The Sporting Arms and Ammunition Manufacturers' Institute (SAAMI®) is an association of the leading manufacturers of firearms, ammunition, propellants, and components in the United States. SAAMI creates and publishes industry standards for safety, interchangeability, and reliability and coordinates the exchange of technical data.

The concepts under discussion within the framework of the Open-Ended Working Group on Conventional Ammunition (OEWG) regarding the marking of ammunition present significant danger to the safety of ammunition manufacturing personnel and of users of sporting arms and ammunition, as well as other challenges. These can be summarized in three primary areas:

First, we must consider the safety of the men and women engaged in the production of ammunition. It has been suggested that laser marking be used as a method of applying a unique identifying code to loaded ammunition, thus eliminating the need to track pre-coded component parts through subsequent manufacturing and assembly operations. (Movement of cartridge cases between fabrication operations is often achieved in bulk containers, making the tracking of individual serial numbers impossible when moving parts between an inert state to one where energetic materials are present.) The problem with this proposal is that it can cause great harm to the safety of workers. This is so because it would direct high-energy lasers capable of vaporizing metal at a metal case that contains explosive propellant and even higher explosive elements in the priming mixture. Initiation of either of these from excess heat presents significant safety concerns for personnel in the manufacturing environment. For example, the 22 Long Rifle round is manufactured from thin brass strip in a manner that results in no area on the case being thicker than approximately 0.4 mm. In most areas the case is even thinner. This slim barrier of brass would be the only separation between the laser and both propellant and high explosives within the priming mixture. Even absent the risk of detonation, localized heating of the case metal for any round of ammunition could degrade the propellant and priming mixture and, in turn, could cause the round to misfire at a time of greatest need, as in law enforcement or military situations, and could otherwise significantly diminish the effectiveness of the cartridge.

Even a well-designed process using lasers remains subject to human error in misalignment, improper settings (excessive heat) and/or to changes in alignment due to mechanical damage or improper adjustment or drift. Such failures could easily result in a process that would present danger to production personnel and could create products that are not fit for safe use.

The second concern is centered on the location of the marking on the cartridge case. While proposals have pointed to the extractor groove as a possible marking location, not all cartridge designs feature an extractor groove. The single most commonly produced round – the 22 Long Rifle (22LR) rimfire - lacks an extractor groove. Of all SAAMI-standardized pistol/revolver cartridges, 40% do not have an extractor groove[1]. This is also the case with over 15% of SAAMI-standardized rifle cartridges[2]. These include cartridges found in common usage including the 38 Special, 357 Magnum, and 30-30 Winchester. Other cartridges, while including the design feature of an extractor groove, are so small that they present significant challenges in ensuring laser or other marking technology alignment. With an extractor groove 0.76 mm wide and with a diameter of only 6 mm, for example, the 25 Automatic (6.35 Browning) is one such cartridge in common usage for the shooting sports and personal protection.

Third, additional mechanical markings cause concerns and pose significant challenges for small arms

ammunition production in general. Any operation that causes the distortion or movement of metal can thin the wall or other area of the cartridge case, potentially allowing the case to split when fired. Such operations can also result in residual stresses in metals and subsequent operations to relieve such stresses cannot be performed on loaded cartridges. As a result, these stresses can cause the cartridge case to split over time and/or rupture upon firing. When a cartridge case ruptures upon firing, hot gases, under substantial pressure, can vent through the firearm and expose the user to these gases, metal shards, propellant, and other debris traveling at high velocity. Blinding eye injury or worse can result.

The proposed methods for additional markings on ammunition are dangerous for the production worker and for the firearm user. Therefore, SAAMI does not support proposals for additional marking requirements and strongly recommends that the OEWG on Conventional Ammunition does not do so either.

While safety is the paramount concern for SAAMI and the ammunition manufacturing community, it is important to note the concepts under consideration fail to acknowledge the realities of the modern ammunition manufacturing environment. These facilities are capable of producing upwards of 6,000,000 rounds per day in a single factory, the design and logistics of which were not intended to provide the level of part traceability integrity necessary to make these schemes effective.

As the representation of the leading manufacturers of firearms, ammunition, propellants, and ammunition components in the United States, SAAMI is ready to offer its expertise and knowledge to the work of the OEWG on Conventional Ammunition during the upcoming meetings, as well as the intersessional period.

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[1] - SAAMI-standardized centerfire pistol & revolver cartridges without an extractor groove include:

32 H&R Magnum	327 Federal Magnum	41 Remington Magnum	45 Colt
32 S&W	357 Magnum	44 Remington Magnum	454 Casull
32 S&W Long	38 S&W	44 S&W Special	475 Linebaugh
32 Short Colt	38 Special	45 Auto Rim	480 Ruger

[2] - SAAMI-standardized centerfire rifle cartridges without an extractor groove include:

7-30 Waters	25-20 Winchester	32 Winchester Special	405 Winchester
17 Hornet	25-35 Winchester	32-20 Winchester	44-40 Winchester
218 Bee	30-30 Winchester	32-40 Winchester	45-70 Government
22 Hornet	30-40 Winchester	38-40 Winchester	470 Nitro Express
225 Winchester	303 British	38-55 Winchester	500 Nitro Express 3”