3.13. Dry Chemical Systems

3.13.1. The requirements for Dry Chemical System material, design, installation shall be as per **Table 9.15.**

Table 9.15: Dry Chemical System Requirements

ITEMS	REQUIREMENTS
1. DEFINITION	i. A Dry Chemical extinguishing agent is a finely divided powdered material that has been specially treated to be water repellent and capable of being fluidized and free-flowing so that it can be discharged through hose lines and piping when under expellant gas pressure. ii. The dry Chemical System in this code refers to pre-engineered systems, that discharge the dry chemical from either hand hose line or fixed nozzles and piping by means of an expellant gas. iii. The sodium bicarbonate-based dry chemical agent consists primarily of sodium bicarbonate (NaHCO3) and is suitable for use on all types of flammable liquid and gas fires (Class B) and for fires involving energized electrical equipment (Class C), Cooking oils and Fats. iv. Commercially available agents are essentially potassium bicarbonate (KHCO3), potassium chloride (KCl), and urea-based potassium bicarbonate (KC2N2H3O3). v. The multipurpose Dry Chemical agent has as its base monoammonium phosphate (NH4H2PO4) and is similar in its effect on Class B and Class C fires to the other dry chemicals. The multipurpose Dry Chemical shall not be used on deep-fat fryers and delicate electrical equipment. vi. Different types of Dry Chemicals from different manufacturer's shall not be mixed for protection purpose.
2. APPLICATION	i. A pre-engineered Dry Chemical System can be used to protect hazards such as Flammable and Combustible Liquids/ Gases/ Solids/ Plastics, Oil filled transformers, circuit breakers, commercial kitchen hoods. ii. Dry Chemical extinguishing systems shall not be used for protection of Cellulose Nitrate and Combustible metals, such as sodium, potassium, magnesium, titanium and zirconium. iii. Multiple systems protecting common hazards shall be designed for a simultaneous operation.
3. COMPONENTS	i. Dry Chemical container, Detectors, Control System, Expellant Gas cartridge, Pipes, Tubes, Fittings, Hand Hose, Discharge Nozzles, pressure gauges, Manual actuators, Isolation valves, and Solenoid Valves. ii. The dry chemical system as an entire system with its design, installation and maintenance manual from manufacturer shall be listed and approved by Civil Defence.
4. ELECTRICAL CLEARANCE	i. All the dry chemical System equipment and component shall be located to maintain the required electrical clearance as per the manufacturer's specifications. ii. Where the design basic insulation level (BIL) is not available and where nominal voltage is used for the design criteria, the highest minimum clearance specified for this group shall be used.
5. NOZZLE	i. The nozzle shall be listed and shall be provided with an internal strainer or a separate listed strainer located immediately upstream of the nozzle. ii. Discharge nozzles shall be of brass, stainless steel or other corrosion-resistant materials, or be protected inside and out against corrosion. iii. All discharge nozzles shall be provided with caps or other suitable devices to prevent the entrance of grease vapors, moisture or other foreign materials into the piping and shall blow off or open during discharge.