



SPORTING ARMS AND AMMUNITION MANUFACTURERS' INSTITUTE, INC.

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Sporting Ammunition Primers

Properties, Handling & Storage

This publication has been prepared by the Sporting Arms and Ammunition Manufacturers' Institute to provide anyone concerned with the handling or storing sporting ammunition primers certain basic and important facts about the subject. These statements and recommendations do not supersede local, state or federal regulations, or constitute legal advice. Local authorities should be consulted regarding any regulation on the storage, transportation, display, sale, and handling of sporting ammunition primers within each individual community. Information is updated periodically, however SAAMI provides no warranty or guarantee as to the accuracy, adequacy or completeness of the information.

Ammunition handloading has become increasingly popular in recent years. This publication summarizes information that is generally known by an experienced handloader and provides general information to persons interested in handloading. It discusses the properties of sporting ammunition primers and offers recommendations for their safe use, handling, and storage. A second publication entitled "*Smokeless Powder: Properties, Handling & Storage*" supplements this document on primers and may be found at www.saami.org.

Properties of Primers

Sporting ammunition primers contain carefully engineered mixtures of chemical ingredients. Primers are designed to explode and produce the heat, gas and hot particles necessary to ignite the propellant powders in sporting ammunition when the firing pin of a firearm strikes them properly.

Properties of particular importance to the dealer and user of primers are as follows:

1. Primers may explode if mishandled. Explosions may be caused by friction and by percussion, such as hammering, pounding, dropping or bullet impact. Heating by fire, static electricity, sparks, hot tobacco ashes, or other unspecified abuses may also cause primers to explode.
2. If primers are loose or in bulk, having contact one with another, one primer exploding can, and usually will, cause a violent, sympathetic explosion of all primers so situated. In other words, one primer exploding for any reason under these circumstances will normally cause all the primers to explode in one violent blast.
3. Primers may "dust." Small particles of priming compound may separate from the primers in the form of dust, especially when they are subjected to shaking or jolting. Accumulation of this dust

in primer feed tubes, loading machines, and loading areas is extremely hazardous as it might cause explosions or fires.

4. Primers exposed to water or any organic solvent, such as paint thinner, gasoline, kerosene, oil, or grease, may deteriorate, resulting in misfires or poor ignition.
5. The factory containers in which primers are packaged need only normal conditions of storage. They should be kept dry and not exposed to high temperatures (more than 150° F). If exposed to wet conditions or high temperatures, they may deteriorate, yielding misfires or poor ignition of the propellant powder.

Handling of Primers

Primers do explode. This is the purpose for which they have been designed. They demand the respect and careful handling due any device containing explosives.

Care must always be exercised in any handloading operation to avoid rough handling and undue force where a primer is involved, since the primer may fire. Any malfunction of equipment must be cleared with extreme caution. The depriming (a.k.a. "decapping") of shells or cases containing live primers is to be avoided.

Precautions should be taken to avoid buildup of static electricity on the person when handling primers or conducting handloading procedures. Loading equipment should be electrically grounded.

All loading equipment and adjacent areas must be kept scrupulously clean and free of primer dust and powder accumulations. Work areas and loading equipment must be cleaned by wiping with a damp cloth or sponge which should be thoroughly rinsed after each use. Fired primers, primer cups, anvils, or other bits of hard, abrasive material are a hazard during loading operation as contact with them may cause primers to fire.

Accidentally spilled primers should be picked up immediately as they may explode when stepped upon.

An absolute minimum of primers should be maintained at the loading operation. Only one packing tray at a time should be removed from the primer storage container.

When a priming operation is completed, any remaining primers should be returned to the package in which they were originally contained. These packages have been specifically designed to protect primers during shipment and storage and also to protect the consumer.

Primers should never be made available to children, household pets, or persons not recognizing them as potentially hazardous.

Never have an open flame, source of sparks, or hot particles in the vicinity of primers or any ammunition loading operation.

Do not smoke near primers.

Safety glasses must be worn when performing any and all handloading operations.

Recommended Storage of Primers

Storage cabinets containing only primers are recommended. These cabinets should be ruggedly constructed of lumber at least 1" nominal thickness to delay or minimize the transmission of heat in the event of fire. SAAMI recommends against storing primers in sealed or pressurized containers.

Keep your storage and use area clean. Make sure the surrounding area is free of trash or other readily combustible materials.

Be sure your storage area is free from any possible sources of excessive heat and is isolated from open flame, furnaces, water heaters, etc. Do not store primers where they can be exposed to direct sunlight. Avoid storage in areas where mechanical or electrical equipment is in operation.

Primers should never be removed from their factory packaging until ready to use. The factory packaging has been tested and approved to mitigate the risk of propagation in the event of an accidental initiation.

Do not store primers in the same area with solvents, flammable gases, or highly combustible materials. Store primers only in their original factory containers. Do not transfer the primers from this approved container into one which is not approved. The use of glass bottles, fruit jars, plastic or metal containers, or other bulk containers for primer storage is extremely hazardous.

Do not smoke in areas where primers are stored.

Do not store primers in any area where they might be exposed to gun fire, bullet impact, or ricochets.

Do not store primers with propellant powders or any other highly combustible materials.

Observe all regulations regarding quantity and methods of storing primers.

Primers Subjected to Severe Impact and Fire

Sporting Ammunition and the Firefighter, a video produced by the Sporting Arms and Ammunition Manufacturers' Institute, analyzes the characteristics associated with small arms ammunition when it is subjected to severe impact and fire. When a primer ignites, it causes the propellant to burn, creating gases which, when under pressure in a firearm, send the bullet down the barrel. As such, loose ammunition in a fire does not result in bullets being discharged at high velocity because the propellant is not burning under pressure. The video, which has been widely circulated to fire departments, concludes that while ammunition produces a popping sound when it burns, there is no mass detonation of the ammunition, any projectiles are of low velocity, and there is no threat to firefighters in their standard turn-out gear. Further information on *Sporting Ammunition and the Firefighter* can be found at www.saami.org.

For further recommendations on storage and handling of primers, see NFPA 495 - Explosive Materials Code: <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=495>

This code identifies reasonable levels of safety for the manufacture, transportation, storage, sale, and use of explosive materials. It does not apply to transportation of such material used for military purposes or when under jurisdiction of the federal government.

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