

## Precautions against freezing of fire extinguishing appliances

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# Precautions against freezing of fire extinguishing appliances<sup>(1)</sup>

## II

### Hydrants, Open Sprinklers, and Standpipe Systems

19. Test all hydrants and post indicator valves. See that they are well oiled and that hydrants drain properly. Where hose is provided at hydrants it should be kept connected to outlets and free from water.

20. Make special examination of inside standpipes and connections, bearing the hazards of freezing particularly in mind.

21. Test the water curtain (open sprinklers) before the cold weather season begins. See that valves are tight and that all pipes are thoroughly drained.

22. Hydrants and hose houses, post indicator valves, valve pits, etc., should all be kept free from ice and snow and should be accessible at all times.

### First Aid Apparatus

#### Water Barrels, Pails and Hand Pump Extinguishers

23. Where water barrels, pails, or hand pump extinguishers are located in rooms subject to freezing temperatures, use calcium chloride to lower the freezing point of their contents. The following table shows approximately the temperatures at which water will freeze when calcium chloride (commercial 75%) is added in the proportions shown to depress the freezing point :

<sup>1</sup> Deuxième partie d'un texte de la National Fire Protection Association, dont nous avons fait paraître le début dans le numéro d'octobre 1944. — A.

## A S S U R A N C E S

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Approximate Freezing Temperature Degrees Fahrenheit.	To make 2½ Gallons Anti-freezing-Solution			
	Water	Calcium Chloride	Specific Gravity	Baumé Degrees
10° . . . . .	2 Gals. 1 qt.	5 lbs.	1.139	17.7
zero . . . . .	2 Gals. 1 qt.	6¼ lbs.	1.175	21.6
10° below	2 Gallons	7 lbs. 6 oz.	1.205	24.7
20° " . . . . .	2 Gallons	8 lbs. 6 oz.	1.228	26.9
30° " . . . . .	2 Gallons	9 lbs. 2 oz.	1.246	28.6
<b>44</b> 40° " . . . . .	2 Gallons	10 lbs.	1.263	30.2

The strength of the solution obtained may be tested by using a hydrometer to determine the specific gravity. This is necessary in the case of a solution which has been standing a long time, or which has been made from calcium chloride not freshly opened.

Close fitting covers on calcium chloride solution containers will help to preserve the solution as mixed. The inside of all containers to be used for calcium chloride solution should be coated with asphaltum paint.

Calcium chloride is recommended in place of common salt because the latter will always rust metals and may become objectionable because of its tendency to "creep" and crystallize all over the receptacle. In an emergency, common salt (not rock salt) may be used when the solution is kept in wooden casks and where temperatures lower than Zero Fahrenheit will not be encountered. Two and three-quarters pounds of salt to each gallon of water should be used, producing a solution having a specific gravity of 1.205. Salt solution must never be kept in metal containers.

### Chemical Extinguishers (Soda-Acid and Foam Types)

Anti-Freeze Extinguishers normally employing solutions which will withstand temperatures as low as 40° below zero require no special attention in cold weather. When extinguishers are not of the anti-freeze type (i.e. are either of the soda acid or foam type) the following cautions should be observed.

24. See that no extinguishers of these types are exposed to temperatures lower than 40 degrees Fahrenheit. Diluted sulphuric acid may freeze at a higher temperature than water; and at from 36 to 38

degrees Fahrenheit there is likely to be material precipitation in the soda solution. Low temperatures may also produce a noticeable retardation of action even though precipitation is not evident. The freezing point of the soda solution is practically that of pure water.

25. Absolutely prohibit the addition of "non-freezing" compounds of *any character* to the contents of these extinguishers. Extinguishers have frequently been rendered inoperative by this means, and fatalities are on record, due to bursting of extinguishers as a result of corrosion induced by such treatment. The addition of salt or calcium chloride to the soda solution causes chemical changes which defeat the essential principle of operation of these appliances.

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26. Frostproof cabinets for chemical extinguishers, even when they contain some heating unit, should be provided only in consultation with the Inspection Department having jurisdiction. Expert opinion is necessary in each case as to the conditions under which such cabinets may safely be used.

### General Precautions

27. Instruct the night watchman thoroughly in the use of all fire apparatus, the operation of all valves, and the proper method of giving an alarm. Employ only able-bodied and intelligent men of good character in this important position.

28. Place thermometers in the colder portions of the plant and keep close watch upon temperatures during severe weather.

29. Have all broken windows and skylights repaired and all outside doors made thoroughly weathertight. See that no attic ventilators are left open to the outer air.

30. Secure maximum efficiency from available heating equipment by having all boilers and flues cleaned before winter arrives.

31. To thaw water pipes that have become frozen, wrap the frozen section with cotton cloth and pour hot water upon it until the ice in the pipe gives way. Rags on the floor at the base of or under the pipe will absorb the waste water. If the freezing is too severe to yield to this treatment send for a plumber, or for an experienced sprinkler fitter, if automatic sprinkler piping is frozen.

Good results have also been secured by use of electricity where proper apparatus was available.

A burning match, torch or open flame of any description should never be employed to thaw pipes. To wrap the pipes with oil-soaked rags and set them on fire is worse than folly; it is incendiarism. Pipes are almost invariably adjacent to walls or partitions where there is an ascending current of air to feed and spread a flame. Even if the flame does not start a fire its sudden local heat may cause the pipe to break and flood the premises with water.

46 32. Make sure that yards around buildings are kept clean and in good order. Obstructions such as lumber and miscellaneous storage, at all times undesirable, may interfere very seriously with the handling of hose streams in a fire occurring after a heavy snowfall, particularly at night.

**At all times consult and co-operate to the utmost with the inspection department having jurisdiction. Also do not fail to call upon your local fire department for advice and help.**

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**Viriculture ou invitation à la santé** par le Dr J.-A. Mireault.  
Aux Éditions Fides, Montréal.

Le Dr Mireault vient de faire paraître aux Éditions Fides un livre intéressant, consacré aux soins qu'il est nécessaire de donner au corps pour lui permettre de remplir pleinement sa fonction. Exercices au grand air, surveillance du régime alimentaire, régime de vie qui permet d'éviter ou tout au moins de corriger les excès ou les abus auxquels notre vie trépidante et énervante nous expose. Tout cela on le trouvera analysé et exposé en une langue sans apprêt, mais saine dans le livre du Dr Mireault. Ce n'est pas un recueil de recettes, une liste sèche de choses à faire et à éviter; c'est une discussion pleine de bonhomie, d'idées sages, sinon entièrement neuves. Il serait bon que les éducateurs et les parents s'en inspirent aussi bien pour eux, que pour leurs enfants.