



Fire Protection Training

Procedures Handbook 4300

SPECIAL FIRES

TOPIC: Combustible Metal Fires

TIME FRAME: 30 Minutes

LEVEL OF INSTRUCTION:

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will describe a Class "D" fire, describe the proper extinguishing agent and list the methods of applying those extinguishing agents.

Standard: With a minimum of 70% accuracy

MATERIALS NEEDED:

- Various extinguishing agents
- Appropriate visual aids
- Audio visual equipment

REFERENCES:

- IFSTA, Essentials of Fire Fighting, 2nd Edition, Chapter 2

PREPARATION: High intensity fires may occur in certain metals. The greatest hazard exists when these metals are in a molten or dust-like state. To minimize the risk to firefighters, they must be able to identify fires involving combustible metals and determine what extinguishment action, if any, is appropriate.



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COMBUSTIBLE METAL FIRES

PRESENTATION

APPLICATION

I. CLASS "D" FIRE EXTINGUISHMENT

A. General Rules

1. Common extinguishing agents should not be generally used
2. A given agent will not extinguish all combustible metal fires
3. Must be applied in sufficient depth to adequately cover fire area and to provide smothering blanket
4. Must apply gently to avoid scattering or splashing
5. Must leave the extinguishing agent undisturbed until cool
6. Reference must be made to manufacturer's recommendations for use, and special techniques for extinguishing fires in various metals

B. Extinguishing Agents

1. "Pyrene" G-1 powder
 - a. Stored in cardboard tubes or metal pails
 - (1) Powder is non-toxic
 - (2) Non-combustible
 - b. Use on

Information sheet #1

The label on each extinguisher will list which metal fires it is effective against



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PRESENTATION	APPLICATION
<ul style="list-style-type: none">(1) Mg - Magnesium(2) Na - Sodium(3) K - Potassium(4) Ti - Titanium(5) Li - Lithium(6) Zr - Zirconium(7) Ca - Calcium(8) Hf - Hafnium(9) Th - Thorium(10) U - Uranium(11) Pu - Plutoniumc. Special application on powder fires in<ul style="list-style-type: none">(1) Al - Aluminum(2) Fe - Ferrous Sulfate (Iron)(3) Zn - Zincd. Apply with hand scoop or shovel, spread evenly over fire2. Met-L-X powder<ul style="list-style-type: none">a. Stored in sealed containers or extinguishers.<ul style="list-style-type: none">(1) No known health hazard(2) Non-combustibleb. Use on	



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<ul style="list-style-type: none">(1) Magnesium(2) Sodium(3) Potassium(4) Sodium-Potassium(5) Zirconium(6) Uranium(7) Titanium(8) Powdered Aluminumc. Apply by applying thin layer from a distance <p>3. Na-X powder</p> <ul style="list-style-type: none">a. Stored in pails and extinguishers.<ul style="list-style-type: none">(1) No known health hazard(2) Non-combustibleb. Use on Sodiumc. Apply by cautiously making a thin layer application from a distance <p>4. T.E.C. powder (Ternary Eutectic Chloride)</p> <ul style="list-style-type: none">a. Powder is toxicb. Use on<ul style="list-style-type: none">(1) Sodium(2) Potassium(3) Sodium-Potassium	



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<ul style="list-style-type: none">(4) Plutoniumc. Expel from extinguisher or use scoop/shovel5. Foundry flux<ul style="list-style-type: none">a. Causes severe rusting of equipmentb. Use on Magnesiumc. Apply with hand scoop or shovel6. Lith-X powder<ul style="list-style-type: none">a. Use on Lithium<ul style="list-style-type: none">(1) Magnesium(2) Zirconium chip fires(3) Sodium(4) Sodium-Potassiumb. Apply by cautiously applying thin layer from a distance7. TMB liquid<ul style="list-style-type: none">a. Classified as a flammable liquid for shipping purposesb. Stored in a pressurized extinguisherc. Boric oxide smoke produced by TMBd. Use on<ul style="list-style-type: none">(1) Magnesium(2) Zirconium(3) Titanium fires	

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PRESENTATION

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- 8. Pyromet powder
 - a. Stored under pressure generally in 25 lb. fire extinguisher
 - b. Use on
 - (1) Sodium
 - (2) Calcium
 - (3) Zirconium
 - (4) Titanium
 - (5) Magnesium
 - (6) Aluminum



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COMBUSTIBLE METAL FIRES

SUMMARY:

Class "D" combustible metals require special consideration when involved in fire. Ordinary extinguishing agents can create a problem and represent a danger to the firefighter. There are several specialized agents that have been developed to combat fires in various metals. Technique is also important when applying these agents to Class "D" fires.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).