



Badger Fire Protection
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A UTC Fire & Security Company

TECHNICAL BULLETIN

#101-0110

Date: December 2000

Subject: Avoiding Dry Chemical Extinguisher Discharge Problems

Professional fire extinguisher service personnel often have the opportunity to observe and avoid many of the potential discharge problems sometimes associated with dry chemical fire extinguishers. The following points highlight some key issues that will not only save service personnel time and money, but also eliminate many potential fire extinguisher discharge problems in the field.

- 1. Avoid excessive handling and transferring of dry chemical agents.** Dry chemical formulations are comprised of mixtures of particles that typically range anywhere from 15 to 60 microns in size. Excessive handling or transferring of these agents can result in the loss of some of the finer particles. When the repeated transfer of dry chemical agents is necessary, service personnel should utilize a clean closed dry chemical recovery system to avoid any contamination or mixing with other brands of agents.
- 2. Minimize any potential agent exposure to moisture.** While most dry chemical agents have some moisture repellence, they are not moisture proof. You should make every attempt to keep any form of moisture or high humidity agent exposure to an absolute minimum. Never recharge or handle dry chemical agents in rain or snow conditions and ensure all agent containers are always properly sealed.
- 3. Ensure proper agent storage and exposure temperatures are maintained.** When dry chemical agents are sealed in airtight containers and stored within the temperature limits indicated on their labels, the shelf life of dry chemical agents can be virtually indefinite. Keep dry chemical agent temperature exposures within label recommendations to avoid any heat caking or deterioration from occurring.
- 4. Ensure agent colors are uniform and not mixed.** Dry chemical agents often have colors added to help identify them in the field. The mixing of different dry chemical agents can cause performance variables and possibly create destructive internal hardware problems. If you observe any agent mixing, properly remove and discard all traces of mixed dry chemical agents. You should then closely examine these extinguishers for any remaining residues, damage or potential corrosion prior to recharge. When necessary, conditions may even dictate the hydrostatic re-test or replacement of the agent cylinder.
- 5. Closely examine any observed lumps of dry chemical agent.** Agent lumps from packing and vibration conditions are normally easily fluidized and broken up upon discharge, but lumps formed as a result of moisture or heat exposure can pose serious extinguisher discharge problems. A quick "field test" method for determining if observed dry chemical agent lumps are acceptable or not, is to drop the lump onto a hard surface, from a height of approximately 4 inches. If the lump crumbles into fine particles the agent is acceptable. Lumps that bounce, crack or break into smaller lumps may indicate heat caking or moisture contamination is present and the agent should be replaced.

While extinguisher discharge problems are sometimes considered to be the result of the dry chemical agent having packed too tightly, this simply is often not the case. The extinguisher approval agencies have thoroughly tested and evaluated listed fire extinguishers for agent packing under the most severe conditions.

By observing these tips, you'll find that you can avoid many of the extinguisher discharge problems sometimes associated with dry chemical extinguishing agents.

References: OSHA CFR-29 1910 Subpart "L" Appendix "A"; NFPA Fire Protection Handbook; NFPA-17; NFPA-10; ANSI/UL-299.