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E. P. HEATON
PRESIDENT.

THE DOMINION FIRE PROTECTION ASSOCIATION

REPORT
ON
DRY POWDER
FIRE EXTINGUISHERS



TWENTY-SEVEN AND TWENTY-NINE
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DRY DUST EXTINGUISHERS

REPORT ON

Dry Powder Fire Extinguishers

This appliance, in its popular form, consists of a sheet metal tube from 20 to 25 inches long and about 2 inches in diameter, sealed at the bottom and closed at the top by a tight fitting cap, to the outer surface of which is attached a ring, by which the tube is hung upon a hook securely fastened in the wall. The tube is filled with a fine powder which, it is claimed, contains chemical properties, which under the action of heat give forth immense volumes of fire destroying gas. In case of fire the tube is jerked from the hook, pulling off the cap, and the contents thrown forcibly at the base of the fire.

Underwriters' Estimate.

For general use as a fire extinguisher the device has failed entirely to win the approval of Fire Underwriters. The uncertainty in regard to the chemical properties of powders used; the difficulty of providing absolute assurance that the powder will not become caked from dampness or undergo deterioration; the impracticability, in the case of certain fires, such, for instance, as that of burning curtains, of effectively applying the powder; and the delay that might occur through an ineffectual attempt to extinguish an incipient fire with the dry powder when water might have been applied effectively, have all appeared good reasons to Underwriters for discouraging the use of Dry Powder Extinguishers.

Recognized Merit.

That such Extinguishers have some merit, however, cannot be ignored, for in the face of the discouragement given by Underwriters, Dry Powder Extinguishers, upon the simple basis of their ability to effectively extinguish fire under certain trying conditions, have been adopted as auxiliary appliances by some of the largest independent concerns in the United States and Canada, including The Standard Oil Company, The Canadian Pacific Railway and The United States Navy.

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Deductions from Tests.

The following deductions are made from the experimental tests to which various powders at present on the Canadian market have been subjected:—

(1) It is strikingly apparent that there is an appreciable variation in the fire extinguishing powers of the different powders manufactured.

(2) It is extremely difficult to estimate how much the effective use of Dry Powder Extinguishers depends upon the general experience, knowledge of the nature of fires and manipulatory skill of the operator. In exhibitions given by competing representatives of Dry Powder Extinguishers, it is clearly evident that to a large extent there is a trial of men as well as a trial of appliances. It is found that after considerable experience in the handling of Dry Powder tubes, one is able to produce results impossible in the beginning, apparently attributable to the development of an intuitive skill that gives force and direction in the application of the powder, causing it to act to some extent as a smothering agent as well as locating it where heat will most effectively liberate its inherent forces. Under the most favorable fire conditions, considerable experience is required to use the powder successfully.

(3) Apart from the consideration of skill in manipulation, it is evident that all such powders do their best work in the case of fires, the base of which is well defined, in which the heat is highly developed and concentrated, and where said base is easily accessible and provides area and substance for application of the powder.

(4) It is beyond doubt that a large percentage of fires are not subject to control, even in their incipency, by Dry Powder Extinguishers.

(5) The supreme achievement of Dry Powder is the extinguishment of benzine, oil and kindred fires. Under most conditions its use in such fires was attended by satisfactory results.

Chemical Analysis.

From chemical analysis a comparison was made between two of the leading powders tested. The result showed the percentage of the ingredient that furnishes fire extinguishing gas to be, in one case 87.36, in the other only 53.76. Both powders contained as filler, an ingredient calculated to prevent caking.

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Conclusions.

The conclusions reached are that while the time may never come when Dry Powder Fire Extinguishers can be approved, without qualification, for general use, yet the fire destroying virtues, and reliability against change of condition or deterioration, of certain composite powders may become so established that they may be recognized as valuable auxiliary agents in the extinguishment of fire in many classes of risk where fire, if it should occur, would in all probability be amenable to such an extinguisher, and where employees might be instructed successfully as to the use of Dry Powder tubes.

And further, that Dry Powder tubes of capacity sufficient to contain not less than two and one half pounds of powder each, and containing a powder approved and certified to by Official Chemical Analysis as to its high percentage (not less than 80%) of superior fire destructive ingredient, imperviousness to all cementing processes and integrity against deterioration, are valuable appliances, if placed in sufficient quantity (in groups of not less than six tubes), in all places where benzine, or paint, or oil, or grease, or kindred substances form or augment hazard, and in the equipment of Rolling Stock and Steamboats, and such other risks as from their nature call specially for some such extinguisher.

Requirements.

It is important that all tubes in commission for fire service be effectively sealed to assure that contents have not been tampered with, and that such seal bear the guarantee of the manufacturer that the powder contained therein is composed, to the extent of 80%, of chemically pure fire extinguishing ingredient.

The hooks upon which tubes are hung should be at least seven feet, and not more than eight feet from the ground, and in addition to the hooks, cups should be provided as support for tubes.

By the side of tubes, wherever hung, a bright colored card, preferably in contrast to the color of the Extinguisher, should be nailed, giving directions for use of Extinguisher.