded.
- (v) No corrosion, damage or rust should be visible either externally or internally. Special attention should be paid to the concealed parts of the container.
- (vi) Before the headcap is replaced and while the gas cartridge is unscrewed therefrom, the plunger or other operating device should be checked to see that it operates freely. The washer should be examined and replaced if necessary. The cap should then be tightly screwed to the container to form a gas-tight joint.
- (vii) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all cartridges in the remainder should be replaced. Extreme care should be exercised during preparing and conducting discharge test. Prior to discharging, the container should be ensured in good condition such as no corrosion, damage or rust should be visible externally or internally

on any part of the container; otherwise hydraulic pressure test should then be carried out to confirm the container structurally sound. Should there be doubt about the condition of the container, hydraulic pressure test shall be conducted instead.

- (viii) Corroded parts should be cleaned up and refinished after the hydraulic pressure test.
- (ix) Hydraulic pressure test should be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (x) Before carrying out hydraulic pressure test, remove the headcap, disconnect the gas cartridge and clear the contents. Never empty the contents by discharging the extinguisher.
- (xi) Also, before disposal of unserviceable fire extinguisher, remove the headcap, disconnect the gas cartridge and clear the contents. Never empty the contents by discharging the extinguisher.

(STORED-PRESSURE TYPE)

- (i) The pressure indicating device should be checked to see the correct pressure is being maintained within the extinguisher body.
- (ii) The nozzle or branch-pipe (if fitted) and the pressure releasing valve in the cap should be checked for cleanliness and free from obstruction. Defective items shall be replaced.
- (iii) No corrosion, damage or rust should be visible externally on any part of the container. Special attention should be paid to the concealed parts of the container.
- (iv) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all extinguishers should be overhauled and recharged.
- (v) Prior to recharging, the container should be ensured in good condition such as no corrosion, damage or rust was noted; otherwise hydraulic pressure test should be conducted to confirm the container structurally sound.
- (vi) Hydraulic pressure test should be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (vii) Unserviceable extinguisher should be discharged prior to disposal.

Dry Powder Type Extinguishers

Use:

On most fires, flammable liquids, metal fires or electrical fires.

Maintenance:

This type of extinguisher should be examined every 12 months and the following maintenance carried out :-

(GAS-CARTRIDGE TYPE)

- (i) The vent holes in the cap should be checked for cleanliness and free from obstruction.
- (ii) The extinguisher should be weighed to check that it contains the correct weight of powder. The weight when fully charged should be recorded at the time of charging. If the weight is found to have dropped by more than 10%, the dry powder should be replaced by a fresh charge. Care should be taken not to mix different types of dry powder because they could react with one another.
- (iii) The powder should be agitated to ensure it is free from caking.
- (iv) Remove the headcap to check the condition of powder. The chemical should be renewed if it is not in good condition.
- (v) The nozzle and discharge control (if fitted) should be checked for cleanliness and free from obstruction. Defective items shall be replaced.
- (vi) The gas cartridge should be weighed and the weight checked against that marked on the cartridge. The cartridge should be renewed if a loss of more than 10 per cent of the contents is recorded.



- (vii) No corrosion, damage or rust should be visible either externally or internally. Special attention should be paid to the concealed parts of the container.
- (viii) Before the headcap is replaced and while the gas cartridge is unscrewed therefrom, the plunger or other operating device should be checked to see that it operates freely. The washer should be examined and replaced if necessary. The cap should then be tightly screwed to the container to form a gas-tight joint.
- (ix) Should there be doubt on the condition of the container, such as corrosion, damage or rust is visible either externally or internally on any part of the container, hydraulic pressure test should then be carried out to confirm the container structurally sound. Extreme care should be exercised during preparing and conducting the hydraulic pressure test.
- (x) Corroded parts should be cleaned up and refinished after the hydraulic pressure test.
- (xi) Hydraulic pressure test should be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (xii) Before carrying out hydraulic pressure test, remove the headcap, disconnect the gas cartridge and the dry powder should be collected for subsequent re-cycling/disposal. Never empty the contents by discharging the extinguisher.
- (xiii) Also, before disposal of unserviceable fire extinguisher, remove the headcap, disconnect the gas cartridge and the dry powder should be collected for subsequent re-cycling/disposal. Never empty the contents by discharging the extinguisher.

(STORED-PRESSURE TYPE)

- (i) The extinguisher should be weighed to check it contains the correct weight of powder. If the weight is found to have dropped by more than 10%, the dry powder should be replaced by a fresh charge. Care should be taken not to mix different types of dry powder because they could react with one another.
- (ii) The pressure indicating device should be checked to see the correct pressure is being maintained within the extinguisher body.
- (iii) The nozzle or branch-pipe (if fitted) and the pressure releasing valve in the cap should be checked for cleanliness and free from obstruction. Defective items shall be replaced.
- (iv) No corrosion, damage or rust should be visible externally on any part of the

container. Special attention should be paid to the concealed parts of the container.

- (v) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. The dry powder should be discharged to an enclosure for collection and subsequent re-cycling/disposal. Should any extinguisher fail in the test, all extinguishers should be overhauled and recharged.
- (vi) Prior to recharging, the container should be ensured in good condition such as no corrosion, damage or rust was noted; otherwise hydraulic pressure test should be conducted to confirm the container structurally sound.
- (vii) Hydraulic pressure test should be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (viii) Unserviceable extinguisher should be discharged prior to disposal. The dry powder should be discharged to an enclosure for collection and subsequent re-cycling/disposal.

NOTE:

- (a) *Dry powder extinguishers must be thoroughly dry internally before they are recharged.*
- (b) *Advice should be obtained from the Fire Services Department as to the possible reaction between the powder or expellant and the material to protected.*

Clean Agent Fire Extinguishers

Use:

On electrical fires, flammable liquids, delicate equipment, important documents.

Maintenance:

This type of extinguisher should be examined every 12 months and the following maintenance carried out :-

(PORTABLE TYPE)

- (i) The pressure indicating device should be checked to see the correct pressure is being maintained within the extinguisher body.
- (ii) The extinguisher should be weighed to check against the total weight record when it is put into service. If a loss of weight of more than 10 per cent is detected, the extinguisher should be discharged to a closed recycling system and returned to the supplier for examination, test and recharging.
- (iii) The nozzle or branch-pipe (if fitted) and the pressure releasing valve in the cap should be checked for cleanliness and free from obstruction. Defective items shall be replaced.
- (iv) No corrosion, damage or rust should be visible externally on any part of the container. Special attention should be paid to the concealed parts of the container.
- (v) If there are signs of damage or external corrosion, the extinguisher should be discharged to a closed recycling system and returned to the suppliers for examination, test and recharging.
- (vi) Hydraulic pressure test should be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (vii) Unserviceable extinguisher should be discharged to a closed recycling system prior to disposal.

(FIXED SPRAYER UNIT)

- (i) The pressure indicating device (if fitted) should be checked to see the correct pressure is being maintained within the extinguisher body.
- (ii) The extinguisher should be weighed to check against the total weight record

when it is put into service. If a loss of weight of more than 10 per cent is detected, the extinguisher should be discharged to a closed recycling system and returned to the supplier for examination, test and recharging.

- (iii) The deflector and the sensing element should be checked and cleaned.
- (iv) No corrosion, damage or rust should be visible externally on any part of the container. Special attention should be paid to the concealed parts of the container.
- (v) If there are signs of damage or external corrosion, the extinguisher should be discharged to a closed recycling system and returned to the suppliers for examination, test and recharging.
- (vi) Hydraulic pressure test should be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (vii) Unserviceable extinguisher should be discharged to a closed recycling system prior to disposal.



Foam (Chemical) Type Extinguishers

Use:

On fires involving flammable liquids.

Never:

On electrical fires.

Maintenance:

This type of extinguisher should be examined every 12 months and the following maintenance carried out :-

- (i) The nozzle and the vent holes in the cap should be checked for cleanliness and free from obstruction.
- (ii) Remove the headcap to check the liquid levels in the body and in the inner container. Any slight loss may be made up with water; otherwise a new charge should be used.
- (iii) No corrosion, damage or rust should be visible either externally or internally. Special attention should be paid to the concealed parts of the container.
- (iv) Before the headcap is replaced, the plunger, the headcap lever for the sealing device or other operating device should be checked to see that it operates freely. The washer should be replaced if necessary and the cap should then be tightly screwed to the container to form a gas-tight joint.
- (v) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all should be tested by discharge. Extreme care should be exercised during preparing and conducting discharge test. Prior to discharging, the container should be ensured in good condition such as no corrosion, damage or rust should be visible externally or internally on any part of the container; otherwise hydraulic pressure test should then be carried out to confirm the container structurally sound. Should there be doubt in the condition of the container, hydraulic pressure test shall be conducted instead.
- (vi) Corroded parts should be cleaned up and refinished after the hydraulic pressure test.
- (vii) Hydraulic pressure test should be carried out every five years on the outer



container in accordance with the manufacturers' instructions; the inner container should be examined to ensure it is in good condition and not leaking. Extreme care should be exercised when preparing and conducting the test.

(viii) Before carrying out hydraulic pressure test, remove the headcap and clear the contents. Never empty the contents by discharging the extinguisher.

(ix) Also, before disposal of unserviceable extinguisher, remove the headcap and clear the contents. Never empty the contents by discharging the extinguisher.

NOTE:

Inverted type chemical foam extinguishers have ceased production and not permitted for sale. However, products already sold may continued to be used.

Foam (Mechanical) Type Extinguishers

Use:

On fires involving flammable liquids.

Never:

On electrical fires.

Maintenance:

This type of extinguisher should be examined every 12 months and the following maintenance carried out :-

(GAS-CARTRIDGE TYPE)

- (i) The vent holes in the cap should be checked for cleanliness and free from obstruction.
- (ii) Remove the headcap to check the liquid level. If the liquid level was found to have dropped by more than 10%, the foam concentrate or foam solution as appropriate should be replaced by a fresh charge.
- (iii) The branchpipe, strainer and internal discharge tube should be checked for cleanliness and free from obstruction. Defective items shall be replaced.
- (iv) The gas cartridge should be weighed and the weight checked against that marked on the cartridge. The cartridge should be renewed if a loss of more than 10 per cent of the contents is recorded.
- (v) No corrosion, damage or rust should be visible either externally or internally. Special attention should be paid to the concealed parts of the container.
- (vi) Before the headcap is replaced and while the gas cartridge is unscrewed therefrom, the plunger or other operating device should be checked to see that it operates freely. The washer should be examined and replaced if necessary. The cap should then be tightly screwed to the container to form a gas-tight joint.
- (vii) Test 50 per cent of extinguishers by discharge every year in rotation so that all



extinguishers are tested by discharge every two years. Should any extinguisher fail in the test, all cartridges in the remainder should be placed. Extreme care should be exercised during preparing and conducting discharge test. Prior to discharging, the container should be ensured in good condition such as no corrosion, damage or rust should be visible externally or internally on any part of the container; otherwise hydraulic pressure test should then be carried out to confirm the container structurally sound. Should there be doubt about the condition of the container, hydraulic pressure test shall be conducted instead.

- (viii) Corroded parts should be cleaned up and refinished after the hydraulic pressure test.
- (ix) Hydraulic pressure test should be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (x) Before carrying out hydraulic pressure test, remove the headcap, disconnect the gas cartridge and clear the contents. Never empty the contents by discharging the extinguisher.
- (xi) Also, before disposal of unserviceable fire extinguisher, remove the headcap, disconnect the gas cartridge and clear the contents. Never empty the contents by discharging the extinguisher.

(STORED-PRESSURE TYPE)

- (i) The pressure indicating device should be checked to see the correct pressure is being maintained within the extinguisher body.
- (ii) The nozzle or branch-pipe (if fitted) and the pressure releasing valve in the cap should be checked for cleanliness and free from obstruction. Defective items shall be replaced.
- (iii) No corrosion, damage or rust should be visible externally on any part of the container. Special attention should be paid to the concealed parts of the container.
- (iv) Test 50 per cent of extinguishers by discharge every year in rotation so that all extinguishers are tested by discharge every two years. Should any extinguisher failed in the test, all extinguishers should be overhauled and recharged.
- (v) Prior to recharging, the container should be ensured in good condition such as no corrosion, damage or rust was noted; otherwise hydraulic pressure test should be conducted to confirm the container structurally sound.
- (vi) Hydraulic pressure test should be carried out every five years on the container in accordance with the manufacturers' instructions. Extreme care should be exercised when preparing and conducting the test.
- (vii) Unserviceable extinguisher should be discharged prior to disposal.

Fire Blankets

Use:

On fires involving flammable liquids, such as small fires in the kitchen and laboratory.

Method For Use:

Drape the blanket over the flames to seal off air. Switch off heat and leave in position until cool.

Maintenance:

This blanket should be examined every 12 months or after use in fire. The following maintenance should be carried out :-

- (i) Check for any deterioration.
- (ii) Cleaning in accordance with the manufacturer's instructions as when necessary.
- (iii) If manufacturer's instructions are not available, fire blanket can be washed (soak overnight in detergent, gently hand rinse in warm water). Do not machine wash or dry clean.



REMARKS:

- (i) Fire blankets are classified into two categories, namely:-
"Heavy Duty" fire blankets (BS 7944:1999); and
"Light Duty" fire blankets (BS EN 1869:1997)
- (ii) Only "Heavy Duty" and "reusable" fire blankets will be approved as a Fire Services Standard Requirement.
- (iii) "Light Duty" fire blankets may be accepted for use on a private basis and should be disposed of after use.