STATUS OF AMMUNITION AND COMPONENTS OF AMMUNITION IN THE REACH REGULATION

Version 3

PROFESSIONAL GUIDANCE

Paris, 07 November 2016

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NEW ISSUE	BRIEF DESCRIPTION OF THE CHANGE	DATE
V2 A	Creation	07/25/2009
V2 B	Update according to the Guidance on requirements for substances in articles, version 2, April 2011	12/03/2013
V2 C	Page 18: Concerning “Explosive ammunitions” §2, in the column Classification of object: replace “Article with an integral substance/mixture” by “Substance/mixture”	07/07/2014
V3	Update according to the Guidance on requirements for substances in articles, version 3, 2015 Integration of changes from exchanges with ASD and EDA	11/07/2016

FOREWORD

Since the implementation of REACH on 1st June 2007, the European Commission via the European Chemicals Agency (ECHA) has made available to industry the necessary information and the tools to assist producers, importers and downstream users in fulfilling their duties under the Regulation.

To help producers or importers determine whether their products are "a combination of an article (functioning as a container) and a substance/mixture" or "articles", ECHA has prepared the "Guidance on requirements for substances in articles" (ECHA-11-G-05-EN). This guidance provides flowcharts for "borderline cases" and application examples in order to help determining the correct status of the objects.
Nevertheless, these examples can be ambiguous.

Therefore, and to ensure a uniform implementation of REACH in the field of ammunition industries, GICAT REACH Working Group (GICAT being an association for the land armaments industry) edited a professional guide specifically on ammunition status in 2009. An updated version was written in 2013 to take into account the updated ECHA guidance version 2 from April 2011.

After the ECJ ruling in case C-106/14, a further version 3.0 was edited in December 2015 to make quick corrections to all sections with reference to the 0.1 % limit.

Since the end of 2013, the status of certain ammunition types became a European discussion amongst ASD's (Aerospace and Defence Industries Association of Europe) REACH working group, DG Enterprise (now DG Market) of the European Commission and EDA (European Defence Agency).

To improve the understanding of our arguments with regard to the status of certain ammunition types under the REACH regulation and to reply to a request of the French MOD, GICAT REACH Group worked towards

- Dividing ammunition into more general types including sub-components that may be considered as articles,
- Illustrating the functioning(s) of the ammunition by photographs or diagrams
- Answering in detail all questions of the flowchart of the ECHA guidance on articles with precise explanations for every ammunition type.
- Participating at debates organized in Brussels by EDA to discuss with both members of European MoDs and industrials

The aim of this updated version of our guidance is to compile all the information presented so far in order to, in a near future, be used by other European Industry Defence Associations when discussing with the European Commission and ECHA. The guidance puts forward arguments why most ammunition types are best classified as articles with integral substances/mixtures except for few special cases.

Currently, GICAT REACH Working Group is composed of experts from Etienne LACROIX, NEXTER MUNITIONS, EURENCO, AIRBUS SAFRAN LAUNCHER (ex HERAKLES), TDA, MBDA, DAVEY BICKFORD and JUNGHANS-T2M.

The present guidance has received the agreement of:

- the French association of manufacturers of explosives, pyrotechnics and fireworks, SFEPA, representing 28 companies,
- The Aerospace and Defence Industries Association of Europe, ASD REACH Implementation Working Group, representing 28 member associations in 20 countries,
- BDSV (Bundersverband der Deutschen Sicherheits and Verteidigungsindustrie), the REACH Working Group of the Federation of German Security and Defence Industries, representing over 220 companies (including subsidiaries).

This guidance, if necessary, may be presented as a supporting document during controls to the administration as well as to insurance companies and customers if requested.

CONTENTS

GLOSSARY

OBJECT: may, in principle, refer to any product in the supply chain

ARTICLE: is generally understood to be an object which during production is given a specific shape, surface or design which determines its function to a greater degree than does its chemical composition (definition taken from the REACH regulation).

An article may in turn be made up of an assembly of articles.

AMMUNITION:

"*In a weapons system, object charged with explosive substances which produces propellant, explosive, armor-piercing, incendiary, illuminating, smoke producing, audible or other special effects or a combination of these."* (Definition from the "Dictionnaire de la Pyrotechnie" Pyrotechnics dictionary edition 6, published by GTPS)

INTENDED RELEASE OF SUBSTANCES BY AN ARTICLE: (§3.1 of ECHA guidance on requirements for substances in articles version 3.0 - December 2015)

"A release of substances from articles is intended if it fulfills an ***accessory function*** *(to be differentiated from the main function) which is deliberately planned and would not be achieved if the substance were not released. Consequently, substances that are released because of ageing of articles, because of wear and tear or as an unavoidable side-effect of the functioning of the article, are generally not intended releases, as the release as such does not provide a function in itself."*

"If the release of a substance from an object fulfills the main function of the object, the release is not regarded as an "intended release" for the purpose of REACH. In this case the object usually would be considered as a combination of an article (functioning as a container or a carrier material) and a substance/mixture, and not as an article with intended release of a substance/mixture."

"An intended release of a substance from an article has furthermore to occur under (normal or reasonably foreseeable) ***conditions of use****. This means that the substance release has to occur during the service life of the article. Hence, a substance release during the "production" or "disposal" phase of the article's life cycle is not an intended release."*

PRODUCER OF AN ARTICLE (Article 3 from REACH regulation): means any natural or legal person who makes or assembles an article within the Community

MANUFACTURER (Article 3 from REACH regulation): means any natural or legal person established within the Community who manufactures a substance within the Community

STB (French title: Specification Technique de Besoin): "Technical Requirement Specifications" defined by the customer to the attention of its supplier. It is a contract between the customer and its supplier.

1 - The REACH regulation: the fundamentals

REACH is a European regulation (EC) n°1907/2006 for the mandatory **R**egistration, **E**valuation, **A**uthorisation and **R**estriction of **Ch**emical substances marketed, manufactured or imported on European Union (EU) territory extended to the European Economic Area. It maintains the pre-existing system of restrictions on certain substance's use.

The text of the REACH Regulation is the only authentic legal reference.

REACH's main objectives are to improve the protection of human health and the environment against the risks which chemicals may represent, promote alternative test methods, the free circulation of the substances within the internal market, and reinforce competitiveness and innovation.

This REACH regulation is based on the principle that the economic actors like producers, importers and downstream users have an obligation to ensure that all risks are correctly controlled during manufacture, marketing and use of substances which are hazardous for human health or the environment. These measures are based on the precautionary principle.

Thus, the **assessment whether a substance/mixture/article poses a risk to human health or the environment is the responsibility of the producers and importers concerned (and not of the EU Member States[1] as it was under the previous chemical law system) with mandatory sharing of data** to minimize the tests necessary. In parallel to this, the European Union may take additional measures (authorization or restriction of use) concerning Substances of Very High Concern (SVHC) when additional action is necessary at European level.

REACH introduced an unprecedented change in the way information is exchanged on the substances throughout the supply chain. Each actor must reinforce the traceability of the substances he uses and ensure that its uses fall within the Exposure Scenarios taken into account by the suppliers.

REACH is a regulation and not a directive. It is therefore not transposed into the national laws of the Members States of the European Union. Instead, these member States may need to amend their regulatory system to integrate the corresponding new measures and requirements.

The ECHA Guidance differentiates objects into 4 different types:

- the object may be a substance or a mixture
- the object may be *a combination of an article (acting as container or carrier material) and of a substance or a mixture* (cf. last paragraph page 14 of the ECHA Guidance Version 3.0)

[1] Except when the services of the States directly import products from outside the European Community

- the object may be *an article with an integral substance/mixture (i.e. the substance or the mixture is an integral part of the article* (cf. page 15 of ECHA Guidance, Version 3.0)

- the object may be an article with an integral substance/mixture whose intended release (without any chemical transformation) fulfills an additional function.

  Notice: **the concept of a combination of substances and article does not exist in the REACH regulation. It appears only in the ECHA Guidance on articles, which does not constitute a legal advice.**

2 - Duties of the REACH regulation

2.1 Concerning "substances and mixtures":

All chemical producers and importers must identify and manage the risks of their substances they produce or market. For substances produced or imported in quantities over 1 ton per year and per company, they must demonstrate this in a **registration dossier** which must be submitted to the European Chemicals Agency (ECHA).

The ECHA checks that the registration dossier complies with the REACH regulation and must approve the manufacturers' test proposals and ensure that they are limited to what is necessary and sufficient.

REACH also provides an **authorization system** to ensure that substances of very high concern are correctly controlled and progressively replaced by appropriate substances or technologies when this is economically and technically viable.

In addition, the EU authorities can propose **restrictions** on the manufacture, use and marketing of substances causing an unacceptable risk for human health and the environment.
EU Member States are responsible for **ensuring that the REACH regulation is respected** by inspections which may result in penalties in the event of unjustified non-application.
Registrations and authorizations will result in the obligation for manufacturers to produce and exchange the information required on the hazards (intrinsic or not) of their substances and the risks associated with the uses.

2.2 Concerning "articles"

According to REACH, an "article" means an object which during its manufacture is given a specific shape, surface or design that determines its function(s) to a greater degree than does its chemical composition (article 3.3). In such a case, the contained chemical substances are considered to be integral parts of the article.

The function of the article is associated with a specific use **and is determined by what its producer / supplier wants it to be used for and what the end user acquiring it expects**

it to do. Defining clearly the function the article is intended to fulfill and designed for is a key step in the determination whether the object is an article under REACH or not.

For substances, that are integral parts of the article, but that are intentionally released to fulfill an additional function, there are registration duties according to article 7:"*Any producer or importer of articles submits a registration to the Agency for any substance contained in those articles if both the following conditions are met:*

a) The substance is present in those articles in quantities totaling over one ton per producer or importer per year;

b) The substance is intended to be released under normal or reasonably foreseeable conditions of use".

Thus, only the substances intentionally released without chemical transformation are required to be registered by the producer or importer when the annual quantity produced or imported exceeds 1 ton.

In addition, according to article 2 paragraph 7, point b of the REACH regulation, registration is in general not required in the following cases:

"*The following shall be exempted from titles II, V, VI:*

> *(a) Substances included in Annex IV, as sufficient information is known about these substances that they are considered to cause minimum risk because of their intrinsic properties;*
>
> *(b) Substances covered by Annex V, as registration is deemed inappropriate or unnecessary for these substances and their exemption from these titles does not prejudice the objectives of this Regulation;"*

And the annex V outlines the *"exemptions from the obligation to register in accordance with article 2(7) (b):*

> *1. Substances which result from a chemical reaction that occurs incidental to exposure of another substance or article to environmental factors such as air, moisture …*
>
> *3. Substances which result from a chemical reaction occurring upon end use of other substances, mixtures or articles and which are not themselves manufactured, imported or placed on the market."*

Consequently, reaction products are exempted from the registration obligation but not from all requirements of REACH.

2.3 Concerning "combinations of substances/mixtures and articles"

When the object acts mainly as a container for the released or controlled delivery of the contained substances/mixtures, even when these substances are transformed during the use or functioning of the object, the substances are considered by REACH to form a combination with an article acting as a container or carrier material. If such an object is imported into the EU, each of these substances is then subject to the REACH registration obligations, if the quantities exceed one ton/year per substance.

The separation line between an "article" (which contains integral chemical substances) and a "combination of substances and article containing or carrying them" may in some cases be difficult to determine.

These "borderline cases" must receive a special attention: ECHA has published its "Guidance on requirements for substances in articles", version 3, December 2015 to help producers and importers in these cases (cf. chapter 3).

For a producer or importer, determining whether the products are "combinations of substances and articles" (that means substances contained or carried in an article) or "articles" (that means substances which are an integral part of the article) may have significant consequences. The producer or importer must therefore be able to fully demonstrate and justify its status choice in light of the dispositions of the REACH regulation.

This determination process is highly dependent on what is assumed to be the main function of the object, keeping in mind that this function is "what its producer / supplier wants it to be used for and what the end user acquiring it expects it to do" (as stated by ECHA answer to questions of EDA on a document from the 25 November 2015: EDA/TASK FORCE QUESTIONS TO ECHA and RELATED ECHA ASWERS/CLARIFICATIONS ON CLASSIFICATION OF ARTICLES UNDER REACH).

3 - ECHA "Guidance on requirements for substances in articles"

Therefore, to help producers and importers, ECHA has written the "Guidance on requirements for substances in articles". This guidance, now updated, has provided tools for this determination process, particularly flow charts to deal with borderline cases, and examples of application.

However, as noted in the guidance's warning, the information provided in the guidance, does not constitute legal advice. In contrast to the REACH regulation, the guidance is not binding law.

The updated guidance of April 2011made significant changes, particularly concerning the flow charts which take priority and which producers should use to decide on their products status (cf. appendix 1 of the guidance called: *borderline cases of substances/mixtures in containers or on carrier materials*).

However, in the spirit of the REACH regulation, it is the producers of articles who determine the status of their products under REACH. No other authority has the mandate to approve of such classifications. Accordingly, defining the status of an object under REACH is under the producer's sole responsibility and it is their good faith – backed up by defendable arguments – which will be taken into account in the event of contestation.

A fast-track updated version 3.0 was written in December 2015 to take into account the conclusions of the judgement of the Court of Justice about the 0.1% limit.

A draft of version 4.0 is on consultation.

4 - Ammunition and REACH

4.1 Operation of ammunition

Reminder:

Ammunition consists of component substances, component mixtures and/or component articles.

Under the action of an appropriate stimulus, the ammunition will fulfill a defined function, by combustion, deflagration, detonation, or reaction with the ambient environment of the substances, mixtures or component articles which constitute the ammunition, causing exothermic chemical transformations resulting in the decomposition of the different component substances and mixtures which disappear from the ammunition (generally in a few millisecond) and are replaced by reaction products, mainly H_2, H_20, NO_x, CO_x, various oxides, etc. (representative of the component substances, mixtures, articles but which are of a completely different chemical type and therefore also have completely different physical, chemical, toxicological and ecological properties).

The substances generated during the functioning of the ammunition are exempted from registration duties under annex V of the REACH regulation (article 2, §7, point b).

Only ammunition which intentionally releases chemical substances without transforming them (nota: a change of physical state of a released substance does not alter the nature of the substance (e.g. sublimation of a smoke colorant)), and those which are classified as a container of chemicals are covered by the REACH registration requirements.

These consist in: before the 1st December 2008, pre-register the substances concerned, then, register these substances and take part in the forums (SIEF) intended to exchange the data required relating to the toxicity of the substances in question for all the exposure scenarios reasonably possible.

Therefore, it is mandatory to **correctly define the object's function**. An incorrect definition may result in an object being classified as a "substance contained in an article" when it should be classified as an "article containing substances" with a more suitable definition.

For example, defining an artillery shell too generally as an object whose function is to explode may result its classification as a combination of substances/mixture and an article;

whereas if the definition of its function specifies that the explosive is intended to destroy a target with a combination of blast an d fragmentation or shaped charge effect, the classification outcome would be quite different (i.e that it is likely an article with integral substances). All these artillery shell architecture differences would result in distinctions of use in operational service: the different architectures then have different corresponding functions to be fulfilled.

Determining the exact and targeted function of a given type of ammunition **must be guided by a concern for technical objectivity**, particularly by placing the emphasis on why the ammunition can no longer fulfill the same function if it is designed differently. **Of course, the aim of classification must in no way be to try to escape the REACH requirements.**

Even if their ammunition is undoubtedly declared as "articles with integral substances", this, however, does not limit producers in their duty to ensure that their chemical substance suppliers, manufacturers or importers have carried out the necessary pre-registrations – and the registrations – within the required time limits, since otherwise they would no longer be able to get supplies in the short term.

Finally, whatever the status of the ammunition, it is necessary to check if the chemical substances used are on the list of candidate substances for authorization. If this is the case, the manufacturer must be able to inform his customer of the presence of these substances in the ammunition if the concentration is greater than 0.1 % weight/weight in any given component. A special effort must be made to ensure that these lists of substances are kept updated.

4.2 The REACH obligations in relation with the ammunition classification

The table presented in annex 1 describes the REACH obligations in relation with 4 cases of ammunition status and in relation with 4 statuses of the company concerned.

This table was realized after the meeting on May 2016 organized by EDA. It was requested by EDA to summarize information on the different classification categories and corresponding consequences on requirements/obligations under REACH (potentially including specific examples from ammunition categories).

4.3 Deciding what is the status of an ammunition under REACH

4.3.1 Types of ammunition analyzed:

Ammunition has been classified into different generic types according to the following list:

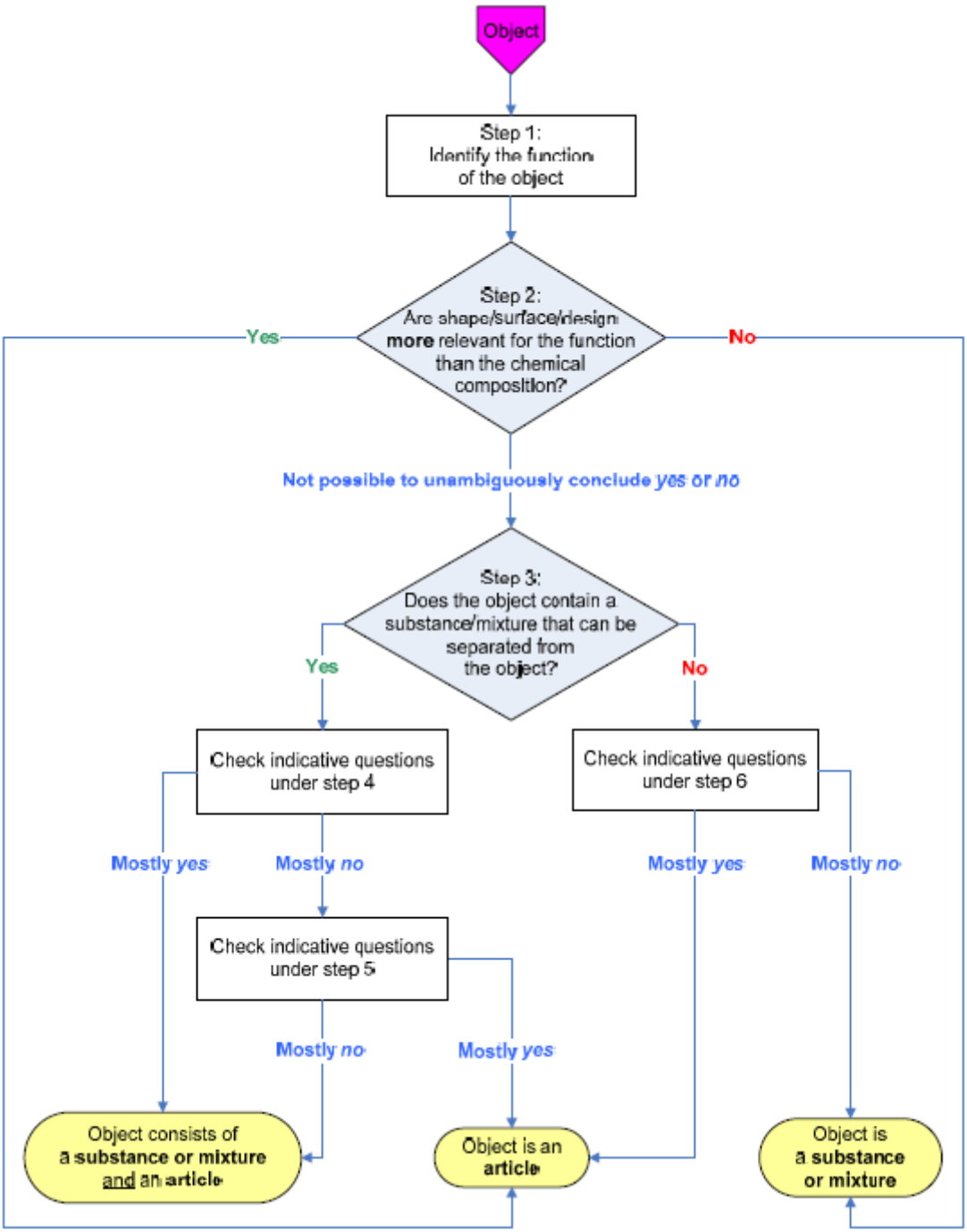
- Explosive with or without a defined shape
- Propellant with or without a defined shape as powders for weapons

- Explosive ammunition
- Self-propelled ammunition
- Fixed or projected illuminating ammunition and pyrotechnics (and signaling pyrotechnics)
- Smoke ammunition
- Emitting decoys
- Passive decoys
- Practice ammunition
- Armor-piercing ammunition
- Pyrotechnic cords
- Pyrotechnic (or energy) components and devices
- Physiological-effect ammunition
- Special-effect ammunition
- Gas generators

This list does not claim to be exhaustive, or that there are no overlaps between certain types of generics listed. However, it covers most known ammunition types and particularly those produced in or imported into France.

4.3.2 Tools to analyze ammunition:

The diagnostic of the status of the ammunition in relation to REACH must be carried out professionally, using all expertise available and intellectual integrity. It is broken down chronologically as shown in the flow diagram on the next page to answer the question "is the ammunition an article or not?" (Figure 2 from page 13 of ECHA guidance on articles version 3.0)



The **first question** the company must answer is the following:

Step 1: Identify the function of the object.

Step 2: Are the shape, surface and design of the ammunition more relevant for the function than its chemical composition?

If yes, the object is an article.

If no, the object is a substance or a mixture.

This flowchart shows the importance to clearly define the function(s) of the ammunition in its normal conditions of use.
"Function" means what is expected of the ammunition by its customer or user – its "final effect" or "terminal effect" (why it was designed) and for what purposes. The analysis of the elements providing the ammunition's performances may be a key element for answering the question.

If it is not possible to unambiguously conclude whether the answer is yes or no, proceed with step 3.

Step 3: Does the object contain a substance or a mixture which can be physically separated from the object (e.g. by pouring it or by extracting it)?

If yes, proceed with the questions in step 4, otherwise proceed with step 6:

Step 4:

"Question 4a: If the substance/mixture were to be removed or separated from the object and used independently from it, would the substance/mixture still be capable, in principle (though perhaps without convenience or sophistication), of carrying out the function defined in step 1?
Question 4b: Does the object act mainly (i.e. according to the function defined under step 1) as a container or carrier for the release or controlled delivery of the substance/mixture or its reaction products?
Question 4c: Is the substance/mixture consumed (i.e. used up e.g. due to a chemical or physical modification) or eliminated (i.e. released from the object) during the use phase of the object, thereby rendering the object useless and leading to the end of its service life?

If you can answer these questions predominantly with yes (i.e. 2 of 3) rather than no, then the object should be regarded as a combination of an article (functioning as a container or a carrier material) and a substance/mixture."

If not, check the questions in step 5.

Step 5:

"Question 5a: If the substance/mixture were to be removed or separated from the object, would it be unable to fulfill its intended purpose?
Question 5b: Is the main purpose of the object other than to deliver the substance/mixture or its reaction products?
Question 5c: Is the object normally discarded with the substance/mixture at the end of its service life, i.e. at disposal?"

If you can answer these questions predominantly with "yes", then the function of the object is likely to be determined rather by the physical properties of shape, surface and design, than by the chemical composition. The object is then regarded as an article with an integral substance/mixture (i.e. the substance/mixture forms an integral part of the article).

If you can answer "no" to most of these questions (i.e. 2 out of 3), the object is then regarded as a combination of an article (acting as a container or carrier material) and a substance/mixture.

Step 6:

"Question 6a: does the object have a function other than being further processed? If the object predominantly has other functions (i.e. end-use functions), then this may be an indication that it is an article according to the definition of REACH.
Question 6b: does the seller place the object on the market and/or is the customer mainly interested in acquiring the object because of its shape/surface/design (and less because of its chemical composition)? If the object is mainly put on the market or acquired because of its shape/surface/design, this is an indication that the object is an article.
Question 6c: when further processed, does the object undergo only "light processing", i.e. no gross changes in shape? "Light processing", such as drilling, surface grinding or coating, may improve or modify an object's shape, surface or design for carrying out a function and is thus frequently applied to objects which are already articles. Thus, if only "light processing" is applied, this is an indication that the object is an article. Processes leading to gross changes in shape, meaning changes of depth, width and height of an object, are not regarded as "light processing". These can for example be primary shaping processes (such as casting or sintering) or forming processes (such as extrusion, forging or rolling). If the object preserves at least one of its characteristic dimensions (depth, width and/or height) when further processed, the process can be regarded as "light processing".
Question 6d: when further processed, does the chemical composition of the object remain the same? A change of the chemical composition in the next processing steps may indicate the object is a mixture. However, some treatments of an object which is an article may result in a change in its overall chemical composition, but not in its status of being an article. Examples are printing onto the surface, painting, applying coatings, dyeing, etc.

Not all questions may apply to all objects and the weight of evidence of the answers to the questions may vary from case to case. However, in concluding whether or not the object is an article, the answer to various of the relevant indicative questions should be considered and not only the answer to one of them. Predominantly answering "yes" to the questions indicates that the object is an article. Predominantly answering "no" to the questions indicates that the object is a substance or mixture.

Specific case (for ammunition considered to be articles containing one or more integral substances/mixtures): ask yourself the following question: are substances released intentionally? (See definition of "intended release of substances by an article" in the glossary p.5)

If yes, the substance released must be pre-registered, then registered (if the annual quantity consumed exceeds 1 ton per year per substance and if it has not already been registered by a third party for the same use).

If no, there is no obligation for the manufacturer or importer of the article to register the substances it contains.

4.3.3 Examples of arguments to lead the analysis with the flowchart:

These examples of arguments have to be chosen and adapted in function of the specifications of the ammunition.

4.3.3.1 Step 1: Identify the function of the object.

The function of an object can be roughly determined by analyzing what its producer/supplier wants it to be used for and what the end user acquiring it expects to do.

The functions of ammunition expected by the operational staff of the armed forces are clearly transcribed in the Customer's STB. To lead this analysis, it will be useful for the producer to refer to the STB.

The functions required by the customer are transcribed in the following way: destroy a target, propel an object, illuminate a battlefield, camouflage a target, signal a position, allow training …In contrast, the wording “explode”, “generate gas”, generate light”, or “generate smoke” or “release a substance” would be unusual in a customer’s use description and should therefore not be used for determining the ammunition’s function since they only describe the means to achieve the function expected by the user but not the function in itself. Accordingly, these terms are too restrictive, do not match all the specified requirements of the function of an ammunition and may produce misleading results in REACH analysis.

For a given type of ammunition, several functions are required, and are often equally important.

Generally, it's possible to identify generic requirements for all ammunition like:

- Interface with a system (weapon barrel, launcher, etc.).
- Function at a defined distance in relation to a specific target,
- Develop effectiveness within a specified delay, for a specified duration and with a specified volume
- Function effectively in a defined spectral range for the ammunition concerned
- Incorporate RAMS (Reliability, Availability, Maintainability and Safety)
- Incorporate safety conditions acceptable to the user (the function must be effective only when the conditions are met and prohibited in all other conditions, which implies an architecture organized around a device intended to obtain the desired effect),
- Withstand the stresses met during all its life phases.

Some examples below, shall be used to illustrate this point:

- For smoke ammunition: to camouflage a target by preventing the propagation of electromagnetic radiation in a certain space area and allowing troops and materiel

(equipment, vehicles, etc.), to move in daylight or at night without the enemy is able to perform accurate locating.

- For incendiary ammunition: to destroy targets or combustible materials, to cause the combustion of materials, to weaken the mechanical characteristics of metal objects.
- For a signaling device: to generate a visual effect to follow the trajectory of a projectile in the day and at night, to transmit a coded message (colored smoke producer), to delimit a particular area
- For a training grenade: to simulate every effects of a real grenade (handle, implementation, ignition system, sound effect, etc.)

4.3.3.2 Step 2: Are the shape, surface and design of the ammunition more relevant for the function than its chemical composition?

If we can unambiguously conclude that the shape, surface or design of the object is more relevant for the function than its chemical composition, the object is an article.

For example, in the case of an ammunition for vehicle protection, if you substitute a smoke pyrotechnic composition by another one, you could still obtain the function of camouflage of the vehicle with more or less efficiency. In contrast, if you change the external shape of the ammunition, you couldn't interface it with the system specified.
Therefore, the shape/form/design is in this case more important than the chemical composition of the ammunition (which leads to it being classified as “article”).

Other arguments to answer yes at this step could be:

- The external shape of the ammunition is one of the most important points to interface with a system (weapon barrel, launcher,…),
- The surface of the ammunition must have the highest quality, it is also an important point to avoid problems in the gun chamber and to reach the required range,
- The ammunition is designed, for safety and efficiency requirements, to prevent the unintentional operation, to arm at the required time in order to enable the pyrotechnic train to operate and to function as asked for in the requirements described in step 1,
- In order to guarantee the required functions and effects, a specific architecture of the ammunition cartridge is needed to provide special confinement leading to optimized reaction (combustion, detonation, reaction with the ambient environment,…):
    - The nature and the thickness of the body, the diameters of the vents~~,~~
    - The specific form of the pyrotechnic object
    - The compression rate of the mixture, the density and the homogeneity, the specific form given to the mixture (cylinder of a specific geometry, often equipped

with a central duct, making it possible to ensure the specified reaction speed law and the mechanical acceleration resistance characteristics).

For all these reasons, in most cases of ammunition types, the answer is “yes”, i.e. the shape, the surface and design of the ammunition is more relevant for the function than its chemical composition.

Accordingly, continuing the discussion with the other steps described below is not necessary for most ammunition types but only for the borderline cases of such ammunition types where a deeper assessment is needed.

4.3.3.3 Step 3: **Does the object contain a substance or a mixture which can be physically separated from the object (e.g. by pouring or wringing out)?**

In most ammunition types, the answer to this question is “**NO”** for 2 main reasons:

The pyrotechnic substance or composition is often formed directly in the object by melt cast or compression in a metal, ceramic, plastic or cardboard body.
Separate them is not physically possible without damaging the pyrotechnic substance or composition with limited technical means like “pouring or wringing out “ as suggested in ECHA Guidance.

Dismantling ammunition to separate the substance/mixture which it is not designed to do, generates a pyrotechnic risk which could lead to a pyrotechnic incidental reaction (especially when the substance or mixture is an primary explosive). To limit as much as possible the risk of a pyrotechnic incidental reaction, highly sophisticated technical tools in a specialised industrial environment workshop are necessary and of course, it will generate an human and/or environmental exposure to the pyrotechnic substance/composition.

In normal conditions, for safety reasons, it is forbidden to separate pyrotechnic composition from the ammunition.

Accordingly, the answer to this question is usually “**NO”** since the pyrotechnic substance or composition cannot be physically separated from the object in most ammunition types, and we have to proceed directly with step 6 (and skip steps 4 and 5).

The answer is “**YES**” for few cases of ammunition which are designed to be dismantled (see examples in the table in annex 2).

Accordingly, the answer to this question is usually “**NO”** since the pyrotechnic substance or composition cannot be physically separated from the object in most ammunition types, and we have to proceed directly with step 6 (and skip steps 4 and 5).

4.3.3.4 Step 4:

If it is possible to physically separate the substance/mixture from the object (which usually is not possible in most ammunition types), we have to apply the STEP 4 a, b, c. The purpose of the questions of this STEP 4 is to determine if the object contains a substance/mixture for which the rest of the object is a container or carrier material.

The following on this step is only for the border line cases where it is impossible to answer yes to the step 2 which should be analyzed case by case.

Question 4a: If the substance/mixture were to be removed or separated from the object and used independently from it, would the substance/mixture still be capable, in principle (though perhaps without convenience or sophistication), of carrying out the function defined in step 1?
This question should be analyzed case by case.
In a large majority of ammunition, the answer to this question is **NO,** because, once the substance/mixture is removed, it is often unable to perform the functions expected of the ammunition (required in the STB and defined in step 1).

To illustrate this, imagine a smoke mixture that was removed from the ammunition (if such was possible in safety conditions) and laid on the ground, and operated outside the ammunition. In this case, the pyrotechnic compositions would not produce the correct fragmentation effect on the shell body, and thus fail to meet one of its main functions for camouflage. In a battle situation, the user would be a dead man before he had started….

Question 4b: Does the object act mainly (i.e. according to the function defined under step 1) as a container or carrier for the release or controlled delivery of the substance/mixture or its reaction products?
This question should be analyzed case by case.
Usually, the answer to this question is **NO**, because, the ammunition is constituted of:

- shell body to interface with the barrel, to withstand the stresses generated by the impulse of the shot and the impact on the ground, to protect the payload from all the stresses encountered, to give the required fragmentation (petals)
- fin to ensure projectile stability
- driving belt to insert the projectile in the tube, to prevent gas leakage between projectile and barrel, to ensure projectile spinning for stability
- bursting charge perfectly defined to enable the required bursting of the body leading to an optimal functioning
- impact fuse to have a chronometric function to prevent the unintentional operation and to arm at the required time
- pyrotechnic composition perfectly defined to give the required function leading to the required effect

By naming the above listed ammunition parts, we want to highlight the fact that ammunition clearly is not mainly a container for the release or controlled delivery of the substance/mixture or of its reaction products, because there are many other integral parts of an ammunition that are necessary for its being able to perform its main function but which are not at all linked to “releasing” or “delivering” substances or reaction products.

Thus, all the previous named items and the number of design criteria required for the ammunition (including smoke ammunition) to function correctly, lead to the answer NO.

Accordingly, ammunition usually does not act mainly as a container or carrier for release or controlled delivery of the substance/mixture or of its reaction products.

Furthermore, this question asks about “release or controlled delivery of the substance mixture or of its reaction products”. Usually, the functioning of an ammunition leads to fragmentation of the body or a part of the body and to an instantaneous reaction (in a few milliseconds) of its integral substances/mixtures in order to form other reaction products. These will condense and recombine in solid, liquid and gaseous particles with, for many cases, a precise shape (in order to remain in suspension in the ambient environment), a defined size, a precise emission ray (between 0.4 and 0.8 µm will be effective in the visible spectrum, between 3 and 12 µm in the infrared spectrum), a narrowly defined concentration (in order to generate different optical properties), and/or a specific nature (in order to absorb or diffuse according to the effect sought) to comply with the required function and effect. Thus, in quite a number of cases, there is no release of “substances/mixtures or reaction products” from ammunition, but many ammunition types release articles instead. Per definition, the answer to the question in such cases is NO.

In summary, for most ammunition types, the release of a substance/mixture/of reaction products (if such happens) is only one part of the main function of the ammunition types in questions but certainly not **the** main part. If ammunition was designed as a simple container releasing substances/mixtures/reaction products, it would in most cases not be fit to fulfill the functional required asked for by the customers and described previously in step 1.

Question 4c: Is the substance/mixture consumed (i.e. used up e.g. due to a chemical or physical modification) or eliminated (i.e. released from the object) during the use phase of the object, thereby rendering the object useless and leading to the end of its service life?
This question should be analyzed case by case.
Usually, the answer to this question is **YES,** because the integral substances of ammunition are consumed or eliminated during the use phase, since the operation of the ammunition leads to the chemical reaction of the relevant substances (with the destruction of the architecture in the same time). One exception to this general rule might be practice grenades that can be reloaded with the substance several times.

4.3.3.5 Step 5:

Step 5 is a reversion of the questions used in step 4 to verify the outcome one has achieved in step 4. Thus, one only needs to apply this step if the answers to STEP 4 received a majority of NO.

Question 5a: If the substance/mixture were to be removed or separated from the object, would the object be unable to fulfill its intended purpose?

The answer to this question is **YES,** because no ammunition type will correctly function without its integral pyrotechnic substances or mixtures.

Question 5b: Is the main purpose of the object other than to deliver the substance/mixture or its reaction products?
This question should be analyzed case by case.
However, in most cases, it is correct to answer **YES**, because the ammunition type in question is usually designed to ensure the functions defined on step 1 which go well

beyond simply “delivering the substance/mixture or its reaction products” like a simple container.

Question 5c: Is the object normally discarded with the substance/mixture at the end of its service life, i.e. at disposal?"

Usually, the answer to this question is **YES.** Indeed, if the ammunition is used correctly, there is no “disposal” of the ammunition because when it is fired or dropped after firing (in a battle area, in the sea or after an ejection from a plane …), the object emptied of its integral substances/mixtures is either destroyed or nor be recovered.

According to an answer of ECHA to EDA, disposal of unused ammunition cartridges is not to be seen as “normal service life” of ammunition. In consequence, this option (where the substances may indeed still be present in the cartridge) is not to be taken into account here.

At the end of Steps 4 and 5, the status of a product either as an article with an integral substance (be it subject to intended release or not) or as a combination of a substance/mixture and an article acting as a carrier material or container **is finished**.

4.3.3.6 Step 6:

Step 6 is used to determine whether an object is either an article with an integral substance (be it subject to intended release or not) or a substance/mixture or semi-finished good. Thus, this step applies for example to different stages of aluminum processing, of textile and non-woven processing, polymer processing or paper processing (see examples in ECHA guidance). **In contrast, Step 6 has nothing to do with the classification of an object as “container”.**

Step 6 can only be applied if the answer to STEP 3 is NO, i.e. the object cannot be physically separated from the substance or mixture that it contains.

Question 6a: does the object have a function other than being further processed? If the object predominantly has other functions (i.e. end-use functions), then this may be an indication that it is an article according to the definition of REACH.
This question should be analyzed case by case.
Usually, the answer to this question is **YES** since pyrotechnic components, e.g. delay elements, are “finished” products that can be directly assembled into the finished ammunition and they do not need re-working or continued production (as would be the case for, e.g., aluminum rolling ingots).

Question 6b: does the seller place the object on the market and/or is the customer mainly interested in acquiring the object because of its shape/surface/design (and less because of its chemical composition)? If the object is mainly put on the market or acquired because of its shape/surface/design, this is an indication that the object is an article.
This question should be analyzed case by case.
Usually, the answer to this question is **YES**, especially when the ammunition is adapted to a specific armed system.

Question 6c: When further processed, does the object undergo only "light processing", i.e. no gross changes in shape?
Usually, the answer to this question is **YES** since pyrotechnic components are not further processed at all and certainly not subject to gross changes in shape when assembled to ammunition.

Question 6d: When further processed, does the chemical composition of the object remain the same?
Usually, the answer to this question is **YES** since pyrotechnic components are not further processed at all and therefore not subject to change of its chemical composition.

Unfortunately, and as it is noticed in the ECHA guidance on articles, "not all questions of step 6 may apply to all objects" and they are not really adapted to being apply to an ammunition, but are mostly adapted for objects which shall be processed…

However**, if the answers are predominately YES, this indicates that the object is an article.**

4.3.4 Analysis of ammunition:

The table on the following pages indicates how the status of the previous different generic types of ammunition are determined for components, subsytems and systems, using the method described in paragraph 4 of this guidance. It is organized in columns giving for each type of ammunition or sub parts respectively:

- the number of the line,
- the generic type name of the ammunition or of the sub parts,
- a few examples illustrating the types of ammunition or sub parts, without claiming to be exhaustive,
- step 1: description of the main function of the object,
- step 2: the answer to the question: "*Are the ammunition's shape, surface and design more relevant for the function than the chemical composition?*", i.e.: "YES", "NO" or "BORDERLINE CASE", with – where applicable – a short explanatory comment,
- step 3: the answer to the question regarding whether the substance or mixture can be separated from the object,
- step 4: the answers to questions 4a, 4b, 4c,
- step 5: the answers to questions 5a, 5b, 5c
- step 6: the answers to questions 6a, 6b, 6c, 6d,
- the resulting classification of the object after the analysis : either as a substance, as a mixture, as a "combination of an article and of a substance/mixture" or as "articles containing integral substances/mixtures with or without intended release" and,

- the presence or not of release of substances with information specifying whether it is a main function or an accessory function (in this last case, it will be an "intended release").

In this table, for full clarity and transparency, for all the types of ammunition and components analyzed, **all the steps of the flowchart are developed,** even if we can usually unambiguously conclude already at step 2 that the shape, surface or design of the object is more relevant for the function than its chemical composition assuming that the object is an article.

This table can thus be seen as an overlapping of the analysis in order to verify if the results are the same if determined by both the “short” and “long” way: indeed, the results are the same.

Furthermore, as indicated in the flowchart of ECHA, steps 4 and 5 can only be answered if the answer at step 3 is YES, and step 6 can only be answered if the answer at step 3 is NO, we decide to answer all questions in the table (Yet, to respect the logic of the flowchart, the answers that are usually not applicable are highlighted in grey).

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Documents published by the DGA (French Armaments Directorate) in the context of the seminar of 09 October 2008 "Impact de REACH sur le cycle de vie des systèmes d'armes" (Impact of REACH on the life cycles of weapons systems) and in particular the report by working group 5 on ammunition

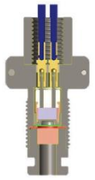
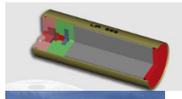
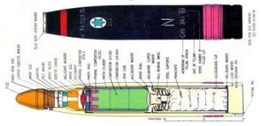
"Guidance on requirements for substances in articles" Version 3.0 - published by ECHA
http://echa.europa.eu/documents/10162/13632/articles_en.pdf

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.
http://echa.europa.eu/home_fr.asp

REACH Interpretation Guidelines – Annex I – Global Aerospace and Defense Industry Opinion on what constitutes a substance, preparation and an article Document available on the ASD (AeroSpace and Defense Industry Association of Europe) website:
http://www.asd-europe.org/Content/Default.asp

ANNEX 1

Consequences of the classification: duties & obligations under REACH

	Substance or mixture manufacturer within EU or substance or mixture importer **Distinguish if the substance/mixture manufacturer produces the substance only for its needs or whether the substance is put on the market…**	**Producer of the final product** (company which purchases substance or mixture to formulate pyrotechnic composition on its own industrial site, from an **EU** supplier, also a downstream user of substances/mixtures under REACH)	**Importer of the final product from non-EU** territory into the European Union (= importer under REACH)	**User of the final product** (= might be a downstream user under REACH)
Article with integral substance (no intended release of a substance)  **Propellant powder**  **Initiator**   **Emissive decoy**  **A naval illuminating shell**	**Registration (art. 6)**: Must submit registration for all substances produced >1t /a. **Authorisation (art. 56 and Annex XIV)**: Must apply an application for authorisation for each use of a substance included in Annex-XIV. **SVHC (art.33)**: not applicable **SDS (art.31)**: Must provide a Safety Data Sheet for all substances or mixtures produced only if they are put on the market. **Notification (art. 7.2):** not applicable **CLP label:** Must classify and label all substances produced according to standard CLP rules. **CLP notification:** Must notify to ECHA the classification of all substances manufactured in quantity >1t/a **or** classified as dangerous within 1 month after placing them on the market, unless the information was already provided in a registration dossier.	**Registration (art. 6)**: No registration duties apply (since registration must be done by the EU manufacturers of the substance). Only if the use of the substance is not covered in suppliers' registration, must get into contact with supplier or write Downstream User Chemical Safety Report for that substance in accordance with art. 37 REACH. **Authorisation (art. 56 and Annex XIV)**: Only if the use is not already covered by an authorisation up in the supply chain **SVHC (art.33)**: Must inform its customers about the presence of any SVHCs if contained >0.1% in any component of the product (including pyrotechnic composition). **SDS (art. 31)**: Need to provide a Safety Data Sheet in accordance with Art. 31 REACH but with an adapted format to article as ammunition or pyrotechnical components **Notification (art. 7.2):** must notify any SVHCs present in more than 1t/a and > 0.1% in the product **CLP label:** Must classify and label ammunition according to specific CLP rules for explosives as outlined in Table 2.1.2 Annex I CLP ("exploding bomb"). **CLP notification:** No obligation, since notification duty applies to manufacturers of the substances.	**Registration (art. 6)**: No obligation **Authorisation (art.56 and 66.1 and Annex XIV)**: No obligation **SVHC (art.33)**: Must inform its customers about the presence of any SVHCs if contained >0.1% in any component of the product (including pyrotechnic composition). **SDS (art. 31)**: Need to provide a Safety Data Sheet in accordance with Art. 31 REACH but with a adapted format to article as ammunition **Notification (art. 7.2):** must notify any SVHCs present in more than 1t/a and > 0.1% in the product **CLP label:** Must classify and label ammunition according to specific CLP rules for explosives as outlined in Table 2.1.2 Annex I CLP ("exploding bomb") as soon as product enters in European territory. **CLP notification:** No obligation	**Registration (art. 6)**: No obligation **Authorisation (art.56 and Annex XIV)**: No obligation **SVHC (art.33)**: no obligation **SDS (art. 37.1 and 2)**: if its use isn't identified in the SDS or not recommended, the downstream user must inform its supplier. If its supplier doesn't want to take care of its use, the downstream user must write its own CSR (in specific conditions: art 37.4). **Notification (art. 66):** must notify the use of a substance subjected to authorisation, in conformity with the article 56 §2 (the use of the downstream user must be covered by an authorisation) 3 months after the first delivery. **CLP label:** No obligation **CLP notification:** No obligation
Combination of an article and a substance / mixture ("Container") (release of substance or mixture covered; release fulfils main function)  **Teargas aerosol**	**Registration (art. 6)**: Must submit registration for any substance produced >1t /a. **Authorisation (art. 56 and Annex XIV)**: Must apply an application for authorisation for each use of a substance included in Annex-XIV. **SVHC (art.33)**: not applicable **MSDS (art.31)**: Must provide a Material Safety Data Sheet for all substances or mixtures produced **Notification (art. 7.2):** not applicable **CLP label:** Must classify and label all substances produced according to standard CLP rules. **CLP notification:** Must notify to ECHA the classification of all substances manufactured in quantity >1t/a **or** classified as dangerous within 1 month after placing them on the market, unless the information was	**Registration (art. 6)**: No registration duties apply (since registration must be done by the EU manufacturers of the substance). Only if the use of the substance is not covered in suppliers' registration, must get into contact with supplier or write Downstream User Chemical Safety Report for that substance in accordance with art. 37 REACH. **Authorisation (art. 56 and Annex XIV)**: Only if the use is not already covered by an authorisation up in the supply chain **SVHC (art.33)**: Must inform its customers about the presence of any SVHCs if contained >0.1% in any component of the product (including pyrotechnic composition). **SDS (art. 31)**: Need to provide a Safety Data Sheet in accordance with Art. 31 REACH	**Registration (art. 6)**: Must submit registration for any substance >1t /a. **Authorisation (art. 56 and Annex XIV)**: Only if the use is not already covered by an authorisation up in the supply chain **SVHC (art.33)**: Must inform its customers about the presence of any SVHCs if contained >0.1% in any component of the product (including pyrotechnic composition). **SDS (art. 31)**: Need to provide a Safety Data Sheet in accordance with Art. 31 REACH **Notification (art. 7.2):** must notify any SVHCs present in more than 1t/a and > 0.1% in the product **CLP label:** Must classify and label ammunition according to specific CLP rules for explosives as outlined in Table 2.1.2 Annex I CLP ("exploding bomb").	**Registration (art.6):** No obligation. **Authorisation (art. 56 and Annex XIV)**: Probably no obligation, since upstream EU supplier or importer of the ammunition will probably already have covered Annex XIV substances present <u>in the composition</u> by an authorisation. However, if use is not covered in an upstream authorisation, must apply for authorisation for all substances of the composition listed on Annex XIV, since "consumption, storage, keeping…or any other utilisation" of them is deemed to be "use" (Art. 3 Nr. 24). **SVHC (art.33)**: No obligation. **SDS (art. 31)**: No obligation **Notification (art. 66):** must notify the use of a substance subjected to authorisation, in conformity with the article 56 §2 (the use of the downstream user

	already provided in a registration dossier.	**Notification (art. 7.2):** must notify any SVHCs present in more than 1t/a and > 0.1% in the product **CLP label:** Must classify and label ammunition according to specific CLP rules for explosives as outlined in Table 2.1.2 Annex I CLP ("exploding bomb"). **CLP notification:** No obligation, since notification duty applies to manufacturers of the substances.	**CLP notification:** No obligation, since notification duty applies to manufacturers of the substances.	must be covered by an authorisation) 3 months after the first delivery. **CLP label:** No obligation. **CLP notification:** No obligation.
Article with intended release of a substance (release of substance 1:1 as included during production; reaction products <u>not</u> covered; release is an accessory function only)  a signalling smoke ammunition by sublimation of a dye	**Registration (art. 6)**: Must submit registration for all substances produced >1t /a. **Authorisation (art. 56 and Annex XIV)**: Must apply an application for authorisation for each use of a substance included in Annex-XIV. **SVHC (art.33)**: not applicable **SDS (art.31)**: Must provide a Safety Data Sheet for all substances or mixtures produced **Notification (art. 7.2):** not applicable **CLP label:** Must classify and label all substances produced according to standard CLP rules. **CLP notification:** Must notify to ECHA the classification of all substances manufactured in quantity >1t/a **or** classified as dangerous within 1 month after placing them on the market, unless the information was already provided in a registration dossier.	**Registration:** Must submit registration for the (one) substance that is intended to be released from the ammunition if present in the ammunition (in total) >1t/a; unless substance has already been registered for that use. (Art. 7 (1) REACH). <u>After 31 May 2018:</u> probably no obligations, since EU supplier will likely already have registered the substance for that use. **Annex XIV:** Only if their use is not already covered by an authorisation up in the supply chain, must apply for authorisation for use of all Annex-XIV substances used during own production. **Art.33:** Must inform customers about SVHCs if present >0.1% in any component of the product (including in smoke composition). **SDS:** No need to provide a Safety Data Sheet in accordance with Art. 31 REACH for the ammunition (ammunition-specific information format only). **Art. 7 (2):** Only if substance has not already been registered for that use, must notify all SVHCs present >1t/a in the ammunition and >0.1% in the specific component produced by the company. **CLP label:** Must classify and label ammunition according to the specific CLP rules for explosives as outlined in Table 2.1.2 Annex I CLP ("exploding bomb"). **CLP notification:** No obligations, since notification duty applies to manufacturers of the substances.	**Registration:** Must submit registration for the (one) substance that is intended to be released from the imported ammunition if present in the imported ammunition (in total) >1t/year; unless substance has already been registered for that use. (Art. 7 (1) REACH) **Annex XIV:** No obligations. **Art.33:** Must inform customers about SVHCs if present >0.1% in any component of the product (including in smoke composition). **SDS:** No need to provide a Safety Data Sheet in accordance with Art. 31 REACH for the ammunition (ammunition-specific information format only). **Art. 7(2):** Only if substance has not already been registered for that use, must notify all SVHCs present >1t/a in the ammunition and >0.1% in any component of the product. **CLP label:** Must classify and label ammunition according to the specific CLP rules for explosives as outlined in Table 2.1.2 Annex I CLP ("exploding bomb"). **CLP notification:** <u>Prior to 31 May 2018:</u> Must notify to ECHA the classification of the (one) substance that is intended to be released from the imported ammunition within 1 month after import if present in the imported ammunition (in total) >1t/year, unless the information was already provided in the registration dossier. <u>After 31 May 2018:</u> No obligation, since company must already have provided the relevant information in registration dossier.	**Registration (art. 6)**: No obligation **Authorisation (art.56 and Annex XIV)**: No obligation **SVHC (art.33)**: No obligation **SDS (art. 37.1 and 2)**: if its use isn't identified in the SDS or not recommended, the downstream user must inform its supplier. If its supplier doesn't want to take care of its use, the downstream user must write its own CSR (in specific conditions: art 37.4). **Notification (art. 66):** must notify the use of a substance subjected to authorisation, in conformity with the article 56 §2 (the use of the downstream user must be covered by an authorisation) 3 months after the first delivery. **CLP label:** No obligation **CLP notification:** No obligation
Mixture (chemical composition equally or more relevant to function than shape / surface / design of the product)  **Black powders**	**Registration (art. 6)**: Must submit registration for all substances produced >1t /a. **Authorisation (art. 56 and Annex XIV)**: Must apply an application for authorisation for each use of a substance included in Annex-XIV. **SVHC (art.33)**: not applicable **SDS (art.31)**: Must provide a Material Safety Data Sheet for all substances or mixtures produced **Notification (art. 7.2):** not applicable **CLP label:** Must classify and label all substances produced according to standard CLP rules. **CLP notification:** Must notify to ECHA the classification of all substances manufactured in quantity >1t/a **or** classified as dangerous within 1 month after placing them on the market, unless the information was already provided in a registration dossier.	**Registration (art. 6)**: Must submit registration for all substances produced >1t /a. **Authorisation (art. 56 and Annex XIV)**: Must apply an application for authorisation for each use of a substance included in Annex-XIV. **SVHC (art.33)**: no applicable **SDS (art.31)**: Must provide a Safety Data Sheet for all substances or mixtures produced **Notification (art. 7.2):** not applicable **CLP label:** Must classify and label all substances produced according to standard CLP rules. **CLP notification:** Must notify to ECHA the classification of all substances manufactured in quantity >1t/a **or** classified as dangerous within 1 month after placing them on the market, unless the information was already provided in a registration dossier.	**Registration (art. 6)**: Must submit registration for all substances imported >1t /a. **Authorisation (art. 56 and Annex XIV)**: Must apply an application for authorisation for each use of a substance included in Annex-XIV. **SVHC (art.33)**: no applicable **SDS (art.31)**: Must provide a Safety Data Sheet for all substances or mixtures produced **Notification (art. 7.2):** not applicable **CLP label:** Must classify and label all substances produced according to standard CLP rules. **CLP notification:** Must notify to ECHA the classification of all substances manufactured in quantity >1t/a **or** classified as dangerous within 1 month after placing them on the market, unless the information was already provided in a registration dossier.	**Registration (art. 6)**: No obligation **Authorisation (art.56 and Annex XIV)**: No obligation **SVHC (art.33)**: No obligation **SDS (art. 37.1 and 2)**: if its use isn't identified in the SDS or not recommended, the downstream user must inform its supplier. If its supplier doesn't want to take care of its use, the downstream user must write its own CSR (in specific conditions: art 37.4). **Notification (art. 66):** must notify the use of a substance subjected to authorisation, in conformity with the article 56 §2 (the use of the downstream user must be covered by an authorisation) 3 months after the first delivery. **CLP label:** No obligation **CLP notification:** No obligation

- An initial draft of this table was provided by a member of ASD.

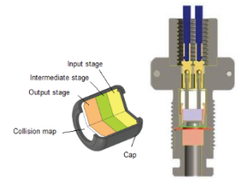
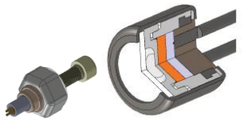
ANNEX 2

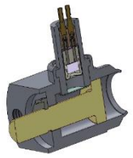
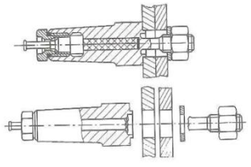
Ammunition status under REACH

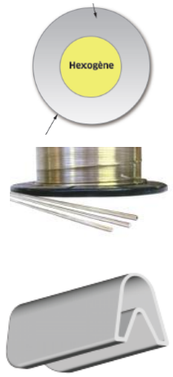
No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
			REMINDER, to answer this question, the function of the object is roughly determined by analyzing what its producer/supplier wants it to be used for and what the end user acquiring it expects it to do.					Not all questions of STEP 6 may apply to all objects. They are not really adapted to ammunition but mostly to objects which shall be further processed		
	Components									
1	Propellant without a defined shape	Propellant charges without specific shape, bulk black powder....  Black powder	Generating gas	NO Only the chemical nature of the substances present in the propellant charge is responsible for the generation of gas that does not follow a specific combustion law.	Not applicable – Object is a substance or mixture	Not applicable – Object is a substance or mixture	Not applicable – Object is a substance or mixture	Not applicable – Object is a substance or mixture	SUBSTANCE OR MIXTURE	NO RELEASE
2	Propellant with a defined shape	Propellant charges for weapons, for gas generators, Agglomerate propellant charges, Thrusters, Solid propellant engines, etc. Propellant powder : B19T (cylindrical with 19 holes)  A solid propellant engine with a central duct 	Designed: - to be integrated in a specific ammunition to deliver defined ballistic performances (depending of the type of projectile, mass, volume of the gun chamber, ..) in order to propel a projectile by generating gas according to a specific combustion law in order to achieve an appropriate distribution of pressure (for example along the gun tube so that it can support it without breaking.) - to ensure safety and reliability specifications	YES The design and the shape govern the specific combustion law (speed, duration, gas volume) and are much more important than the nature of the mixture which can't alone reach any specific combustion law. The picture on left shows a specific shape of a propellant powder with 19 holes. They determine the WEB (the thickness to burn to obtain a specific rate of combustion).	NO The powder or charge is the object.	Not applicable ➔ Step 6 Powder or charge has an end-use function and cannot be separated.	Not applicable ➔ Step 6	6a : YES The object retains its integrity and is integrated in a system for generating gas by combustion of a defined law. 6b: YES The customer focuses on the shape, the design of the propellant in order to integrate it in its system and ensure performance. 6c: YES (light processing) or not determined 6d: YES or not determined 4 YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
3	Explosive without a defined shape	Explosive mixture without its ignition system ... ex: explosive for an offensive grenade Plastic explosives: used for demolition, etc...   	Generate a shock wave without action against a specific target	NO Only the chemical nature of substance(s) is responsible for generating the shock wave.	Not applicable – Object is a substance or mixture	Not applicable – Object is a substance or mixture	Not applicable – Object is a substance or mixture	Not applicable – Object is a substance or mixture	SUBSTANCE OR MIXTURE	NO RELEASE
4a	High (secondary) explosive charge with defined shape (engineering charge) without its initiation system These materials are manufactured by various methods such as extrusion, rolling, pressing, or other technics to produce a material with a defined shape and size.	1 - Charge for: Anti-tank mines, reactive bricks , Support shells, Explosive shells, Hollow shells, shape charge, Mortar ammunition, Missile or torpedo or rocket warheads , Pre-fragmented ammunition, HE cartridge of different calibers, fixed HE gun ammunition linked or not, mortar warhead without initiation system etc... 	Designed: 1 - for the destruction or damage of a defined target by the projection of fragments, solid and inert materials at a specified distance and velocity - to fit a specific class of weapon system - to ensure safety and reliability specifications	1-YES The design and the shape of the charge are responsible for the projection of solid and inert materials (fragments, core of a core generating charge, projectiles, shaped charge jet, plate...).and to control their movement thanks to their specific properties such as their shape, mass, and kinetic energy in order to reach and destroy the defined target (while various explosives substances / mixtures could be used to obtain similar effects).	1 - NO in most cases In most cases, the explosive material is tightly pressed into the casing, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. A high secondary explosive charge that has not functioned will be, destroyed preferentially by burning or blasting, except for few cases scheduled for dismantling.	**Step 4 (a,b,c) only available for the charge** 4a : NO The substance/mixture (with no organizational design) used without the charge would be unable to achieve the function defined in step 1. The high secondary explosive charge must be ignited by a pyrotechnic train. It is generally designed to be propelled while ensuring safety and reliability functions. The same applies for the case of energetic materials alone and with a defined shape. 4b : NO The high secondary explosive charge is designed to fit into a	**Step 5(a,b,c) only available for the charge** 5a : YES Without pyrotechnic substance/mixture, the explosive charge couldn't fulfill its required functions. 5b : YES The high explosive charge is designed to ensure the function defined on step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral	6a : YES The high explosive charge and pelleted energetic material maintain their integrity. They are finished products with unexpected further processed. 6b : YES The customer specifies the architecture (dimensions, caliber,...) of the product in order to integrate it in his weapon system and to ensure the defined performances. 6c : YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
		2 - Pelleted material 	2–to fit into a component forming part of a sub-system to produce an energetic effect.	2-YES The design and the shape of the pellet must fit into a component forming part of a sub-system in order to produce energetic effects responsible for the projection of solid and inert materials (fragments, core of a core generating charge, projectiles, shaped charge jet, plate…).and to control their movement thanks to their specific properties such as their shape, mass, and kinetic energy in order to reach and destroy the defined target (while various explosives substances / mixtures could be used to obtain similar effects,…).	2-NO The energetic material with a defined shape (for example pellet), is the object.	specific class of weapon system. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). These reactions are chemical reactions and the reaction products are not in the scope of REACH (cf annex V). The pyrotechnic train allows the initiation of pyrotechnic charge (remotely) to obtain the desired final effects while ensuring the safety. 4c : YES The nominal operating of a high explosive charge leads to the initiation and reaction of the integral substances with the destruction of the architecture at the same time. All the substances/mixtures are consumed. 2 NO / 1 YES	substances/mixtures is either destroyed and/or nor be recovered. 3 YES .	No processing or small transformation only 6d : YES Or not applicable 4 YES		
4b		Charge for: Missile or torpedo or rocket warheads, Submarine mines, Reinforced blast ammunition, explosive shells, etc..   	Designed : - to exclusively generate a shock wave or a blast effect (blast over-pressure) for the destruction of a defined target - to fit into a specific class of weapon system or to maintain specific dimensions - to ensure safety and reliability specifications.	YES The design and the shape of the charge are responsible for the generation of a specific shock wave in order to reach and destroy the defined target (while various explosives substances / mixtures could be used to obtain similar effects).	NO The explosive material is tightly pressed into the casing, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. An explosive charge that has not functioned will be, destroyed preferentially by burning or blasting, except for few cases scheduled for dismantling.	4a : NO The substance/mixture (with no organizational design) used without the object would be unable to achieve the function defined in step 1. The charge must be ignited by a pyrotechnic train. It is generally designed to be propelled while ensuring safety and reliability functions. 4b : NO The charge is designed with specific dimensions in order to fit into a specific class of weapon or to be adapted to be dropped from an aircraft. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..) ; The pyrotechnic train	5a : YES Without pyrotechnic substance/mixture, the charge cannot fulfill its required functions. 5b : YES The charge is designed to achieve the function defined on step 1 5c : YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The charge maintains its integrity. It's a finished product with unexpected further processed 6b : YES The customer specifies the architecture (dimensions, caliber,…)of the product in order to integrate it in his weapon system and to ensure the defined performances 6c : YES Not applicable or small transformation only 6d : YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
						allows the initiation of pyrotechnic charge (remotely) to obtain the desired final effects while ensuring the safety 4c : YES The operation of a charge leads to the reaction of the integral substances with the destruction of the architecture at the same time. 2 NO / 1 YES		Or not applicable 4 YES		
5a	Pyrotechnic (or energetic) components and devices	Initiators, igniters, fuses, detonators, primers, delay devices, primer tubes, igniter plugs, safety and arming systems, priming fuses, relays, boosters, etc. Primer, Squib, EED (Electro explosive device),.. Gas generators used for (inflatable devices, air bags, flotation devices... Generation of breathable oxygen, tank pressurization, power ejection system for payload, base bleed devices    	Designed: - to transform an external action (mechanical, heat, electrical, optical, electromagnetic, etc.) into a pyrotechnic action which produces or transmits an effect (push, pull, perforate, break, delay, light, pressure generation, gas generation, etc....) - to fit specific dimensions - to ensure safety and reliability specifications.	YES The design and the architecture are more important to govern the appropriate effect during a specific duration, to generate a shock wave to lead to a chain reaction of pyrotechnical substances.	NO In most cases. In most cases, the explosive material is tightly pressed into the casing, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. Especially on components or devices such as detonators, the pyrotechnic charge [which is often a primary explosive] that has not functioned will be destroyed, preferentially by burning or blasting [chemical separation only]. Only some exceptional cases will be scheduled for dismantling.	4a : NO The substance/mixture (no organizational design) used without the component would be unable to achieve the function defined in step 1. A component must be ignited by a pyrotechnic train and must ensure safety and reliability functions. 4b : NO A component is designed to fit into a specific system or sub system. Its nominal functioning is lined with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). The pyrotechnic train allows the initiation of the component (remotely) to obtain the desired final effects while ensuring the safety 4c : YES The functioning of the component leads to the reaction of the integral substances with the destruction of the architecture at the same time 2 NO / 1 YES	5a : YES Without its pyrotechnic substance/mixture, a pyrotechnic component cannot fulfill its requested functions. 5b : YES A component is designed to ensure the function defined on step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the component or device because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The component maintains its integrity. It's a finished product with unexpected further processed 6b : YES The customer specified the architecture (dimensions,...) of the product for its integration in his weapon system and to ensure the defined performances 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE

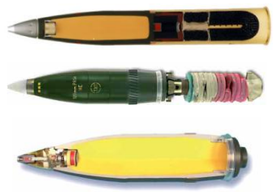
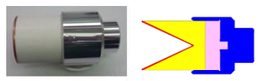
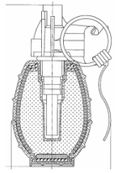
No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
		Gas Generator for cars 								
5b		Explosive bolts and nuts, various actuators (push rods, valves, retractors, releasers, etc.), cutters, separators, Retractor  **Cable cutter**  **Explosive bolt** 	Designed: - to transform a pyrotechnical action into a mechanical force (heat, shock wave, etc.), - to fit specific dimensions- to ensure safety and reliability specifications.	YES The design and the architecture are more important in order to generate a specific mechanical action than the chemical composition (for instance, explosive bolts are designed with a reduced cross-sectional area at the point intended to break under the pyrotechnic action).	NO In most cases. In most cases, the explosive material is tightly pressed into the casing, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. Especially on components or devices such as actuators, the pyrotechnic charge [which is often a secondary explosive] that has not functioned will be destroyed, preferentially by burning or blasting [chemical separation only]. Only some exceptional cases will be scheduled for dismantling.	4a : NO The substance/mixture (with no organizational design) used without the component would be unable to achieve the function defined in step 1. The device must be ignited by a pyrotechnic train and must ensure safety and reliability functions. 4b : NO A component is designed to fit into a specific volume in a system or sub system or to fit into specific dimensions to achieve the effects described in step 1. Its nominal operating is line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). The pyrotechnic train allows the initiation of the component (remotely) to obtain the desired final effects while ensuring the safety 4c : YES The functioning of the device leads to the reaction of the integral substances with the destruction of the architecture at the same time 2 NO / 1 YES	5a : YES Without pyrotechnic substance/mixture, a pyrotechnic device cannot fulfill its identified functions. 5b : YES A device is designed to ensure the function defined on step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the component or device because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES .	6a : YES The device maintains its integrity. It's a finished product with unexpected further processed 6b : YES The customer specified the architecture (dimensions,...) of the product for its integration in his weapon system and to ensure the defined performances 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
6	Pyrotechnic and explosive cords	Explosive cords, time delay cords, transmission cords, detonation cords, etc.  	Designed: - to transmit a detonation, to cut by formed load effect, to generate a time delay and/or transmit an order. - to fit specific dimensions(responsible of the desired operating time of the desired delay, of the desired cut length and thickness of a specific material…) - to ensure safety and reliability specifications.	YES The cord contains an envelope with a specific shape and thickness designed to produce the desired effect (cutting, delay, transmission). The design of the envelope ensures the confinement, the density, the speed and avoids mechanical stress… Accordingly, the design of the cord is more relevant for the function than the chemical composition.	NO In most cases. In most cases, the explosive material is tightly enrolled into the cords, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. Especially for cords, the pyrotechnic charge [which is often a secondary explosive] that has not functioned will be destroyed, preferentially by burning or blasting [chemical separation only]. Only some exceptional cases will be scheduled for dismantling.	4a : NO The substance/mixture (with no organizational design) used without the object would be unable to give the function defined in step 1. A cord must be ignited by a pyrotechnic train and must ensure safety and reliability functions. 4b : NO A cord is designed to fit a specific volume in a system or sub system, or to fit into specific dimensions responsible of the effect leading to the function designed in step 1.Its nominal operating is line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). The pyrotechnic train allows the initiation of cord (remotely) to obtain the desired final effects while ensuring the safety. 4c : YES The functioning of cord leads to the reaction of the integral substances with the destruction of the architecture at the same time. 2 NO / 1 YES	5a : YES Without pyrotechnic substance/mixture, a cord couldn't fulfill its identified functions. 5b : YES A cord is designed to ensure the function defined on step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the cord because when it is fired, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The cord maintains its integrity. It's a finished product with unexpected further processed 6b : YES The customer specified the architecture of the product (dimensions, caliber,…) to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE
	Subsystems									
7	Propellant charge	Tail charge assembly (TCA) for mortar ammunition Propelling charge both separate and semi-fixed to a projectile. A charge designed to closely fit in the chamber of a gun, without an associated projectile. 	Designed: - to be ignited in the chamber of a gun to produce a specific pressure / time event to project an object from a gun at high velocity or produce noise and smoke simulating the firing of a gun - to fit into the specific dimensions of a specific type of weapon system - to ensure safety and reliability specifications.	YES The design, shape and architecture are essential to provide, through of a launcher interface, a specific pressure to propel ammunition to a specific initial speed	NO In most cases. The propellant charge is tightly pressed into the casing or tightly enclosed into the system, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. The propellant charge that has not functioned will be destroyed, preferentially by burning or blasting	4a : NO The substance/mixture (with no organizational design) used without the object (structure, shape, caliber, system of ignition…) would be unable to achieve the function defined in step 1. The propellant charge must be ignited by a pyrotechnic train. It is designed to be propelled while ensuring safety and reliability functions. 4b : NO The object is designed to fit into a specific class of	5a : YES Without pyrotechnic substance/mixture, the propellant charge cannot fulfill its identified functions. 5b : YES The propellant charge is designed to ensure the function defined in step 1. 5c : YES In normal conditions of functioning, there is no	6a : YES The propellant charge maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions,…) of the product for its integration in his weapon system and to ensure the defined performances.	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
		 			[chemical separation only]. Only some exceptional cases will be scheduled for dismantling.	weapon system. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). The pyrotechnic train allows the propellant charge (remotely) to obtain the desired final effects while ensuring the safety. 4c : YES The functioning of the propellant charge leads to the reaction of the integral substances with the destruction of the architecture at the same time. 2 NO / 1 YES	"disposal" of the propellant charge because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES		
8	Self-propelled engine	For Bombs   For missiles 	Designed: – to propel an ammunition at a specific distance, in an autonomous way. - to be ignited in the chamber of a gun to produce a specific pressure / time event to project an object from a gun at high velocity or produce noise and smoke representative of firing a gun - to fit into specific dimensions of an ammunition loader - to ensure safety and reliability specifications.	YES The design, shape and architecture are essential to self-propelling ammunition with a specific thrust force during a given time	NO In most cases. The propellant charge is tightly pressed into the casing or tightly enclosed into the system, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. A propellant charge that has not functioned will be destroyed, preferentially by burning or blasting [chemical separation only]. Only some exceptional cases will be scheduled for dismantling.	4a : NO The substance/mixture (with no organizational design as structure, caliber,...) used without the object would be unable to achieve the function defined in step 1. The self-propelled engine must be ignited by a pyrotechnic train. It is generally designed to propel bomb or missile while ensuring safety and reliability functions. 4b : NO The self-propelled engine is designed to fit into a specific class of weapon system. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). The pyrotechnic train allows the initiation of the propelled engine (remotely) to obtain the desired final effects while ensuring the safety. 4c : YES The functioning of the self-propelled engine leads to the reaction of the	5a : YES Without pyrotechnic substance/mixture, the self-propelled engine cannot fulfill its identified functions. 5b : YES The self-propelled engine is designed to ensure the function defined in step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the self-propelled engine because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES .	6a : YES The self-propelled engine maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions,...) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
						integral substances with the destruction of the architecture at the same time 2 NO / 1 YES				
9	Warhead with initiation system	Warhead 	Designed: - to disintegrate a defined target with the generation of metal fragments and/or damage surrounding areas with a blast wave. - to fit into specific dimensions - to ensure safety and reliability specifications.	YES the design, the shape of the warhead are responsible at the given time for the projection of solid and inert materials (metal fragments, core of a core generating charge, projectiles, shaped charge jet, plate…) and control their movement thanks to their specific properties such as their shape, mass, and kinetic energy in order to reach and destroy the defined target (while various explosives substances / mixtures could be used to obtain similar effects).	NO In most cases. The explosive charge is tightly pressed into the casing or tightly enclosed into the system, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. The explosive charge [which is often a secondary explosive] that has not functioned will be destroyed, preferentially by burning or blasting [chemical separation only]. Only some exceptional cases will be scheduled for dismantling.	4a : NO The substance/mixture (with no organizational design) used without the object would be unable to achieve the function defined in step 1. The war head must be ignited by a pyrotechnic train. It is generally designed to be propelled while ensuring safety and reliability functions. 4b : NO The war head is designed to fit into a specific class of weapon system. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). The pyrotechnic train allows the initiation of the war head (remotely) to obtain the desired final effects while ensuring the safety. 4c : YES The functioning of the war head leads to the reaction of the integral substances with the destruction of the architecture at the same time. 2 NO / 1 YES	5a : YES Without pyrotechnic substance/mixture, the war head cannot fulfill its identified functions. 5b : YES The war head is designed to ensure the function defined in step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the war head because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The component maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions,…) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
	Systems									
10	Armor-piercing ammunition and kinetic energy ammunition	HE and KE ammunition, armor-piercing discarding sabot (APDS), armor-piercing fin stabilized discarding sabot (APFSDS), rockets.. 120 High explosive anti tank  armor piercing ammunition 	Designed: - to propel an appropriate geometry projectile in an optimized manner, at a specific speed and distance to pierce a target - to fit into a specific class of weapon system - for the destruction or damage of a defined target by the projection of fragments, solid and inert materials at a specified distance and velocity - to ensure safety and reliability specifications Inert projectile which may contain a tracer, but without any high explosive content, relying on its kinetic energy to defeat a target.	YES The design and the shape of the armor-piercing / kinetic energy ammunition are responsible for the projection of the ammunition and control the movement thanks to their specific properties such as their shape, mass, and kinetic energy in order to reach and destroy the defined target (while various explosives substances / mixtures could be used to obtain similar effects).	NO In most cases. The explosive charge is tightly pressed into the casing or tightly enclosed into the system, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. The explosive charge [which is often a secondary explosive] that has not functioned will be destroyed, preferentially by burning or blasting [chemical separation only]. Only some exceptional cases will be scheduled for dismantling.	4a : NO The substance/mixture (with no organizational design) used without the object would be unable to achieve the function defined in step 1. The armor-piercing / kinetic energy ammunition must be ignited by a pyrotechnic train. It is generally designed to be propelled while ensuring safety and reliability functions. 4b : NO The armor-piercing or kinetic energy ammunition is designed to fit into a specific class of weapon system. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). The pyrotechnic train allows the initiation of armor-piercing / kinetic energy ammunition (remotely) to obtain the desired final effects while ensuring the safety 4c : YES The operation of a armor-piercing or kinetic energy ammunition leads to the reaction of the integral substances with the destruction of the architecture at the same time 2 NO / 1 YES	5a : YES Without pyrotechnic substance/mixture, the ammunition cannot fulfill its identified functions. 5b : YES The ammunition is designed to ensure the function defined on step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The ammunition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions,...) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
11	High Explosive (HE) ammunition and munitions)	11.a Anti-tank mines, Reactive bricks, Support shells, Explosive shells, Hollow shells, shape charge Defensive grenades, Mortar HE ammunition, , Missile or torpedo or rocket , Pre-fragmented ammunition, etc. HE cartridge, of different calibers, fixed HE gun ammunition linked or not. HE Artillery and cannon projectiles; torpedo, missile and rocket warheads; Aircraft bombs; (Hand or launched by rifle or dispenser) Grenades; Explosive Reactive Armor; Anti-tank Mines; HE Mortar Ammunition; HE Pre-fragmented Ammunition. Ammunition comprising a HE filled projectile complete with a fixed or semi-fixed propelling charge, linked or not. Shaped charge / Hollow charge warheads and projectiles. Explosively formed penetrator warhead. Engineering explosive charges. Mortar HE ammunition  Hollow charge  Reactive brick  Defensive grenade 	Designed: - to control the movement of a solid and inert material for the destruction of a defined target, (fragments, projectiles, "shape charge", "plaque"...). Example: by the production of high velocity fragments, self-forging projectiles or plasma jet. - to fit into a specific class of weapon system - to ensure safety and reliability specifications	YES The design and the shape of the high explosive ammunition are responsible for the projection of solid and inert materials (fragments, core of a core generating charge, projectiles, shaped charge jet, plate...).and control their movement thanks to their specific properties such as their shape, mass, and kinetic energy in order to reach and destroy the defined target (while various explosives substances / mixtures could be used to obtain similar effects). Example of a defensive grenade: The safety radius was designed to remain in the open without any danger beyond a radius of 22 m. This grenade is made: - With an oval plastic body loaded explosive and on the periphery, a pre-fragmented metal sleeve and balls to the upper and lower portions - With a delay igniter plug of 4 to 6 s and an ejection spoon	NO In most cases. The explosive charge is tightly pressed into the casing or tightly enclosed into the system, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. The explosive charge [which is often a secondary explosive] that has not functioned will be destroyed, preferentially by burning or blasting [chemical separation only]. Only some exceptional cases will be scheduled for dismantling.	4a : NO The substance/mixture (with no organizational design) used without the object would be unable to achieve the function defined in step 1. The high explosive ammunition must be ignited by a pyrotechnic train. It is generally designed to be propelled, while ensuring safety and reliability functions. 4b : NO The high explosive ammunition is designed to fit into a specific class of weapon system. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..) ; The pyrotechnic train allows the initiation of high explosive ammunition (remotely) to obtain the desired final effects while ensuring the safety	5a : YES Without pyrotechnic substance/mixture, the high explosive ammunition couldn't fulfill its identified functions 5b : YES The high explosive ammunition is designed to ensure the function defined on step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The high explosive ammunition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
		11 b Offensive grenades, Missile or torpedo or rocket, naval mines, high explosive charges, etc. Reinforced blast ammunition. A rocket 	Designed: - to generate a shock wave under the effect of a stimulus (electric, mechanical, shock, heat…) triggered by an initiation system: destruction of a defined target, by a shock wave or a blast effect (blast over-pressure) or projection of fragments. - for destruction or damage to a target by blast effect (blast over-pressure) triggered by an integral initiation system -to fit into a specific dimensions - to ensure safety and reliability specifications	YES The design and the shape of the high explosive ammunition are responsible for the projection of solid and inert materials (fragments, core of a core generating charge, projectiles, shaped charge jet, plate…).and to control their movement thanks to their specific properties such as their shape, mass, and kinetic energy in order to reach and destroy the defined target (while various explosives substances / mixtures could be used to obtain similar effects).	NO In most cases. The explosive charge is tightly pressed into the casing or tightly enclosed into the system, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is not forbidden to separate them. The explosive charge [which is often a secondary explosive] that has not functioned will be destroyed, preferentially by burning or blasting [chemical separation only]. Only some exceptional cases will be scheduled for dismantling. . .	4a : NO The substance/mixture (with no organizational design) used without the object would be unable to achieve the function defined in step 1. The explosive ammunition must be ignited by a pyrotechnic train. It is generally designed to be propelled while ensuring safety and reliability functions. 4b : NO The high explosive ammunition is designed to fit into a specific class of weapon system. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation). The pyrotechnic train allows the initiation of high explosive ammunition (remotely) to obtain the desired final effects while ensuring the safety 4c : YES The functioning of a high explosive ammunition leads to the reaction of the integral substances with the destruction of the architecture at the same time 2 NO / 1 YES	5a : YES Without pyrotechnic substance/mixture, the high explosive ammunition couldn't fulfill its identified functions. 5b : YES The high explosive charge is usually designed to ensure the function defined on step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The high explosive ammunition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,…) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE
12	Fixed or projected illuminating ammunition	12a Illuminating ammunition (shells, flare payloads, illuminating flares, etc.), Distress signals, Distress flares, Tracking flares, Ground-launched illuminating flares, etc. 	a. Designed : - to illuminate a defined target, to dissuade or to blind a potential adversary, or to screen a compartment of the battlefield, to signal a position, for a given duration, at a given point, or at a specific distance, in a defined spectrum, visible at a specific distance. - to fit into a specific class	YES The design and the shape of an illuminating ammunition are responsible to provide the ejection of the pots at the desired moment without disturbing the activation of the illuminating pot or the initiation of these pots on the trajectory, safely, according to conditions specified by a combustion law., with parachutes in charge of	NO, The pyrotechnic composition is shaped in the body of the object (metal, ceramic, plastic or cardboard body) by compression or by melt cast, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden and to separate them.	4a : NO Pyrotechnic mixtures used without the object (structure, form, caliber, system of ignition,…) would be unable to achieve an effect of illumination for a special duration, at a given point. The ammunition must be initiated by a pyrotechnic chain. For example : naval	5a: YES Without substance or mixture, the object would be unable to fulfill the identified functions. 5b: YES The object is generally designed to project the effects…. (see function defined in step 1)	6a : YES The illuminating ammunition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions,	ARTICLE	NO RELEASE

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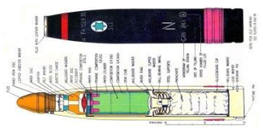
		Distress signals  Naval illuminating shell  Signal cartridge 40 mm  	of weapon system - to ensure safety and reliability specifications	stabilizing the trajectory (for certain types of ammunition)	An illuminating ammunition that hasn't functioned will be preferentially destroyed by burning or blasting, except for few cases scheduled for dismantling. It isn't a physical separation from the object but a chemical separation. .	illuminating shell as distress signal 328 comprises a pen shaped ejecting device, secured, plastic holder, 4 self-propelled red flares and 2 chaff loaded and radar visible flares. All these combined effects (ejection, propulsion, IR emitted signal and EM emitting signal) could be deployed without a pyrotechnic chain. Another example : a signal cartridge needs to be fired from a 40 mm handgun and comprises case and percussion primer, a propelling charge, a trajectory delay and a star to obtain a colored light This type of ammunition is generally designed to be projected while ensuring the functions of safety and reliability 4b : NO This type of ammunition is generally designed to be projected and be adapted to a launcher while ensuring the functions of safety and reliability Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). 4c : YES It is a single operation during which the substances / mixtures are consumed. The become inert object becomes a waste 2 NO/ 1 YES	5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	caliber,...) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES		

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		12 b Day and night location markers, etc. 	b. Designed: to generate a visual (light or smoke) effect for a specific duration, visible at a specific distance to follow a trajectory of a projectile in the day and in the night, to transmit a coded message (colored smoke), to mark a position by day or by night.... By combustion reaction or reaction with the ambient environment (water, etc.),	YES This marker is dropped automatically from an airplane and needs to fit into the launcher. Its specific design with a steel ballast allows an ignition at the contact of the sea and to stay on the surface of the sea. The marker is designed to sink after 60 min of functioning to avoid that it becomes an obstacle on the surface.	NO The pyrotechnic composition is shaped in the body of the object (metal, ceramic, plastic or cardboard body) by compression or by melt cast, or tightly enclosed into the body, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them. A marker that hasn't functioned will be preferentially destroyed by burning or blasting. It isn't a physical separation from the object but a chemical separation. .	4a : NO Pyrotechnic mixtures used without the object (structure, form, caliber, system of ignition,...) would be unable to generate a visual effect. The ammunition should be initiated by a pyrotechnic chain as a firing pin when there's an impact initiation (marine marker type 6152 LXT) or by an electric initiator powered by a battery (marine marker LXT type 6060). This type of ammunition is generally designed to be projected while ensuring the functions of safety and reliability 4b : NO This type of ammunition is designed to be adapted to a weapon or a launcher system (shape, size.....). Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..) ; 4c : YES It is a single operation during which the integral substances / mixtures are consumed. The become inert object becomes a waste 2 NO/ 1 YES	5a: YES Without substance or mixture, the object would be unable to realize the identified functions. 5b: YES The object is generally designed to project the effects.... (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The marker maintains its integrity. It's a finished product with unexpected further processed 6b : YES The customer specified the architecture (dimensions, caliber,...)of the product for its integration in his weapon system and to ensure the defined performances 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE (Substance immediately reacting with the ambient environment, so no release of substance)
13	Smoke screening ammunition	13a Smoke shell, smoke grenade	a - Designed: to obscure a defined target at a specific distance or to camouflage a part of the theatre of operations by producing an opaque screen in a specific wave band, for a determined duration, to fit into a specific class of weapon system (not for all devices) to ensure safety and reliability specifications							

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		  Use of molecules with a high carbon content will degrade during the chemical combustion reaction to generate carbon 	13a(i): by combustion reaction	YES To optimize the generation of an opaque screen, during a specific duration, the design and architecture of the material and mechanical systems are essential (in order to pierce/melt holes or create openings in specific places of the special material and of a given size, to generate smoke at a given rate, to keep combustion going and confined, according to a given combustion law, without stopping of going into flames,...)	NO The pyrotechnic composition is shaped in the body of the object (metal, ceramic, plastic or cardboard body) by compression or by melt cast, or tightly enclosed into the body, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them. Smoke ammunition, that hasn't functioned, will be preferentially destroyed by burning or blasting, except for few cases scheduled for dismantling. It isn't a physical separation from the object but a chemical separation. .	4a : NO Pyrotechnic substances or mixtures used without the object (structure, form, caliber, system of ignition,...) would be unable to produce a screen of smoke with specific properties. For example to activate all types of hand and rifle launched grenades, there's a grenade fuse, which allows to project them and to use them in safety. 4b : NO After ignition, the body of the object has an influence on the combustion law and acts on the effects. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration, detonation,..). 4c : YES It is a single operation during which the integral substances / mixtures are consumed. The become inert object becomes a waste 2 NO/ 1 YES	5a: YES Without substance or mixture, the object would be unable to realize the identified functions. 5b: YES The object is generally designed to project the effects.... (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The smoke screening ammunition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE
		GALIX 17 (smoke ammunition + dispersion of carbon black) 	13a (ii): by combustion reaction and dispersion of a specific powder:	YES The design and the architecture are important to govern the dispersal, the appropriate effect during a specific duration, the control movement. The GALIX 13 or 17 is composed of several canisters of substances studied to react by combustion to deliver smoke and to disperse a metallic powder or carbon black powder with defined specification (range, dimension and	YES and NO In this specific case of GALIX ammunition, the charge of metallic powder or carbon black could be separate from the ammunition but the smoke charge is preferentially destroyed by burning.	4a : NO The substance/mixture (with no organizational design) used without the munition would be unable to give the function defined in step 1 The ammunition must be ignited by a pyrotechnic train. The substance (as metallic powder for example) is dispersed by a propellant charge or a pyrotechnic composition to create a cloud of homogeneous solid particles which will interact with	5a : YES Without pyrotechnic substance/mixture, the ammunition cannot fulfill its identified functions. 5b : YES The ammunition is usually designed to ensure the function defined in step 1. 5c : YES	6a : YES The ammunition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions,...) of product for its integration in his weapon system and to ensure the defined performances.	ARTICLE	RELEASE OF METALLIC POWDER The release of the substance is an intended release; it fulfils an accessory function which is deliberately planned. However, the metallic powder or carbon black powder with defined particles could be considered as articles according to REACH and are exempted from registration.

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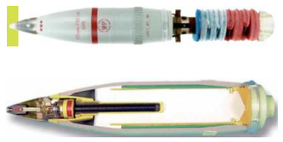
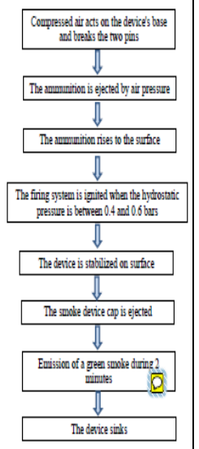
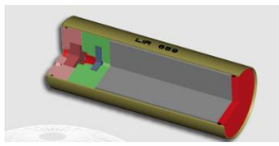
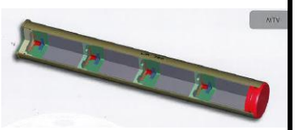
		GALIX 13 (smoke ammunition + dispersion of metallic powder)  		combustion time of the smoke and powder cloud, opacity,...) All the solid particles (reaction products and metallic particles) should be liable to stop as many light rays as possible by absorption, diffusion and retro diffusion according to their shape (in order to remain in suspension in the ambient environment), their size (a ray between 0.4 and 0.8 µm will be effective in the visible spectrum, between 3 and 12 µm in the infrared spectrum), their concentration in the cloud, (in order to generate different optical properties), their nature (in order to absorb or diffuse according to the intended effect)		electromagnetic radiation to protect a target; It is generally designed to be ejected while ensuring safety and reliability functions. 4b : NO The ammunition is designed to fit a specific class of weapon system called GALIX. Its nominal operating is in line with one or several pyrotechnic reactions of the pyrotechnic train (combustion, deflagration,,..) ; The pyrotechnic train allows the initiation of munition (remotely) to obtain the desired final effects while ensuring the safety 4c : YES The operation of an ammunition leads to the reaction and dispersion of the integral substances. All the substances/mixtures are consumed or dispersed. It's also the way used for the destruction 2 NO / 1 YES	In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES .	6c : Yes Not applicable or small transformation only 6d : YES Or not applicable 4 YES		
		Smoke or phosphorous shell, terephthalic acid grenade, Mortar smoke ammunition, titanium tetrachloride smoke ammunition 	**13a (iii): by a substance reacting with the ambient environment**	YES The design and the architecture are important to govern the dispersal, the appropriate effect during a specific duration, the control movement For example, white phosphorus ammunition are composed of a body designed to open and break under the effect of an explosive charge with specified conditions (like a petal) to govern the smoke cloud (reaction of phosphorus by contact with air) with defined specification (range, dimension and combustion time of the smoke cloud, opacity,...)	NO The pyrotechnic composition is shaped in the body of the object (metal, ceramic, plastic or cardboard body) by compression or by melt cast, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them. It isn't a physical separation from the object but a chemically separation.	4a :NO Pyrotechnic substances or mixtures used without the object (structure, form, caliber, system of ignition,...) would be unable to produce the effects defined in step 1. For example, terephthalic acid generates a white smoke in contact with air but the ammunition is designed to be projected to ensure the safety and the efficiency. For this reason, the ammunition needs to be initiated to work. 4b : NO After ignition, the body of the object has an influence on the combustion law and acts on the effects.	5a : YES Without pyrotechnic substance/mixture, the munition cannot fulfill its identified functions. 5b : YES The ammunition is designed to ensure the function defined in step 1. 5c : YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is	6a : YES The munition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions,...) of the product for its integration in his weapon system and to ensure the defined performances. 6c : Yes Not applicable or small transformation only 6d : YES	ARTICLE	NO RELEASE The substance used reacts immediately with the ambient conditions and is fully transformed. The reaction products are exempted from registration according to REACH annex V.

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
13						4c : YES It is a single operation during which the substances / mixtures are consumed. The become inert object becomes waste 2 NO/ 1 YES	either destroyed and/or nor be recovered. 3 YES .	Or not applicable 4 YES		
		13b Colored smoke or white smoke, Smoke signals, ... Smoke grenade  Submarine smoke signal 	b - Designed: To mark a position or provide information for a range of signaling purposes as navigation, locating, marking wind direction, distress..) with a colored or white smoke in a specific wave band, for a determined duration. **13b (i): by combustion reaction** I	YES To optimize the generation of the opaque screen during a specific duration, the design and architecture of the material and mechanical systems are essential (in order to pierce/melt holes or create openings in specific places of the special material and of a given size, to generate smoke at a given rate, to keep combustion going and confined, according to a given combustion law, without stopping of going into flames,...) Plus additional functions for marine products such as hydrostatic initiation, delay after ammunition ejection in order to light up only when reaching the sea surface or a given depth. The following table describes how the colored smoke signal functions:	NO In most cases, the pyrotechnic composition is shaped in the body of the object (metal, ceramic, plastic or cardboard body) by compression or by melt cast, or tightly enclosed into the body, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them. Smoke ammunition, that hasn't functioned, will be preferentially destroyed by burning or blasting, except for some cases scheduled for dismantling. It isn't a physical separation from the object but a chemical separation.	4a : NO Pyrotechnic substances or mixtures used without the object (structure, form, caliber, system of ignition,...) would be unable to produce the effects defined in step 1. For example to activate all types of hand and rifle launched grenades, there's a grenade fuse, which allows to project them and to use them in safety. For submarine signals, the initiation system is hydrostatic. The object is design to withstand a pressure of a depth of 500 m. 4b: NO After ignition, the body of the object has an influence on the combustion law and. acts on the effects. 4c : YES It is a single operation during which the substances / mixtures are consumed. The become inert object becomes waste 2 NO/ 1 YES	5a: YES Without substance or mixture, the object would be unable to realize the identified functions. 5b: YES The object is designed to project the effects (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The ammunition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
										
13		Smoke signals Smoke pot of practice munitions Colored smoke grenade  Attack warning signal 	**13b (ii) by sublimation of an organic dye**	YES To optimize the generation of the opaque screen during a specific duration, the design and architecture of the material and mechanical systems are essential (in order to pierce/melt holes or create openings in specific places of the special material and of a given size, to generate smoke at a given rate, to keep combustion going and confined, according to a given combustion law, without stopping of going into flames,…)	NO Generally, the substance or mixture of substances is shaped in the body of the object (metal, ceramic, plastic or cardboard body), or tightly enclosed into the body, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them. Smoke ammunition, that hasn't functioned, will be preferentially destroyed by burning or blasting, except for few cases scheduled for dismantling. It isn't a physical separation from the object but a chemical separation.	4a : NO Pyrotechnic substances or mixtures used without the object (structure, form, caliber, system of ignition,…) would be unable to produce the effects defined in step 1. 4b : NO After ignition, the body of the object has an influence on the combustion law and acts on the effects. 4c : YES It is a single operation during which the substances / mixtures are consumed. The become inert object becomes waste 2 NO/ 1 YES	5a: YES Without substance or mixture, the object would be unable to realize the identified functions. 5b: YES The object is designed to project the effects (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The smoke signal maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,…) of the product, in some cases, for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	WITH RELEASE AS ACCESSORY FUNCTION (INTENDED RELEASE) The dye must be registered if all conditions are fulfilled particularly for the annual band of tonnage)

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
13		Wide band obscuring grenades, Practice bomb marker	**13b (iii) : by a substance reacting with the ambient environment as red phosphorus or terephthalic acid**	YES To optimize the generation of the opaque screen during a specific duration, the design and architecture of the material and mechanical systems are essential (in order to pierce/melt holes or create openings in specific places of the special material and of a given size, to generate smoke at a given rate, to keep combustion going and confined, according to a given combustion law, without stopping of going into flames,...)	NO Generally, the substance or mixture of substances is shaped in the body of the object (metal, ceramic, plastic or cardboard body) by compression or by melt cast, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them, Smoke ammunition, that hasn't functioned, will be preferentially destroyed by burning or blasting, except for few cases scheduled for dismantling. It isn't a physical separation from the object but a chemical separation.	4a :NO Pyrotechnic substances or mixtures used without the object (structure, form, caliber, system of ignition,...) would be unable to produce the effects defined in step 1. For example, terephthalic acid generates a white smoke in contact with air but the ammunition is designed to be projected to ensure the safety and the efficiency. For this reason, the ammunition needs to be initiated to work. 4b : NO After ignition, the body of the object has an influence on the combustion law and acts on the effects. 4c : YES It is a single operation during which the substances / mixtures are consumed. The become inert object becomes waste 2 NO/ 1 YES	5a: YES Without substance or mixture, the object would be unable to achieve the identified functions. 5b: YES The object is designed to project the effects... (see function defined in step 1) 5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The smoke ammunition maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his weapon system and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE The substance used reacts immediately with the ambient conditions and is fully transformed. The reaction products are exempted from registration according to REACH annex V.
14	Emissive decoys	Conventional decoys, Spectral decoys, IR tracking flares, Countermeasure rockets, etc. AIRBORNE COUNTERMEASURES 55 mm  A highly energetic flare 	Designed: to provide protection of aircraft from missiles by delivering a signal of a specific power according to a given time law and frequency bands to confuse missile guidance electronics to fit into a specific class of launcher (OTAN calibers or other..) to ensure safety and reliability specifications	YES The structure in which the payload is confined is required to firstly launch the cartridge from a launcher (round or square size) and especially to contain the initiation chain and hot gases required for ignition of the IR payload that delivers the signal decoy. The ignition occurs at a specific distance from the platform to be protected for security. The cartridge is ejected at a speed more than 25 m / s. The structure of the decoy must resist to mechanical agressions as vibrations, chock, thrust and also be water resistant.	NO The substance or mixture of substances is shaped in the body of the object (metal, ceramic, plastic or cardboard body) by compression or by melt cast, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them. Spectral flare that hasn't functioned will be preferentially destroyed by burning or blasting, except for few cases scheduled for dismantling. It is not a physical separation from the object	4a: NO A payload used without the object (structure, form, caliber, system of ignition,...) would be unable to produce the effects defined in step 1. 4b: NO The object is designed to fit into a launcher, it must be initiated by a pyrotechnic chain. It is designed for transmitting a signal while performing the functions of security and reliability. 4c: YES It is a single operation during which the substances / mixtures	5a: YES Without the pyrotechnic mixture, the object would be unable to realize the identified functions. 5b: YES The object is designed to project the effects.... (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or	6a : YES An emissive decoy maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his launcher and to ensure the defined performances.	ARTICLE	NO RELEASE

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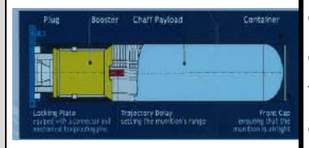
		A flare cartridge with 4 payloads ejected individually by the system.  DIFFERENT TYPES and DESIGNS of CONVENTIONAL DECOYS FOR AIRCRAFT AND HELICOPTERS 		Thus, the shape/design/surface is more relevant than the chemical composition.	but a chemical separation.	are consumed. The become inert object becomes waste 2 NO / 1 YES	nor be recovered. 3 YES	6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES		

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
15	Passive decoys	Electromagnetic effect cartridges, Countermeasure rockets, Chaff decoy systems, dispensing systems A chaff rocket   	Designed: To protect a target (generally a ship) against a missile, by deploying an object or group of objects liable to generate a specific electromagnetic or radar signature, intended to confuse, dilute, seduce or distract missile guidance electronics to fit a specific class of launcher (OTAN calibers or other..) to ensure safety and reliability specifications	YES The structure in which the chaff payload is confined is required to firstly launch the cartridge from a launcher (round or square size) and especially to contain the initiation chain and hot gases required for propulsion of the payload that delivers the signal. The structure of the decoy must resist to mechanical agressions as vibrations, chock, thrust and also be water resistant. In chaff decoy system, a cloud of chaff is generate at a certain distance of the ship to cover a specific area in the space. The cloud is realized with the ejection of several chaff submunitions. Thus, the shape/design/surface is more relevant than the chemical composition.	In the case of chaff decoy system, it is possible to separate the chaff payload from the rocket. However it is not a mixture but articles. Furthermore, the booster and the pyrotechnic chain of ignition are not separated from the rocket. Passive decoy, that hasn't functioned, will be preferentially destroyed by burning or blasting, except for exceptional cases scheduled for dismantling. It is not a physical separation from the object but a chemical separation.	4a: NO The pyrotechnic booster or the chaff payload used without the object (structure, form, caliber, system of ignition,...) would be unable to produce the effects defined in step1. 4b: NO The object is designed to fit into a weapon system; it must be initiated by a pyrotechnic chain. It is designed for transmitting a signal while performing the functions of security and reliability. 4c: YES It is a single operation during which the substances / mixtures are consumed. The become inert object becomes waste 2 NO / 1 YES	5a: YES Without substance or mixture, the object would be unable to realize the identified functions. 5b: YES The object is designed to project the effects.... (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The decoy maintains its integrity. It's a finished product with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his launcher and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE of substance but of an article: chaff is an aluminum fiber glass, cuts in defined dipole lengths to respond to different radar wavelengths.

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16	Anti-riot / Physiological Effect ammunition	Aerosols or grenades containing CS tear gas or pepper irritant or any other substance having these effects  	Designed : -to produce a non-lethal physiological effect by dispersal of a substance, by smoke, powder dispersal, water borne spray by various means including grenade, ... In the case of a grenade, the effect must be generated during a specific duration and cover a specific area. -to fit into a specific class of weapon and launcher (for grenade) - to ensure safety and reliability specifications	BORDERLINE CASE in the case of the aerosol. YES In the case of the grenade, the shape is designed to fit to be thrown by hand, by a rifle and/or by a specific launcher. The structure is watertight and air tight with a specific shutter to assure the safety of the user. The structure is designed to open in 2 parts to allow the release of the teargas pellets before the impact with the ground, avoiding contact with the shooter.	YES it's possible to separate the CS aerosol from the object.	4a : YES In the case of an aerosol, even if the substance is separated from the spray can, the physiological effect would take place (but with a less efficiency). NO In the case of the grenade, the teargas pellets separated from the object cannot carry out the function defined in step 1. 4b :YES The aerosol disperser is mainly designed for the controlled release of the substance (it controls the speed and type of release). NO In the case of grenade, the object is designed to fit into a weapon system or launcher. It is designed for transmitting a signal while performing the functions of security and reliability 4c : YES The teargas is normally eliminated without the substance. 3 YES for the aerosol 2 NO/1 YES for grenade	5a: YES In both cases (aerosol disperser and grenade), without substance or mixture, the object would be unable to fulfill the identified functions. 5b: NO In the case of an aerosol disperser, the main function of the object is to deliver the substance. YES In the case of a grenade, because the object is designed to project the effect (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the grenade because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 5c: NO In the case of an aerosol, in normal conditions of functioning, a "disposal" of the object emptied of its integral substances/mixtures is possible. 1 YES/2 NO for aerosol 3 YES for grenade	6a : YES The aerosol or grenade maintains its integrity. There are finished products with unexpected further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his launcher or rifle and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	**For the case of teargas aerosol:** **combination of an article and a substance or mixture** **For the case of a teargas grenade:** **An article**	In the case of teargas aerosol, the release of the substance fulfils the main function. In the ECHA's guidance on articles, if the release fulfils the main function of the object, the object USUALLY would be considered as a combination of an article and substance/mixture. In the case of the teargas grenade, the conclusion of the steps 4 and 5 are unambiguously and conclude that it is an article. The release of the substance is an intended release in the meaning of Art 7 of REACH. Accordingly, we consider that the teargas must be registered.

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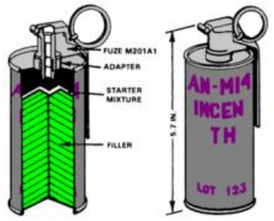
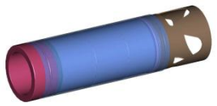
17	Special-effect ammunition Irritation ammunition	**17 a:** Acoustic ammunition, Flash bang grenades, etc. Stun grenades, simulating ammunition A flash bang grenade  17b: Incendiary ammunition with thermite, red or white phosphorous,...  17c: Flash, flash bang, photo-flash ammunition, stun grenade etc.  	Designed: 17 a: To generate psychologic and physical effects such as acoustic (thunder flash) effect, disorientation, confusion...in a given volume, against disturbing people who are exposed. 17 b: to destroy a target with a fire which produces high temperatures to cause the ignition of flammable material in a given volume and for a given duration of time 17 c: to neutralize people with a temporary blinding effect with a flash of a given duration and intensity	YES. In the case of the grenade, the shape is designed to fit to be thrown by hand, by a rifle and by a specific launcher. The structure is watertight and air tight with a specific shutter to assure the safety of the user. The structure is designed to open in 2 parts to allow the release of the teargas pellets before the impact with the ground, avoiding contact with the shooter. In this example, the body of the ammunition is perforated to minimize the blast effects. On initiation, the inner aluminum case is designed to be consumed by the pyrotechnic compound, with only the auditory and visual elements of the deflagration being permitted to escape via the perforations in the cast outer body	NO The pyrotechnic mixture of substances is tightly enclosed into the body of the object, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them. This type **of ammunition, that hasn't** functioned, will be, preferentially destroyed by burning or blasting, except for few exceptional cases scheduled for dismantling. It isn't a physical separation from the object but a chemical separation. .	4a : NO Pyrotechnic substances or mixtures used without the object (structure, form, caliber, system of ignition,...) would be unable to produce the effects defined in step 1. 4b: NO After ignition, the body of the object has an influence on the combustion law and acts on the effects. 4c: YES It is a single operation during which the substances / mixtures are consumed. The become inert object becomes waste 2 NO / 1 YES	5a: YES Without substance or mixture, the object would be unable to achieve the identified functions. 5b: YES The object is generally designed to generate and project the effects.... (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the ammunition because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The special effect ammunition maintains its integrity. It's a finished product unexpected to be further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his weapon system or launcher and to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
		17d : Anti-sonar location markers: underwater countermeasures 	17 d: to protect a submarine against the attack of a threat (like a missile) in order to simulate an under-water acoustic signature with the release of bubbles generated by the combustion of a material that produces gas. - to fit into a specific class of weapon system - to ensure safety and reliability specifications	To optimize the generation of bubbles during a specific duration, the design and architecture of the material and mechanical system are essential to allow a hydrostatic initiation, delay after ammunition ejection in order to light up only when reaching the sea surface or a given depth. The ammunition is equipped with a float to avoid it to sink.						
18	Practice (or training) ammunition	18 a. Practice bombs and shells, Training tracking flares, Dummy hollow shell ammunition, practice rocket, inert practice mines, Practice mortar ammunition   Mortar training system 	Designed: - For training or experimental purposes (as to check weapon function), inert filled projectiles with or without pyrotechnic effects (as smoke or light or sound) representing 'live' ammunition which can be fired from a gun or dropped from aircraft to simulate a real ammunition of appropriate geometry, at a specific speed and distance - to fit into standard full-caliber ammunition types - to ensure safety and reliability specifications	YES The design, the shape and the mass are essential for having a realistic training. The most important requirement is that the object is the exact replica of the real ammunition; substances contained have a secondary role. In this way, the mechanical and ballistic characteristics have to be similar to those of tactical ammunition. Moreover, an initiation system or fuse is responsible at a given time to release an impact marker without projection of solid and inert materials and component substance.	NO Generally, the substance or mixture of substances is shaped in the body of the object (metal, ceramic, plastic or cardboard body) by compression or by melt cast, thus making it impossible to be separated by simple means like pouring or wringing out. In addition, for safety reasons, it is forbidden to separate them. Practice ammunition, that hasn't functioned, will be preferentially destroyed by burning or blasting, except for few cases scheduled for dismantling. It isn't a physical separation from the object but a chemical separation. In the 2 cases, no human or environmental exposure.	4a : NO The substance inside the body used without the object (structure, shape, ignition plug ,...) would be unable to produce the effects defined in step 1. 4b :NO This type of ammunition is generally designed to be projected and be adapted to a launcher while ensuring the functions of safety and reliability 4c : YES It is a single operation during which the substances / mixtures are consumed. The inert object becomes waste 2 NO / 1 YES	5a: YES Without substance or mixture, the object would be unable to achieve the identified functions. 5b: YES The object is generally designed to simulate the effects... (see function defined in step 1). 5c: YES In normal conditions of functioning, there is no "disposal" of the grenade because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. 3 YES	6a : YES The practice ammunition maintains its integrity. The ammunition is a finished product unexpected to be further processed. 6b : YES The customer specified the architecture (dimensions, caliber,...) of the product for its integration in his weapon system or launcher and to ensure the defined performances 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES	ARTICLE	NO RELEASE
18		18 b. Practice grenades containing talc, mines or other ammunition..,	Designed: To provide training and education on the occasion of exercises or maneuvers. It shall result	YES The design and the shape are essential to release with an ignition system a substance without causing injury and	YES, It is possible to separate the body of the grenade from the ignition plug for reloading the body.	4a : NO The substance inside the body used without the object (structure, shape, ignition plug ,...) would be unable to produce the	5a: YES Without substance or mixture, the object would be unable to achieve all the identified functions	6a : YES The practice grenade maintains its integrity. It's a finished product unexpected to be further processed.	ARTICLE	WITH RELEASE AS ACCESSORY FUNCTION (INTENDED RELEASE) The substance needs to be registered if all the conditions are fulfilled particularly the annual band of tonnage

No.	GENERIC TYPE	NON EXHAUSTIVE EXAMPLES	STEP 1: MAIN FUNCTION OF THE OBJECT	STEP 2: ARE SHAPE, SURFACE OR DESIGN MORE RELEVANT FOR THE FUNCTION THAN THE CHEMICAL COMPOSITION? If it is not possible to unambiguously conclude GO TO STEP 3	STEP 3: CAN S or M BE SEPARATED FROM THE OBJECT? YES GO TO STEP 4 NO GO TO STEP 6	STEP 4: 4a 4b 4c Apply if YES at the step 3	STEP 5: 5a 5b 5c Apply only if more NO at the step 4	STEP 6 6a 6b 6c 6d Apply if NO at the step 3	CLASSIFICATION OF THE OBJECT: SUBSTANCE, MIXTURE, ARTICLE, OR COMBINATION OF AN ARTICLE AND A SUBSTANCE OR MIXTURE	INTENTIONAL RELEASE OF A SUBSTANCE WITHIN THE ARTICLE?
		   OXF1: OFFENSIVE TRAINING GRENADE	in the automatic gestures needed to launch the grenades and simulate their operation by a sound effect and/or a ground mark.	material damage, (ex: the body of the practice grenade must not produce fragments) This ammunition is an exact copy of a defensive grenade; It requires the same gestures to implement it, simulating the effects.	The nature of the substance released is not very important. It performs only one of the functions of the grenade: to simulate a point of impact.	effects defined in step 1. 4b : NO This object is produced to simulate exactly the shape, the design, the material and the effects of an offensive or defensive grenade. The object consists of an ignition system and a body of a grenade to train the soldier to realize the same gestures. 4c : YES It is a single operation during which the substances / mixtures are consumed. The inert object becomes a waste. In specific cases, the body of the grenade can be reloaded with a substance and screw another ignition plug. 2 NO / 1 YES	5b: YES The object is generally designed to simulate the effects.... (see function defined in step 1) 5c: YES In normal conditions of functioning, there is no "disposal" of the grenade because when it is fired or dropped after firing, the object emptied of its integral substances/mixtures is either destroyed and/or nor be recovered. Except in few cases, when the body of the grenade can be reloaded with a substance and screw another ignition plug. 3 YES	6b : YES The customer specified the architecture (dimensions, caliber,...) to ensure the defined performances. 6c : YES Not applicable or small transformation only 6d : YES Or not applicable 4 YES		
19	Marine marker	 A green marker 	Designed: To mark a position in the sea after being launched from an aircraft or helicopter at a given altitude and speed.	The marker needs to be adapted to the launcher. There is an ejected fin assembly crimped on the body to provide the good ballistic properties during the fall and guarantee the dispersion of the dye at the good position. The shape, the design of the object are important to mark a position precisely, but the most important is the substance contained.	YES It is possible to separate the body of the marker from the ignition plug.	4a : NO The substance alone couldn't fulfill the function if it is dispersed alone from an aircraft. The dye will be dispersed into small droplets before reaching the sea surface. 4b : YES The object acts mainly as a container for release the delivery of the substance. However it has to break at the impact with the sea surface to release the dye. 4c : YES, It is a single operation during which the substance is consumed. The inert object becomes waste.		6a : YES The ammunition maintains its integrity. It is designed to fit into a specific class of weapon system, to initiate and operate according to the defined specifications and functions defined in step 1. 6b : YES The customer specified the architecture (dimensions, caliber,...)of the product for its integration in his weapon system and to ensure the defined performances 6c : YES	COMBINATION OF ARTICLE AND SUBSTANCE	The substance released constitutes the main function of the function. The dye needs to be registered if all the conditions are fulfilled particularly the band of tonnage.

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						2 YES/1 NO		Not applicable or small transformation only 6d : YES Or not applicable 4 YES		