



BUSINESS PLAN
CEN/TC 321
EXPLOSIVES FOR CIVIL USE

EXECUTIVE SUMMARY

Business Environment

- Directive 2014/28/EU on the harmonisation of the laws of the Member States relating to the making available on the market and supervision of explosives for civil uses replaced Council Directive 93/15/EEC with 58 standards harmonized in support of it
- The market in the European Union in 2018 was about 640 000 t of the different types of explosives and about 65 million detonator units (non-electric, electric and electronic)
- Estimated market of 650 MEUR for explosives and 230 MEUR for detonators

Benefits

- Making available a new generation of CEN/TC 321 harmonized standards in support of Directive 2014/28/EU and in accordance with the Commission Implementing Decision C(2019) 6634 final on a standardisation request to the CEN and CENELEC as regards explosives for civil uses in support of Directive 2014/28/EU (M/562)
- Ensuring a high level of protection of the health and safety of workers and other users of explosives as well as the general public throughout the Union through voluntary, technology-neutral and performance-based standards
- The availability of new state of the art standards in the field of Explosives for civil uses

Priorities

- Addressing the Essential Safety Requirements of the underlying Directive 2014/28/EU
- Meeting all requirement from Commission Implementing Decision C(2019) 6634 final
- Revision of the CEN/TC 321 harmonized standards with the involvement of all relevant stakeholders

1 BUSINESS ENVIRONMENT OF THE CEN/TC 321 “Explosives for civil use”

1.1 Description of the Business Environment

According to its scope, CEN/TC 321 is responsible for the standardization of explosives substances and articles, including safety requirements, terminology, categorization and test methods. Pyrotechnic articles and ammunition are excluded and explosives intended for use by the armed forces of the police are also excluded”

Standardization of fireworks, theatrical pyrotechnic articles, pyrotechnic articles for vehicles and other pyrotechnic articles, particularly from the point of view of their safe use takes place in CEN/TC 212 “Pyrotechnic articles”.

CEN standardization activity on explosives for civil uses has been developed in support of the European Union Directive 93/15/EEC. A set of standards have been produced and are on periodical review process. More recently, the Directive has been recast resulting in Directive 2014/28/EU.

1.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the CEN/TC 321:

- From the European Federation of Explosives Manufacturers, the explosives market in the European Union (+NO+CH) in 2018 was about 640 000 t of the different types of explosives, of which about 80 % were bulk (emulsion + ANFO) and the rest cartridged. The increase from the previous year was some 8 %. NG and cartridged explosives numbers remained approximately constant, while the increase came mainly from ANFO and bulk emulsion.
- The detonators market was about 65 million units, of which nearly two thirds were non-electric and the rest electrics, except for a small 3 % of electronic detonators. The increase here was about 1,5 % in the global number. Noticeably, the increase in the number of electronic detonators sold was as high as 24 %. Non-electric detonators increased by 5 % and non-electric decreased by some 6 %.
- The above amounts give an estimated market 650 MEUR for explosives and 230 MEUR for detonators. Such figures are shared by some ten manufacturers, of which about four to five are industry world players. By its nature, explosives are generally produced relatively close to their place of use, though cartridged products and detonators are often traded across borders.
- Users in the explosives sector are basically mines, quarries and construction companies.

2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC

In support of Council Directive 93/15/EEC of 5 April 1993 on the harmonization of the provisions relating to the placing on the market and supervision of explosives for civil uses and on the basis of standardisation mandate M/055 of 1994 CEN/TC 321 developed the standard series

- EN 13630 “Explosives for civil uses - Detonating cords and safety fuses”,
- EN 13631 “Explosives for civil uses - High explosives”,
- EN 13763 “Explosives for civil uses - Detonators and relays”,
- EN 13857 “Explosives for civil uses” and
- EN 13938 “Explosives for civil uses - Propellants and rocket propellants”

that were published between 2002 and 2005.

Council Directive 93/15/EEC was repealed and Directive 2014/28/EU of the European Parliament and of the Council laying down rules on the harmonisation of the laws of the Member States relating to the making available on the market and supervision of explosives for civil uses is in charge. The Directive also contains rules on the CE marking and the essential safety requirements.

In accordance with Article 19 of Directive 2014/28/EU, explosives which are in conformity with harmonised standards or parts thereof the references of which have been published in the Official Journal of the European Union shall be presumed to be in conformity with the essential safety requirements of that Directive covered by those standards or parts thereof.

Voluntary harmonised standards should help to ensure a high level of protection of the health and safety of workers and other users of explosives as well as the general public throughout the Union and thus contribute free movement of explosives for civil uses in the Union. Given that such standards are technology-neutral and performance-based, they also contribute to ensuring equal conditions of competition among relevant economic operators dealing with explosives for civil uses, in particular small and medium-sized enterprises.

According to the so-called New Approach public authorities must recognize that all products manufactured in accordance with harmonized standards are presumed to conform to the essential requirements as defined by the relevant EU legislation. Nevertheless, European standards remain voluntary and there is no legal obligation to apply them. Any producer who chooses not to follow a harmonized standard is obliged to prove that their products conform to the essential requirements. When businesses make use of harmonized standards, they benefit from a 'presumption of conformity' with the requirements set out in the relevant European legislation. This means that they can sell their products or services throughout the Single Market – reaching a potential 600 million consumers in at least 34 countries. Meanwhile, when European Standards are correctly applied, consumers benefit from safe and environmentally-friendly products and services.¹

In accordance with the Commission Implementing Decision C(2019) 6634 final on a standardisation request to the CEN and CENELEC as regards explosives for civil uses in support of Directive 2014/28/EU (M/562) all of the existing harmonised standards supporting the Directive 2014/28/EU

¹ Taken from CEN-website ([link](#)).

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will be revised to complement their technical content in order to match the current technological developments. All existing harmonised standards will be updated to precisely indicate those essential safety requirements of Directive 2014/28/EU that they aim to cover.

In addition, one new harmonised standards based on CEN/TS 13763-27:2003 and standardisation deliverables (CEN Technical Specification) on the assessment of on-site mixed explosives and associated manufacturing units will be developed by CEN/TC 321, because new technologies, such as electronic devices, remote firing systems and mobile manufacturing systems, are increasingly present in civil explosives.

3 PARTICIPATION IN THE CEN/TC

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions. To participate in the activities of this CEN/TC, please contact the national standards organization in your country.

4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

4.1 Defined objectives of the CEN/TC

According to the specifications of the afore-mentioned Commission Implementing Decision (C(2019) 6634 final) on a Standardization Request from the European Commission accepted by CEN and given to CEN/TC 321, the TC has to revise the standards listed in the Work Programme (see clause 5) considering the given target dates. The citation of the revised standards in the Official Journal is crucial for the fulfillment of the objectives.

This main objective can be sub-divided in the following goals that all need to be fulfilled:

- meeting the target dates;
- addressing the Essential Safety Requirements of the underlying Directive 2014/28/EU ;
- technical revision of the standards, where necessary, at least editorial revision;
- maintaining consistency between the documents as they refer to each other;
- obtaining a final “compliant”-assessment as the revision of the standard will take place within the HAS Framework;
- meeting the requirements of the CEN/CENELEC Directives throughout the whole revision process.

4.2 Identified strategies to achieve the CEN/TC's defined objectives

- Meeting the target dates
- Technical revision of the standards, where necessary, at least editorial revision

The subgoals of the standardization process (transmission of WD, prEn and FprEN) already provide some possibilities for assessing the feasibility of a project in terms of time. Buffers have been considered in the overall project planning.

Having evaluated the feasibility of the revision, the responsible experts, the work to be done and the time available will be agreed on at the beginning of each project. Interfaces and interrelations between projects have to be identified ahead of the work as well. Crucial moments will be the provision of the WD and later the prEN to the HAS consultant as the comments might require important changes to be carried out. In addition, comments from the mirror committees and the public might put the project schedule at risk.

In the case of a looming deadline the possibilities of speeding up the process will be coordinated between the responsible expert, the WG convenor and the WG secretary.

If, during the revision process and against the specifications of the Standardization Request, the need for a more fundamental adaptation of a standard occurs, the TC secretary has to be informed as soon as possible via the WG secretary to coordinate the next steps. The Standardization Request already foresees such a situation and provides with a procedure but connects it to strict requirements.

- Addressing all requirements of the underlying Directive 2014/28/EU

This is guaranteed to the best of our knowledge by the participating experts and reviewed and, if necessary, commented by the HAS Consultant.

- Achieving a final "compliant"-assessment as the revision of the standard will take place within the HAS Framework

The system of HAS Consultants (HARmonized Standards) replaced the previous system of New Approach Consultants in the beginning of 2018. The new system aims to improve the quality of harmonized standards in terms of compliance with underlying legislation.

The new system also brings with it a change in the rules for the assessments of candidate hENs, which are provided at least twice in the course of a project (at Enquiry stage and ahead of the Formal Vote). Thus, it is possible that formerly confirmed standards are assessed as non-compliant in an assessment prepared by a HAS Consultant. Any adjustments that may be necessary may pose a risk to the success of the project in terms of time.

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CEN/TC 321 addresses this situation in two ways. First of all, it has already been agreed that all projects make use of the option of so-called indicative assessment during the preparation of the draft. This will be requested in parallel to the circulation of the project's Working Draft at TC-level. In addition, two published standards (a requirement standard and a test method standard) have already undergone an HAS assessment in order to already know the essential adaptation requirements.

- Maintaining consistency between the documents as they refer to each other – sometimes more, sometimes less

This is ultimately ensured by the WG officials. Nevertheless, coordination with the plenary and the TC officials will be maintained throughout the project durations. Consistency refers to terminology used, cross-references between documents, specifications and requirements as well as the structure of documents. Regarding the terminology there is a terminology standard that has to be used and considered.

- Meeting the requirements of the CEN/CENELEC Directives throughout the whole revision process

The TC and WG secretaries will take care of this aspect.

4.3 Environmental aspects

As CEN/TC 321 is developing standards in support of the European Union Directive 2014/28/EU environmental aspects will be covered within the respective product standards as far as the aforementioned Directive is requesting their coverage. Additional requirements or recommendations can't be specified due to current guidelines for drafting standards for the citation in the Official Journal of the European Union.

5 WORK PROGRAMME

The status of the development of the projects can be gathered from the committee homepage ([link](#)).

5.1 EN 13630, Explosives for civil uses - Detonating cords and safety fuses

Parts to be revised and published until October 1st, 2022:

- EN 13630-1:2003, Part 1: Requirements
- EN 13630-2:2002, Part 2: Determination of thermal stability of detonating cords and safety fuses

- EN 13630-3:2002, Part 3: Determination of sensitiveness to friction of the core of detonating cords
- EN 13630-4:2002, Part 4: Determination of sensitiveness to impact of detonating cords
- EN 13630-5:2003, Part 5: Determination of resistance to abrasion of detonating cords
- EN 13630-6:2002, Part 6: Determination of resistance to tension of detonating cords
- EN 13630-7:2002, Part 7: Determination of reliability of initiation of detonating cords
- EN 13630-8:2002, Part 8: Determination of resistance to water of detonating cords and safety fuses
- EN 13630-9:2004, Part 9: Determination of transmission of detonation from detonating cord to detonating cord
- EN 13630-11:2002, Part 11: Determination of velocity of detonation of detonating cords
- EN 13630-12:2002, Part 12: Determination of burning duration of safety fuses

Parts to be revised and published until October 1st, 2024:

- EN 13630-10:2005, Part 10: Determination of initiating capability of detonating cords

5.2 EN 13631, Explosives for civil uses - High explosives

Parts to be revised and published until October 1st, 2022:

- EN 13631-1:2005, Part 1: Requirements
- EN 13631-3:2004, Part 3: Determination of sensitiveness to friction of explosives
- EN 13631-4:2002, Part 4: Determination of sensitiveness to impact of explosives
- EN 13631-7:2003, Part 7: Determination of safety and reliability at extreme temperatures
- EN 13631-10:2003, Part 10: Method for the verification of the means of initiation
- EN 13631-11:2003, Part 11: Determination of transmission of detonation
- EN 13631-12:2004, Part 12: Specifications of boosters with different initiating capability
- EN 13631-13:2003, Part 13: Determination of density
- EN 13631-15:2005, Part 15: Calculation of thermodynamic properties
- EN 13631-16:2004, Part 16: Detection and measurement of toxic gases

Parts to be revised and published until October 1st, 2024:

- EN 13631-2:2002, Part 2: Determination of thermal stability of explosives
- EN 13631-5:2002, Part 5: Determination of resistance to water
- EN 13631-6:2002, Part 6: Determination of resistance to hydrostatic pressure
- EN 13631-14:2003, Part 14: Determination of velocity of detonation

5.3 EN 13763, Explosives for civil uses - Detonators and relays

Parts to be revised and published until October 1st, 2022:

- EN 13763-4:2003, Part 4: Determination of resistance to abrasion of leading wires and shock tubes
- EN 13763-5:2003, Part 5: Determination of resistance to cutting damage of leading wires and shock tubes
- EN 13763-6:2003, Part 6: Determination of resistance to cracking in low temperatures of leading wires
- EN 13763-7:2003, Part 7: Determination of the mechanical strength of leading wires, shock tubes, connections, crimps and closures
- EN 13763-8:2003, Part 8: Determination of the resistance to vibration of plain detonators
- EN 13763-9:2003, Part 9: Determination of resistance to bending of detonators
- EN 13763-11:2003, Part 11: Determination of resistance to damage by dropping of detonators and relays
- EN 13763-12:2003, Part 12: Determination of resistance to hydrostatic pressure
- EN 13763-15:2004, Part 15: Determination of equivalent initiating capability
- EN 13763-16:2003, Part 16: Determination of delay accuracy
- EN 13763-18:2003, Part 18: Determination of series firing current of electric detonators
- EN 13763-20:2003, Part 20: Determination of total electrical resistance of electric detonators
- EN 13763-21:2003, Part 21: Determination of flash-over voltage of electric detonators
- EN 13763-22:2003, Part 22: Determination of capacitance, insulation resistance and insulation breakdown of leading wires
- EN 13763-23:2002, Part 23: Determination of the shock-wave velocity of shock tube
- EN 13763-24:2002, Part 24: Determination of the electrical non-conductivity of shock tube
- EN 13763-25:2004, Part 25: Determination of transfer capability of surface connectors, relays and coupling accessories

Parts to be revised and published until October 1st, 2023:

- EN 13763-1:2004, Part 1: Requirements
- EN 13763-13:2004, Part 13: Determination of resistance of electric detonators to electrostatic discharge
- CEN/TS 13763-27:2003, Part 27: Definitions, methods and requirements for electronic initiation systems (revision and change to EN)

Parts to be revised and published until October 1st, 2024:

- EN 13763-2:2002, Part 2: Determination of thermal stability
- EN 13763-3:2002, Part 3: Determination of sensitiveness to impact
- EN 13763-17:2003, Part 17: Determination of no-fire current of electric detonators
- EN 13763-19:2003, Part 19: Determination of firing impulse of electric detonators

5.4 EN 13857, Explosives for civil uses

Parts to be revised and published until October 1st, 2022:

- EN 13857-1:2003, Part 1: Terminology
- EN 13857-3:2002, Part 3: Information to be provided by the manufacturer or his authorised representative to the user

5.4 EN 13938, Explosives for civil uses - Propellants and rocket propellants

Parts to be revised and published until October 1st, 2022:

- EN 13938-1:2004/AC:2006, Part 1: Requirements
- EN 13938-2:2004, Part 2: Determination of resistance to electrostatic energy
- EN 13938-3:2003, Part 3: Determination of deflagration to detonation transition
- EN 13938-5:2004, Part 5: Determination of voids and fissures
- EN 13938-7:2004, Part 7: Determination of properties of black powder

Parts to be revised and published until October 1st, 2023:

- EN 13938-4:2003, Part 4: Determination of burning rate under ambient conditions

5.5 New CEN/TS

A new CEN Technical Specification (CEN/TS) on the Assessment of on-site mixed explosives and associated manufacturing units will be developed and published until October 1st, 2022

5.6 Not harmonized parts of CEN/TC 321 standards

In 2004, two further CEN/TC 321 standards were published

- EN 13763-26:2004, Explosives for civil uses - Detonators and relays - Part 26: Definitions, methods, and requirements for devices and accessories for reliable and safe function of detonators and relays
- EN 13938-6:2004, Explosives for civil uses - Propellants and rocket propellants - Part 6: Solid rocket propellants - Guide for the determination of integrity of inhibitor coatings

These two standards are not covered by the above mentioned Standardisation Request. Their revision will be decided according demand.

6 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME

- **Expert resources and funding**

As standardization work and the elaboration of standards and related documents commonly are a contribution of experts as representatives of stakeholder groups that is done in addition to the regular employment, sufficient expert resources are constantly a determinant for the success of a project regarding quality expectations and meeting target dates at the same time. In addition, aspects of funding have to be considered since the contribution to standardization does not result in immediate and direct revenues.

First of all, CEN/TC 321 officials are thanking all WG officials, experts, national mirror committees and stakeholder groups for their active contributions up to now and in the future.

The nomination of experts for the work on European level in the working groups of CEN/TC 321 is done by its national mirror committees, whereas the nomination of experts for the participation in the mirror committee's work usually is done by stakeholder organisations or stakeholder associations on national level. In accordance with the CEN/CENELEC Internal Regulations ([link](#)) the TC- and WG-officials are taking care that all relevant informations are provided in a timely manner giving experts sufficient time for their organisation.

Nevertheless, it is expected that only those experts are nominated for the participation in working groups that are willing and able to contribute as needed. At the same time, the TC- and WG-officials are taking care that experts can focus on the technical work.

With respect to funding of the standardization work it can be said that for standardisation activities supporting EU legislation like Directive 2014/28/EU on Explosives for civil use there is a possibility for obtaining EC/EFTA funding. Further information on this possibility and the application process can be obtained from the TC secretary.

- **Specific expertise for a project**

As part of the voting procedure for the acceptance of new work items ([link](#)) the national mirror committees are asked whether they are committed to actively participate in the development of the project. NMC voting positively are also requested to nominate experts. It is required that 5 or more TC members expressed commitment to participate. If a TC believes that the commitment of at least 5 TC members is not necessary or not feasible, it is asked to request the BT for a derogation, providing thereby a justification of the request.

In the of missing expertise for a project it is up to the TC officials together with the TC members to identify possible stakeholder groups that might be able to contribute to the development of the project and to contact them. Usually, the experts are well connected and can give helpful hints here.

If expertise is lacking, a project won't be activated and, thus, not realized.

- **High number of projects to be revised in parallel**

As given in the work programme (see clause 5) CEN/TC 321 has to revise 46 standards until October 2022, 4 standards until October 2023 and further 9 standards until October 2024. This results in 59 standards to be revised/developed. Against the background of the CEN standard development track all projects overlap. An overall project schedule was drafted and will guide the complete work.

It will be decided on WG level how to organize the revision process. The big majority of the projects won't be revised technically but rather editorially.

The TC and WG officials will try to standardize the revision process as far as possible, as it is expected that similar aspects will have to be adapted in all standards. The workload is distributed over several shoulders, with the overhead at WG Convenor and WG secretary. If needed, task groups within the Working Groups will be established.

Attention is be drawn to the fact, that there are 4 standard series and two rather general standards (EN 13857-1/-3). Each standard series consists of a part specifying requirements and the other parts specifying test methods. The test method parts are all structured more or less identically.

The attached Standardization Request lays down the subject of revision for the standards in its Annex II.

- **Validation of a test method**

If for reason unknown before the activation of a project the validation of a test method, e.g. by the means of a round robin test, is necessary, and for this the project's target dates can't be met anymore, the TC secretary has to be informed immediately by the WG-officials and together with the responsible CCMC Programme Manager and the TC chairperson the next steps will be coordinated.

In the case of a project supporting European legislation and a risk of a slippage of target dates as required via a Standardisation Request, the respective contact person from the European Commission will be contacted for the coordination of the next steps.

- **Legal/regulatory issues**

As the standards of CEN/TC 321 to be revised are meant to support Directive 2014/28/EU and shall be cited in the Official Journal of the European Union (OJEU), the development of the standards will take place within the HAS framework.

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The process to be followed for the development of European Standards for citation in the Official Journal is explained in detail here ([link](#)).

To minimize the risk of receiving a so-called “lack of compliance”-assessment for any of the standards to be developed the TC-officials together with the CCMC Programme Manager are in close contact with representatives of the European Commission and the HAS Consultants responsible for the assessments.

A so-called “indicative assessment” will be requested for every project to become a Harmonized European standard during drafting stage. The preparation of the documents is planned in such a way that the working drafts can be submitted in good time, however, with all the essential components, and that, in addition, there will be enough time to be able to take into account any provided comment as result of the indicative assessment.