DEUTSCHER SCHÜTZENBUND E.V.

Response of

the German Shooting Sport and Archery Federation

to ECHA's "Call for comments and evidence" on a possible restriction on the use of lead in ammunition

Status: 10.12.2019

GENERAL COMMENTS

The German Shooting Sport and Archery Federation was founded in 1861 and is the oldest German sports federation. With more than 14.000 clubs and about 1.4 million members in Germany it is also one of the biggest Olympic sport federations in the Federal Republic of Germany. There is no doubt that the 20 regional federations play an important role in their relevant part of Germany and continuously influence daily life there.

The German Shooting Sport and Archery Federation is also one of the most successful sport federations in Germany. From their beginnings in 1896 the first Olympic Games of the modern age included shooting sport as one of its disciplines. Up to the Olympic Games in Rio 2016, German shooters have won 18 gold, 23 silver and 15 bronze medals at Olympic Games as well as hundreds of World and European Championships awards. This success story was written without doping problems and other scandals, sporting or otherwise. Next to the well-known rifle, pistol and archery disciplines, shooting sport in the German Shooting Sport and Archery Federation covers summer biathlon, cross bow and muzzle loader shooting. Shooting is a sport for men and women of all ages, whether disabled or non-disabled. The German Championships with more than 10.000 participants are Germany's biggest sport for all event.

For the German Shooting Sport and Archery Federation the integration of disabled persons is not only an ambitious aim but already reality: Handicapped shooters (SH1) can start on level terms in the leagues of the German Federation together with their non-disabled counterparts.

About 300.000 children and young people – all members of the German Shooting Youth – are trained by specially qualified, voluntary sport coaches. Air rifle shooting or archery are excellent ways in which to increase the power of concentration, coordination and a sense of responsibility. So shooting sport is an ideal antidote to school stress, that has been scientifically verified.

Social and corporative engagement: The German word "Schützenhilfe" (shooter's support) is very famous – members of the German Shooting Sport Federation have been doing exactly this for more than 150 years. Whether it is social or charitable projects, support for local events or holiday childcare – sport shooters know where help is needed. With their voluntary engagement they make a contribution to the common welfare in Germany, far beyond sport shooting.

The artful decoration of old weapons, the art of target paintings, the needlework on flags and the production of traditional costumes as well as the creativity of jewellers and goldsmiths have enriched civic art and folk art in Germany since the time of the Middle Ages. The shooting clubs and associations do their utmost to conserve these past references and to make them available for the public. The transfer and the support of traditions are an enormously important input of the shooting clubs for the conservation of our cultural heritage and the interconnection of the different generations.

Since 2015, the "Schützenwesen in Deutschland" has therefore also been recognized as an intangible cultural heritage by the German UNESCO Commission. The German Shooting Sport and Archery Federation has handed in the application on behalf of its clubs, which through their activities in a diverse and lively way maintain traditions and pass on cultural heritage. The value and importance of the "Schützenwesen" and shooting sport "as an important, historical and living part of the regional and local identity" - as the UNESCO Commission states – is now officially recognized. The German UNESCO Commission has also explicitly praised our commitment to social engagement and our "civilian culture in dealing with weapons technology and the use of firearms". The German Shooting Sport and Archery Federation also provides a central archive and a Shooting Museum.

With the following answers to ECHA`s questions, we would like to take position on a possible restriction on the use of lead in ammunition.

In general, we strongly believe that a restriction on lead would not have any positive impact on human health, the primary goal of a possible ban, or the environment as the alleged risks through the use of lead ammunition in shooting sport are already adequately controlled through several regulations. At the same time, there is no scientific evidence on a connection between the practice of shooting sport and human health risks. The precious goal of protecting human health is secured through much more adequate, targeted risk management measures such as the mandatory use of ventilation in indoor

shooting ranges, cleaning, collecting and recycling requirements and other best management practices for shooting ranges.

On the other hand, the restriction of the use of lead-containing ammunition would have far-reaching negative influences on the shooting sport; in particular the increasing costs for alternative ammunition (copper, steel, tungsten etc.), the necessary changes of barrels or even complete firearms, the necessary law changes for the authorisation of shooting ranges etc. which could all lead to a significant decrease of the number of sports shooters and also hunters in Europe.

These examples of negative influences and the above mentioned much more efficient risk management measures show that a possible restriction on the use of lead for sport shooting is absolutely disproportionate and unrewarding.

Moreover, the necessary use of alternative materials due to a lead restriction would lead to completely unclear consequences. To our knowledge, there is no robust socio-economic analysis of the possible consequences on human health, the environment etc. through using these alternatives (copper, steel, tungsten, etc.).

Question 1:

i. The quantity of lead present in products placed on the EU market and the potential for release to the environment during use;

The German Shooting Sport and Archery Federation as the largest shooting sport federation in Germany represents around 1.4 Mio members including sports shooters (rifle/pistol/shotgun), archers, crossbow shooters etc.. Another approx. 0.6 Mio sports shooters is organized in other (so called "anerkannte"/acknowledged) shooting sport federations in Germany.

Per 31.12.2016 around 5.9 Mio. firearms and parts of firearms (including already destroyed and exported firearms etc.) were registered in the German National Firearms Register ("Nationales Waffenregister") – amongst these, ca. 2.4 Mio. with reason for requirement "hunter", ca. 1.4 Mio. with reason for requirement "sports shooter", ca. 300.000 with reason for requirement "Collector".

According to the sports rules by the International Shooting Sport Federation ammunition weights for the different disciplines are as follows: Airgun 0.535g, Small bore 2.59g, Shotgun 24g.

The amount of ammunition used by sport shooters cannot be reliably estimated.

Most sport shooting is – also in accordance with the sports regulations of the different federations – done with lead containing ammunition; the exact amount of non-lead ammunition used for sport shooting in Germany can also not be estimated. We assume it´s a very small percentage.

ii. Information on the frequency and extent of lead poisoning observed in terrestrial species of birds, including predatory and scavenging species;

The German Shooting Sport and Archery Federation has no information on a possible lead poisoning observed in terrestrial species of birds.

In general and according to the German Shooting Range Guidelines no. 10.5.4 (Schiessstandrichtlinien; s. Annex), outdoor shooting ranges in Germany have to be managed in a manner that a high level of safety/protection for the environment is guaranteed. This means:

- Harmful environmental and other hazards, significant disadvantages and significant disturbance to the general public and the neighbourhood cannot be caused.

- Provision is made against harmful environmental effects and other dangers, considerable disadvantages and considerable annoyance, in particular by state of the art management measures.

- Prevent waste, recover unavoidable waste, and eliminate waste that cannot be used without harming the well-being of the community. Waste cannot be avoided, as far as prevention is technically impossible or unreasonable; avoidance is inadmissible if it leads to more adverse environmental effects than recovery; the recovery and disposal of waste is carried out in accordance with the provisions of the Kreislaufwirtschaftsgesetz (KrWG) and the other regulations applicable to waste.

- Energy is used sparingly and efficiently.

The above mentioned existing regulations of the German Shooting Range Guidelines show that a possible risk for the environment through lead shot on outdoor shooting ranges is controlled and no additional restriction is required.

The German Shooting Range Guidelines („Richtlinien für die Errichtung, die Abnahme und das Betreiben von Schießständen (Schießstandrichtlinien)") are released by the Federal Ministry of the Interior based on German weapon law (§ 12, 3 sentence 2 of the „Allgemeine Waffengesetzverordnung"). These guidelines are the written state of the art rules for safety for building, acceptance by government and use of a shooting range in Germany. There compliance is obligatory. They guarantee a save use of shooting ranges, weather for sport shooting or training of hunters. They are established after consultation of scientists, persons concerned like sport shooters

or hunters and relevant Supreme State Authorities. They are published as any other law in the German Bundesanzeiger (Federal Gazette).

iii. Statistical information on the annual game meat consumption in a country or regional area? (Approximation of the weekly/yearly consumption in grams and/or the frequency of meals can be provided as well as the specific species consumed, if possible.);

The German Shooting Sport and Archery Federation has no information on this topic.

iv. The consumption of game meat in specific groups such as infants, small children, women in childbearing age or high consumers (such as hunters and their families);

The German Shooting Sport and Archery Federation has no information on this topic.

v. Any differences between on- and off-hunting season consumption; is the game frequently e.g. frozen or otherwise preserved for later use;

The German Shooting Sport and Archery Federation has no information on this topic.

vi. Information on the absorption rate of lead to human body from ingested gunshot and/or bullets or from some other analogous material;

To the German Shooting Sport and Archery Federation's information, there is no scientific evidence based link between shooting sport and the absorption of lead into the blood or body of sports shooters.

However, as shown by the 2010 EFSA (European Food Safety Authority) Report, it is demonstrated that the main lead contaminants of human body are cereals, vegetables, milk, soft drinks, tea, coffee, alcoholic drinks, water, food supplements.

vii. Information on the blood lead levels of game meat consumers and hunters;

The German Shooting Sport and Archery Federation has no information on this topic.

viii. Any other relevant human health/exposure data related to lead containing gunshot and bullet or fishing tackle, or the alternatives of these articles?

The German Shooting Sport and Archery Federation has no information on this topic.

ix. Information on the practice of 'home casting' of fishing tackle with lead and/or the re-filling of cartridges;

Refilling is of subordinate importance in our federation. Only a few large bore sport shooters – due to high ammunition prices – have a licence according to the German Explosives Act which allows the handling of propellants. The process of refilling cartridges is subject to strict standards in terms of safety and hygiene which are taught in special seminars (amongst others conducted by DEVA).

Question 2: Current best practice (including effectiveness) to minimise lead exposure to humans or the environment during use, for example (please elaborate):

i. **best available techniques to remove lead from edible portions of meat prior to consumption;**

The German Shooting Sport and Archery Federation has no information on this topic.

ii. **best available techniques to manage lead exposure on indoor and outdoor shooting grounds (including national or European standards or recommendations to capture lead and/or minimise environmental exposure to lead);**

The German Shooting Range Guidelines regulate the management of shooting ranges in general. Besides the mentioned regulation no. 10.5 in question 1 ii, we would like to refer to the following regulations of the German Shooting Range Guidelines which also address the management of lead (analogous translation):

2.8.2 Definition of bullet trap systems
[...] They must be designed and constructed in a way that
- the intake or rejection of impinging projectiles, of any kind, works reliably and securely
- disposal of bullet material and its separation from the trapping material is possible
- when shooting at close distances, a safe firing (no dangerous rebound of projectiles and fragments) for the shooter is guaranteed
- the removal of bullet trapping material can be done simply and safely.

3 Shooting ranges for air guns
3.2 Open shooting ranges for air guns
3.2.3 Shooting ground
The shooting ground should be as level as possible. Under the bullet trap systems, the shooting ground, if it is unpaved, has to be covered with a foil of width ≥ 1.00 m or the like, so that no lead can enter the ground.

5. Closed shooting ranges ("Raumschießanlagen", RSA) for shooting with firearms
5.7 Technical requirements
5.7.1 General
When shooting with firearms, gases and dusts are created which can pollute the respiratory air. In closed shooting ranges (RSA), therefore, a sufficiently dimensioned ventilation and air conditioning system ("raumlufttechnische Anlage", RLT system) must ensure that in the users' respiratory zones the pollution of air during shooting is reduced. Thus, a health hazard or damage can be excluded to the current state of knowledge.

Due to specific operating conditions, special requirements have to be made for the RLT systems in RSA. Different dimensions are necessary due to different types of use (e.g. when shooting with muzzle loaders weapons or multi-distance shooting). No provisions for technical requirements of a possible RLT system are made for RSA for shooting with air guns and firearms with rimfire cartridges in calibre 4 mm.

The size of a ventilation system is essentially determined by the size of the room (cross section) and the types of firearms and ammunition used, but also by the type of shooting. In addition, in industrial or professional use, occupational safety and health regulations (AGW) must be observed when designing the ventilation system. Reference is made to the relevant requirements of DIN 1946 Part 2 "Ventilation - Health-technical requirements".

5.7.4 Acceptance of the RLT system
The acceptance of the RLT system has to be confirmed by report of an expert for ventilation systems according to DIN EN 12599.
10 Appendices
10.5 Instructions for operating a shooting range
10.5.1 Operator

[...] The operator has to ensure that through the operation of the shooting range no danger to life and health for the users of the shooting range and uninvolved third parties, nor significant disadvantages, e.g. caused by environmental damage or harassment of the neighbourhood, is caused.
10.5.5 Closed (indoor) shooting ranges
Closed shooting ranges (RSA) do not require approval according to immission control law. However, in order to prevent harmful environmental effects caused by air pollution or noise, they must be constructed and operated in accordance with § 22 BImSchG:
- prevent harmful environmental effects that are avoidable by state of the art technique,
- minimize unavoidable harmful environmental effects to a minimum by state of the art technique,
- the waste generated during operation of the installations can be properly disposed of.

10.6 Operator duties in occupational safety
The operator of a shooting range must avoid all dangers, which result from the operation of the shooting range; this also includes obligations to employees and employee-like personnel.
10.6.2 Testing of facilities and technical equipment in indoor shooting ranges

10.6.3 Cleaning of indoor shooting ranges
In order to maintain operation and ensure safety in RSA, regular and expert maintenance and cleaning of the facilities is required. This is especially valid at shooting ranges for firearms (with the exception of "Zimmerstutzen"), in which due to unburned TLP ("Treibladungspulver", propellant powder) remnants, which are deposited primarily in the firing direction in front of the gun ports on the shooting floor, regular and general cleaning measures are necessary. With each shot, (depending on the type of firearm and the ammunition or calibre distinctly different and generally low) unburned TLP residues leave the barrel, which accumulate to dangerous levels without regular cleaning and can be ignited by various causes. The responsibility for occupational safety, e.g. at cleaning work, is born by the operator. He/She must ensure proper cleaning and maintenance of the shooting range and proper disposal of unburned TLP residues.

10.6.3.3.2 General cleaning and maintenance
The regular general cleaning and maintenance of the RSA is to be carried out every six months. If necessary due to a risk assessment, shorter maintenance intervals should be provided. The following measures have to be carried out in the RSA: [...]
- Bullets lying on the ground in front of the bullet trap must be collected and placed in a suitable container. Wear simple surgical masks and appropriate disposable gloves to prevent lead contamination.

These excerpts from the German Shooting Range Guidelines clearly show that shooting ranges in Germany are strictly regulated by law and therefore the possible risk by using lead ammunition on shooting ranges is adequately controlled. Especially through the possibility of collecting and recycling lead on indoor and outdoor ranges – which is due to the scrap value of lead also economically reasonable for shooting range managers (the recycling can finance the recovery on the shooting ranges) – a possible risk through lead exposure on shooting ranges is managed and no additional restrictions are necessary.

Other recommendations for a sound management of shooting ranges including the management of lead can be found in the annexes provided under Section IV/V.

iii. **Use of inert materials to encapsulate lead in fishing tackle.**

The German Shooting Sport and Archery Federation has no information on this topic.

Question 3: Alternatives

i. The volumes (tonnages) of lead shot, bullets and pellets as well as fishing weights of products placed on the EU market;

We refer to our answer to question 1 i; no additional information available.

ii. the identity of existing or emerging alternatives and any information on the existing market share of comparable products on the market that do not contain lead;

The German Shooting Sport and Archery Federation has no information on the market share of lead-free ammunition. We know of the availability of lead-free ammunition of different types and by different producers for specific niches of utilization. Those products are not alternative to lead but mean a specialization in a maturity stage of the business cycle. Some type of this ammunition is offered – especially steel ammunition – at affordable prices aiming at market penetration objectives. Therefore, prices are currently not directly linked to the costs of the materials/production which could probably change if alternatives are promoted by a restriction on lead. Moreover, those alternative materials require more energy consumption to manufacture, and will on a long term be more expensive for the purchaser.

Lead-free ammunition for rifle/pistol is currently still limited and not robustly tested and therefore no feasible alternatives are available from a sport shooting perspective.
For shotgun ammunition, steel seems to be widely available, rather than other alternatives, especially due to the costs. The ballistic properties of steel shots are consistently different from lead, due to its lower density (26% less) and higher hardness (6,7 times). These differences result into two main consequences: The first is a decrease of the ballistic performance. The second consequence is that – due to the lower weight of steel ammunition – it requires a higher loading which leads to a possible danger for the shotgun barrels (higher pressure to fire), higher noise mitigation and additional risks to the safety of sports shooters (ricochets). A large number of shotguns are not proofed for steel shot and could therefore be unsuitable in case of a restriction of lead shot.
Regarding ballistic performance, tungsten and bismuth are deemed to be closer to lead (than steel), but the prices are often remarkably higher.

iii. technical and economic feasibility of potential alternatives, including information on product performance, the price differences between lead containing bullets, gunshot, pellets, fishing tackle and their alternatives, the number of products that could be affected, expected costs and timelines for full-scale production of the alternatives, etc.;

As mentioned under Q3 ii, lead-free ammunition is due to its ballistic properties less precise than lead ammunition. Using lead ammunition, the precision of the ammunition exceeds the accuracy/athlete ability. Therefore, the skill of the shooter not the product performance decides on the result and the sporting outcome of the competition. On the other side, the lack of precision of lead-free ammunition, especially for 10m air gun disciplines, would mean that the ammunition is less precise than the athlete's accuracy, which means that luck in context with the ammunition performance would decide on the outcome of a competition.

Moreover, lead has one of the highest recycling rates in the world. It can be easily and completely recycled on shooting ranges, which makes it convenient on an economic and environmental standpoint. It is very common for shooting ranges around the world to collect fired shots and projectiles. A switch to alternative ammunition materials would risk the already-in-place recycling practices, which are not applicable with other materials.

Most shooting ranges in Germany are solely built and authorized for the use of lead ammunition. A restriction on lead ammunition would therefore at least mean a new inspection and authorisation with the corresponding costs for the range owner. However, in many cases it would also result in necessary constructional changes with much higher costs. In some cases – due to disproportionate costs or legal restrictions – it would certainly also lead to a closure of the shooting range.

Historic muzzle loaders are understandably only designed / manufactured for the use of lead ammunition. A switch to the use of alternative ammunition with its different properties would result in damages of the barrel and is therefore not possible. These historic firearms would become useless. If they were still used with lead-free ammunition, potential human health risk for the sports shooter would be the outcome.

Finally, before any restriction on lead ammunition is considered, further work on non-lead ammunition is required to fully ascertain the impacts on firearms, safety (e.g. ricochets: https://www.youtube.com/watch?v=0ABGIJwiGBc), the costs etc. A reliable evaluation of alternate materials in terms of environment, health impacts and technical-economic feasibility has to take place, considering
- the ballistic performances;
- the impact on environment and health;
- the toxicology analysis;
- the availability (quantity and continuity) of the raw materials;
- Safety of sports shooters.

iv. availability of alternatives in sufficient quantities on the market: current and future trends;

We refer to our answer to Q3 ii.

v. hazard and risk of the use of alternatives, including any impacts on animal welfare;

Hazards and risks of the use of alternatives, as partially already mentioned in our answers above, are: ricochets, higher loads resulting in more noise, barrel damage and human health risk.

In regard to the risk of ricochets in shooting ranges we would once again like to refer to the German Shooting Range Guidelines:

2.5.3 Protection against rebounding projectiles
[...] With regard to the rebound behaviour and in particular to the rebound widths of lead-free alternative projectiles, there are no sufficiently reliable findings which permit an exact specification of the shuttering length (note: surfaces of hard construction materials facing the shooter have to be planked).

9 Shotgun shooting ranges
9.1 General
9.1.3 Construction materials for safety buildings
Construction materials for lead-free alternative projectiles (e.g. steel): For shooting ranges where the use of steel shot or other alternative shot is to be permitted, other construction materials may need to be defined. Their suitability has to be tested and approved by shooting on it in individual cases. In particular, the greater risk of rebound of steel shot from hard construction materials such as steel or concrete is to be considered here.

9.2.4 Ricochet
Steel shot and other substitutes for lead shot (so-called alternative shot such as zinc shot) are much more deflected and lead to up to twice as high deflection angles compared to lead shot.

According to tests done by DEVA (Deutsche Versuchs- und Prüfanstalt für Jagd- und Sportwaffen; German Testing Authority for Hunting and Sports Firearms), the ricochets of lead shots arrive up to a distance of 5m from the target, the ricochets of steel shots up to 50-60m.

To our federation's information, the risks and hazards of alternative materials have not been thoroughly technically and scientifically analysed like lead has been (including toxicology). The environmental impacts of the different industrial cycles have not been evaluated nor have the costs been. It would be disproportionate and irresponsible to ban a material without a clear understanding of the alternatives, their effectiveness, costs and impacts on human health and environment.

vi. other potential impacts stemming from the use of alternatives, e.g., discontinuation of certain products, changes in product performance, etc.

As already mentioned under Q3 iii, non-lead ammunition has a worse ballistic performance due to the different relation between density and hardness and is therefore not as accurate as lead. A European lead ban would consequently also mean a lack of comparability between European athletes and athletes from other regions of the world in international competitions, for example Olympics Games. Even if European athletes were allowed to compete with lead ammunition in other parts of the world, their training in Europe still would have to take place with lead-free ammunition and its different properties the athletes would get used to. Having no real chance of competing on an equal level with other international athletes, would result in a strong decline in shooting sport activities in whole Europe and on all levels and a reduction in the number of sports shooters. Additionally, international championships could no longer be conducted in the EU due to the rules of the international shooting sport federations and because other countries outside the EU have no necessity to use lead free ammunition.

Another unintended consequence of restricting lead would be the negative effect on the availability of lead ammunition for EU Member States, their law enforcement and defence forces but also for sports shooting activities on an international level.

Question 4: Information on other socio-economic impacts in response to a possible restriction

i. costs and benefits to affected actors, e.g. producers, professionals, consumers (including producers of alternatives). Please provide data on key economic parameters, such as profit-loss, turnover, the number of people employed, current share of products containing lead, etc.

As stated in the general comments, the "Schützenwesen in Deutschland" has been recognized as an intangible cultural heritage by the German UNESCO Commission. The shooting sport clubs and associations conserve traditions and cultural heritage and make it available for the public. This historical and living part of the regional and local identity for different generations not only in Germany but in whole Europe would be endangered if its basis, the shooting sport, would be disproportionately aggravated.

Additionally, the single members of our federation would be burdened with much higher costs for practising their sport. In individual cases, the higher costs could force members to quit their shooting sport activity and leave their club with all the negative social consequences of leaving a social fabric. Moreover, this would not only lead to negative consequences for the single member but also for the clubs in whole Europe in general as a space for being together under like-minded people independent from sex, religion, age, social status, income etc.

Finally, a decrease in membership in our federation would also result in a decrease in influence, public funding and public perception etc. with the effect that also the number of employees in our federation would be strongly endangered.

The shooting sport activities in our federation and in whole Germany are currently almost exceptionally based on the use of lead containing ammunition. A restriction on lead in ammunition would therefore mean a withdrawal of the fundament of shooting sport in Germany with far reaching negative consequences in different areas.

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