



OBSERVATIONS_2

by FITASC and ISSF/ESC,

Internationally recognized shooting sport organizations

on

ANNEX XV RESTRICTION REPORT

ECHA PROPOSAL FOR A RESTRICTION

released on 24th March 2021

on use #3 – clay target shooting sport

July 2nd, 2021



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The present document aims to clarify FITASC and ISSF (ESC) position and to comment the ECHA document named “ANNEX XV RESTRICTION REPORT – Lead in outdoor shooting and fishing”, **in view of the coming discussions on proportionality and derogations proposed by ECHA**. In the following, this will be referred to as “the ECHA document” or “the ECHA proposal”.

This document follows previous studies carried out by the FITASC and ISSF/ESC and which were realized as a contribution to:

- [the document named “Contribution of FITASC prior to ECHA’s decision regarding a possible call for restrictions on the use of lead shot at clay target shooting ranges”, dated July 17th, 2020;](#)
- [the related “Addendum by FITASC and ISSF/ESC, internationally recognized shooting sport organizations”, dated 4th May 2021;](#)
- [The related “Observations by FITASC/ISSF on Annex XV restriction report – ECHA Proposal for a restriction \(observations on use #3 – clay target shooting sport\)”, dated May 4th, 2021;](#)
- [The Excerpt of the letter from ISSF to ECHA dated 23rd December 2019.](#)

1 About all restriction options: reference to the points 34, 35, 36 and 37 of the file [“Observations by FITASC/ISSF on Annex XV restriction report – ECHA Proposal for a restriction \(observations on use #3 – clay target shooting sport\) dated 4th May 2021 ”](#)

We invite you to read our analysis of the points 34 and 35 (page 37) and our analysis of the points 36 and 37 (page 42), explaining why all restriction options for sport shooting with lead gunshot are not feasible.

2 Especially about RO3 restriction option: reference to the point 29 of the file [“Addendum by FITASC and ISSF/ESC, internationally recognized shooting sport organizations”](#)

Below an excerpt of point 29 “Addendum to 8 – 8.1 Scientific Conclusion”, written by Dr Jean-Louis Sévêque, Hydrogeochemist, Independent environmental expert and Court Expert:

“2. ECHA requires/ annual lead recovery of at least 90%. From where this number 90% comes from? What is the scientific basis? It has been shown above that if lead could be toxic for human being, the most important parameter is the biodisponibility, and mainly the gastric bioaccessibility, for lead. And what is the form of ingested lead? A bullet? Certainly not on a clay target shooting range. Gas? lead is not volatile. Dust due to the friction of lead on a pebble in the ground because of the wind? Yes, probably the only



transfer way. The question is: what is the relationship between the amount of lead in the soil and the lead dust produced? What is the bioavailability of lead dust? And so far, why 90%? In the meantime, ECHA said annual lead recovery. Once again, from where this number 1 year comes from? What is the scientific basis?”

3 Especially about RO3 restriction option: more environmental arguments in favor of allowing lead use for clay target sport shooting within the implementation of a “European Lead Management Charter for Sport Shooting Ranges”

Below an analysis written by Dr Jean-Louis Sévêque, Hydrogeochemist, Independent environmental expert and Court Expert:

1. Preamble

In general, the Annex XV restriction report of ECHA fails to systematically and critically assess, correct, and synthesise the lead health effects literature that forms the basis for the human health risk assessment to give an accurate synthesis of knowledge and uncertainty about lead health effects. This is especially relevant for complex findings from human epidemiology studies that form the basis for dose-response estimates for several endpoints.

Therefore, the Annex XV restriction report fails to present a quantitative assessment of environmental risks from leaded ammunition, using old data and old model. Regretfully, this CSR does not consider or refer to evidence provided to ECHA in December 2020 through an Exposure and Risk Assessment on Use of Lead in Ammunition (“the Ammunition CSR”; AFEMS, 2019)¹. One example to illustrate this lack of data for the qualitative assessment, which strongly evolved from 2000 to now, made to assess risks of lead ions at various scenarios for soil, surface water or underground water, birds and of course human being: the conceptual model.

We remind you that the conceptual model is a real and true inventory of the environment or of the involved site. The conceptual model offers, in general, the possibility to specify the relationships between:

1. Sources of pollution;
2. The different transfer media and their characteristics, which determine the extent of pollution;
3. The issues to be protected: the local populations, the uses of the surroundings and the environment,
4. The environments of exposure, and the natural resources to be protected.

¹ ILA submission, dated 4th May, 2021 - 18 pages



The construction of the conceptual model is based on the collection of information that may require documentary research, surveys of users of the site or the environment, and / or measurement campaigns carried out on site. None of this appears to have been done (conceptual model is never mentioned in this annex), and therefore nothing is related to conceptual model in ECHA's "ANNEX XV RESTRICTION REPORT", hence the necessary updating and complete rewrite of this annex.

ECHA should perform a more robust risk assessment using the three main parameters: source of danger, targets and routes of transfer. A more robust risk assessment is required for lead alternatives in shooting applications to better justify lead restrictions/promote alternatives for those applications like steel. ECHA has an obligation to conduct its own rigorous analysis and should not simply repeat selected opinions and findings from the literature, sometime very old data.

2. Introduction

ECHA, the European Chemical Agency, in its document named: "ANNEX to the ANNEX XV RESTRICTION REPORT - PROPOSAL FOR A RESTRICTION OF LEAD IN OUTDOOR SHOOTING AND FISHING" proposed the restriction R03 where the use of lead could be authorized under certain conditions but, with several counterparts:

- *Regular [at least once a year] lead shot recovery with [>90 %] effectiveness (calculated based on mass balance of lead used vs lead recovered) to be achieved by appropriate means (such as walls and/or nets, and/or surface coverage); AND*
- *Monitoring and treatment of surface (run-off) water to ensure compliance with the Environmental Quality Standards of the Water Framework Directive; AND*
- *[Ban of any agricultural use within site boundary]².*

At last, ECHA admits that banning the use of lead in shooting ranges is not the solution, as FITASC/ISSF have largely technically and scientifically demonstrated: this is because exposure scenarios are very important tools for improving the safe use of chemicals in Europe. They provide information on how the exposure of workers, consumers and the environment to substances can be controlled in order to ensure their safe use. And the exposure scenarios in this annexe seem not to be up to date. Thus, ECHA proposes restrictive scenarios which require a certain modulation of the proposals.

3. Management of surface (run-off) water

FITASC/ISSF definitely agree with this measure which will be a very strong incentive in the European charter that we are proposing since the beginning, to write for better lead management on shooting ranges. This position is also widely developed in the American

² This is an evidence, no discussion about that point, no agricultural use.



paper of the Electrochemical society, which title is “Experience of Lead Pollution Control in Outdoor Shooting Ranges in the United States”, published in 2021³.

We all know that lead pellets only penetrate a few centimetres into the soil after shooting. ECHA said in the above-mentioned CSR that the “soil depth” represents the depth range for the top soil layer which is of interest. In the ECHA guidance, the depth of 20 cm is taken because this depth usually has a high root density of crops, and represents the ploughing depth. For grassland, the depth is less (10 cm) since grasslands are not ploughed. Depending on the condition at the shooting range (soil vegetation, morphology, operation, ground water, climate, etc.), the inputs of Pb shot, clays material and wads are mainly accumulated in surface-close layers, i.e. in a soil depth of up to approximately 30 cm below the area’s surface, in individual cases also deeper.

And we also all know that during intense rainy episodes, the lead pellets are carried away by the runoff waters and can then reach the natural environment. It is imperative to control soil erosion and surface water runoff to prevent the migration of lead. There are two factors affecting the content of lead in surface water: the amount of lead debris and runoff speed.

Thus, it is necessary, even a requirement, to set up treatments along the rainwater evacuation pipelines to trap these lead pellets to prevent their migration into the natural environment. Many measures can be adopted to control the water flow velocity using plant and organic ground cover; implementing engineering control to reduce surface water runoff. These traps are a simple and efficient way to collect lead for its subsequent recovery. All these methods will be described in the European charter.

So, the monitoring and treatment of surface (runoff) water to ensure compliance with the Environmental Quality Standards of the Water Framework Directive must be done.

4. Lead shot management

ECHA proposes a regular lead shot recovery with at least 90 % effectiveness, and at least once a year. This restriction should be applicable only in some very strict conditions. Why? The demonstration is made by the Finnish Shooting Sport Federation (FSSF), in cooperation with the Finnish Hunters Association and the Finnish Wildlife Agency as well as few other organizations, who has published a video (<https://www.youtube.com/watch?v=MqHmB6o5EH0>) to clarify to ECHA the different shooting sport disciplines, the different kinds of shooting ranges as well as several lead management methods and techniques but, and above all, also indicates that management methods are SITE SPECIFIC. This is one of the reasons why this restriction scenario has to be better founded and ECHA must perform a more robust risk assessment for lead alternatives in shooting applications.

³ [Xu Li et al 2021 IOP Conf. Ser.: Earth Environ. Sci. 769 022014](#)



As it was mentioned above, lead pellets after firing only penetrate the soil a few centimetres. The problem of lead pollution comes, not directly from the migration of these pellets, but from the dissolution of lead and its migration *per descensum*, possibly towards the water tables. And as everyone knows, and as FITASC has chiefly demonstrated in its previous writings, one of the main factors that dominates the migration of lead in soils is pH.

The pH of the shooting area should be between 6.5 and 8.5. In this pH range, the mobility of lead is minimal and the soil does not require corrective treatment as preventive measures suffice here.

- In non-agricultural land like land of forest or moor, topsoil, closed meadows, warrens, etc. pH is generally below 6.5. While it is legally permitted to shoot lead onto these lands, the more acidic the cropland, the greater the propensity of the shot to corrode and release lead into the food chain through plant adsorption or through vertical migration toward underground water. Therefore, if no treatment of the soil is made for different valid reasons, and thus the pH remains in acidic conditions, then a regular lead shot recovery with at least 90% effectiveness, and at least once a year should be recommended. It is here only suggested to justify the value of 90%, and not to use it like a white rabbit out of a hat without scientific justification;
- Always in non-agricultural land, or in land where pH is lower than 6.5 (heather land for example), a soil treatment is required. The pH can be increased by liming the soil, i.e. by adding lime, notably limestone. Indeed, limestone reduces acidity. Liming the soil has the additional advantage of increasing soil stability. Therefore, if treatment of the soil is made e.g. by liming it, and thus the pH doesn't remain in acidic conditions then a regular lead shot recovery with at least 90 % effectiveness, and at least once a year is not useful. It does not mean that recovery is not required, but in that case the main parameter to take into account is the economic argument and thus the following question: what is the equilibrium point between money used to lime the soil and the money earned from the sale of lead after its collection? This equilibrium point should be reached after several years. FITASC will propose, in the European charter to be written, a minimum laps time for lead recovery if the soil is treated to maintain pH in neutral conditions;
- As stated, many times, ideally, the pH of the shooting area should be between 6.5 and 8.5. In this pH range, the mobility of lead is minimal (see Pourbaix diagrams) and the soil does not again require corrective treatment. So, the situation is more or less the same as the previous one, i.e. the most important parameter is the balance between lead recovery cost, without soil treatment, and the money earned from the sale of lead after its recovery? Again, this equilibrium point should be reached after several years. FITASC will also propose, in the European charter to be written, a



minimum laps time for lead recovery if the soil is not treated to maintain pH in neutral conditions.

4. Conclusion

The restriction of the use of lead in outdoor shooting is not the good and acceptable option.

FITASC, ISSF and others have widely demonstrated that the material proposed by ECHA as substitute to lead e.g. steel, is more dangerous for the environment and for human health.

Adjusting soil pH with the application of lime can reduce the mobility of lead in the soil, application which can be used as a maintenance measure of shooting range once a year. Depending on the type of shooting range type (trap, skeet, simulated game hunting, etc.), its surface, the quality of its soil (clayey, sandy, humus, ...), etc. maintenance would be very time consuming and probably very expensive, especially if it is asked to have a daily maintenance and especially if more than 90% of lead should be recovered. Therefore, it is evident that a daily maintenance is certainly too important to require intervention every day to block the possible migration of lead (see for example the lead mechanical collection chapter in FITASC addendum, written by the ARVALIS society). If you look at the CSR of ECHA of lead in ammo dossier, and even if some data are old and sometime difficult to explain, it is written that the fraction of amount of lead available for releases to the environment (migration fractions, release fraction) is only 1% per year. On this basis, it is said that after 450 years, 99% of the lead is assumed to be released. This is a worst-case assumption dependent on a corrosion rate of 1% per year.

The lead kinetic of dissolution is very slow, a yearly maintenance is possibly required, may be a greater interval time depending on several parameters, mainly pH and pH increasing above 6.5. 90% recovery of lead seems disproportionated compared to lead kinetic of dissolution.

Therefore, FITACS/ISSF propose to work on the redaction of a “European Lead Management Charter for Sport Shooting Ranges” as proposed in the contribution document of July 2020 (chapter 9), allowing the use of lead at European shooting installations that will have adhere to and that will have committed to apply this charter.

FITACS/ISSF will also propose other actions to take care about lead migration, as shown in the film mentioned before, recommendations / preconizations which will be SITE SPECIFIC, the required conditions to avoid any contamination of soils and waters by lead will be described in the European charter.



4 Reference to the general conclusion of “Addendum by FITASC and ISSF/ESC, internationally recognized shooting sport organizations”

Below is reminded our general conclusion of our document “Addendum by FITASC and ISSF/ESC, internationally recognized shooting sport organizations”:

The ISSF and the FITASC share with the European Commission the absolute need for clay target shooting sport to be part of an ecological approach to lead management in sports facilities over the long term.

In July 2020, we sent ECHA a first report (“Contribution of FITASC prior to ECHA's decision regarding a possible call for restrictions on the use of lead shot at clay target shooting ranges”) which describes in detail the possibilities for clay target shooting sport to be part of this process.

In this document, we have completed the scientific studies which clearly demonstrate that it is not necessary to ban lead, fully or partially, for clay target shooting sport since we can safely manage it on the sports ground.

You must understand that, for the clay target shooting sport, questions of ballistics are a priority, especially since to date no solution to replace lead by another metal is acceptable neither in this respect, nor on the shooters' health plan.

Contrary to what ECHA has stated, the defense of lead use by FITASC and ISSF at the clay target shooting sport does not stem from any “organizational barrier”, but this defense is sustained by crucial ballistic and sport considerations and by our strong conviction that our lead management solution will be implementable at the European scale.

Our solution of lead management on the sports installations (i) fulfills an ecologic aim, AND (ii) meets the requirements of the clay target sport shooting as well as the needs of sports shooters, who, we are sure, will support its implementation.

Our solution is implementable because we now have a perfect knowledge of a scientifically grounded lead management, thanks to the work of the scientists consulted, and there are possibilities offered by the sport installations to apply the requirements of a European Charter to manage the lead.

With the scientists we have consulted, we are ready to cooperate with your scientist team to work on the redaction of a “European Lead Management Charter for Sport Shooting Ranges” as proposed in our contribution document of July 2020 (chapter 9).

Jean-François PALINKAS

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