Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

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Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 2(e) of the provisional agenda
Explosives and related matters: Harmonized standard for security markings

Globally harmonized standard for explosives security markings

Considerations for a formal proposal for the forty-eighth session

Transmitted by the Institute of Makers of Explosives (IME)

Introduction

1. At the 46th session in ST/SG/AC.10/C.3/2014/62, IME submitted a proposal to add a new section to Chapter 1.4 that would recommend a globally harmonized format for explosives security markings. Some experts supported the proposal while others questioned whether such a recommendation belonged in the Model Regulations and raised issues of implementation. No vote was taken, and the subject was added to the work plan for the 2015 – 2016 biennium.

2. IME is preparing a revised proposal for the 48th session and is seeking input from experts to aid in development of that proposal.

Discussion

3. From discussions during the 46th session, there appear to be some basic issues that must be resolved before the subcommittee will consider recommending a harmonized standard for explosives security markings:

- Does a harmonized standard for explosives security markings belong in the Model Regulations?
- What is the linkage of this proposed standard to transport?
- Who should assign country and manufacturer codes?
- How should markings be applied and to what products, packagings, etc.?

4. Does a harmonized standard for explosives security markings belong in the Model Regulations? IME is of the opinion that this issue was agreed at the 43rd session at which the working group on explosives concluded that "… it might be worthwhile to have

something in Section 1.4.3.2.2 (Security Plans) of the Model Regulations that provides for a harmonized format for such markings, most likely based on the EU marking format. IME was encouraged to return with a formal proposal to accomplish this".[1] The sub-committee supported the conclusion of the working group and encouraged IME to return with a formal proposal.[2] Further, IME believes that this conclusion was echoed by the chairman in his comments to the sub-committee at the 46th session. IME has been working under the assumption that the conclusions from the 43rd session were a mandate to proceed with development of a proposal.

5. What is the linkage of this proposed standard to transport? A linkage to transport can be established by recommending that the security markings be placed on transport packagings containing those listed in Table 1.4.1 of the Model Regulations. IME did not specifically include a provision for marking the transport packaging in its proposal for the 46th session; however, IME proposes to do so in the proposal for the 48th session. Further, placement of a recommendation, similar to the one found in section 1.4.3.2.1, would provide additional linkage to the transportation security requirements already established by this sub-committee. Section 1.4.3.2.1 *recommends* that competent authorities *consider* establishing a program for the security of high consequence dangerous goods. A similar *recommendation* that competent authorities *consider* requiring placement of security markings on transport packagings, and their contents, could be inserted following 1.4.3.2.1 and would suggest obligations consistent with those in 1.4.3.2.1.

6. Who should assign country and manufacturer codes? Prior to the 46th session, the expert from the UK suggested to IME that these codes should be assigned by a "relevant authority" and that the relevant authority should be of the country of manufacture. IME agrees and would incorporate this concept in its proposal for the 48th session.

7. How should markings be applied and to what products, packagings, etc.? IME had initially intended to leave implementation issues to the authorities in countries adopting the recommendation. However, it is clear to IME that these issues must be addressed if the proposal is to succeed. IME intends to do this in its proposal for the 48th session.

Consideration

8. IME requests that the sub-committee consider the following refinement to the pending proposal for a globally harmonized standard for explosives security markings:

(a) Insert a new paragraph 1.4.3.2.2 after existing paragraph 1.4.3.2.1 to read:

In implementing national security provisions, competent authorities shall consider requiring placement of security markings, as described in Appendix C, on transport packagings, and their contents, containing Table 1.4.1 explosives.

Insertion of this new proposed paragraph 1.4.3.2.2 addresses the issues discussed in paragraph 5 above.

(b) Adjust subsequent paragraph numbers and references in section 1.4.3.

(c) Add a new Appendix C that would contain two parts; the first describing the marking format and applicability of the recommendation and the second providing guidance and recommendations relating to the technical specifications of explosives

[1] UN/SCETDG/43/INF.61/Rev.1, para. 21 (Conclusion)
[2] ST/SG/AC.10/C.3/86, para. 33

security markings. The new appendix C would address the issues described in paragraphs 6 and 7 above.

9. The Annex to this paper presents the full draft text of the proposal that IME is developing for the 48th session. The proposal consists of two amendments to the Model Regulations:

(a) Amendment 1 provides the suggested changes to section 1.4.3 including insertion of a new 1.4.3.2.2 and the consequential adjustment of the following paragraph numbers and references. IME has searched the Model Regulations and believes that amendment 1 addresses all consequential amendments required.

(b) Amendment 2 provides the text of the proposed new Appendix C to the Model Regulations as described in paragraph 8.c. above.

10. The sub-committee is invited to review the proposal suggested in the Annex and if acceptable to the sub-committee, IME will prepare a formal proposal on that basis for the 48th session.

Annex

Amendment 1: Amend section 1.4.3.2 as indicated below:

1.4.3.2 *Specific security provisions for high consequence dangerous goods*

1.4.3.2.1 In implementing national security provisions competent authorities shall consider establishing a programme for identifying consignors or carriers engaged in the transport of high consequence dangerous goods for the purpose of communicating security related information.

1.4.3.2.2 In implementing national security provisions, competent authorities shall consider requiring placement of security markings, as described in Appendix C, on transport packagings, and their contents, containing Table 1.4.1 explosives.

1.4.3.2.~~2~~3 *Security plans*

1.4.3.2.~~2~~3.1 Carriers, consignors and others (including infrastructure managers) engaged in the transport of high consequence dangerous goods (see 1.4.3.1) shall adopt, implement and comply with a security plan that addresses at least the elements specified in 1.4.3.2.~~2~~3.2.

1.4.3.2.~~2~~3.2 The security plan shall comprise at least the following elements:

(a) Specific allocation of responsibilities for security to competent and qualified persons with appropriate authority to carry out their responsibilities;

(b) Records of dangerous goods or types of dangerous goods transported;

(c) Review of current operations and assessment of vulnerabilities, including inter-modal transfer, temporary transit storage, handling and distribution as appropriate;

(d) Clear statements of measures, including training, policies (including response to higher threat conditions, new employee/employment verification etc.), operating practices (e.g. choice/use of routes where known, access to dangerous goods in temporary storage, proximity to vulnerable infrastructure etc.), equipment and resources that are to be used to reduce security risks;

(e) Effective and up to date procedures for reporting and dealing with security threats, breaches of security or security incidents;

(f) Procedures for the evaluation and testing of security plans and procedures for periodic review and update of the plans;

(g) Measures to ensure the security of transport information contained in the plan; and

(h) Measures to ensure that the distribution of the transport information is limited as far as possible. (Such measures shall not preclude provision of transport documentation required by Chapter 5.4 of these Regulations).

NOTE: *Carriers, consignors and consignees should co-operate with each other and with appropriate authorities to exchange threat information, apply appropriate security measures and respond to security incidents.*

1.4.3.2.~~3~~4 For radioactive material, the provisions of this Chapter and of section 7.2.4 are deemed to be complied with when the provisions of the Convention on Physical Protection of Nuclear Material[1] and the IAEA circular on "The Physical Protection of Nuclear Material and Nuclear Facilities"[2] are applied.

[1] INFCIRC/274/Rev.1, IAEA, Vienna (1980).
[2] INFCIRC/225/Rev.4 (Corrected), IAEA, Vienna (1999).

Amendment 2: Add new Appendix C to the Model Regulations as indicated below:

Appendix C

Security marking requirements for explosives that are listed in table 1.4.1: indicative list of high consequence dangerous goods

Section 1.4.3.2.2 requires that, in implementing national security provisions, competent authorities shall consider requiring placement of security markings on transport packagings, and their contents, containing Class 1 articles or substances to enable traceability, thus enhancing the security of explosives during transport. So that the explosives security markings may be readily and reliably read and understood by those encountering marked explosives, it is desirable that a globally harmonized format be used. Part 1 of Appendix C is intended to aid competent authorities (or those national authorities responsible for the security of explosives) in developing a globally harmonized explosives security marking format for use within their jurisdiction. Part 2 of Appendix C provides guidance regarding the implementation, application and use of explosives security markings.

Part 1

Globally harmonized format for explosives security markings

C1-1 Except as provided in C1-2, Class 1 explosives that are listed in **Table 1.4.1: Indicative list of high consequence dangerous goods** shall not be offered for transport unless their transport packagings and, where technically feasible, inner packagings and the explosives themselves bear the unique identification marks as prescribed in C1-3.

C1-2 The provisions of C1-1 do not apply to:

(a) Explosives transported and delivered unpackaged or in pump trucks for their direct unloading into blast-holes intended for explosive blasting operations;

(b) Explosives manufactured at explosives blast site operations, and loaded for use immediately after being produced (in situ production);

(c) Fuses, which are cord-like non-detonating igniting devices;

(d) Safety fuses;

(e) Cap-type primers;

(f) Pyrotechnical articles, which are articles containing explosives substances or an explosive mixture of substances designed to produce heat, light, sound, gas or smoke or a combination of such effects through self-sustained exothermic chemical reactions; and/or

(g) Ammunition.

NOTE: *Terms not defined above are defined in Appendix B.*

C1-3 Globally harmonized format for explosives security markings. Security markings for explosives shall comprise of at least the following elements:

C1-3.1 A human readable part of the identification mark containing the following:

(a) The name of the manufacturer and

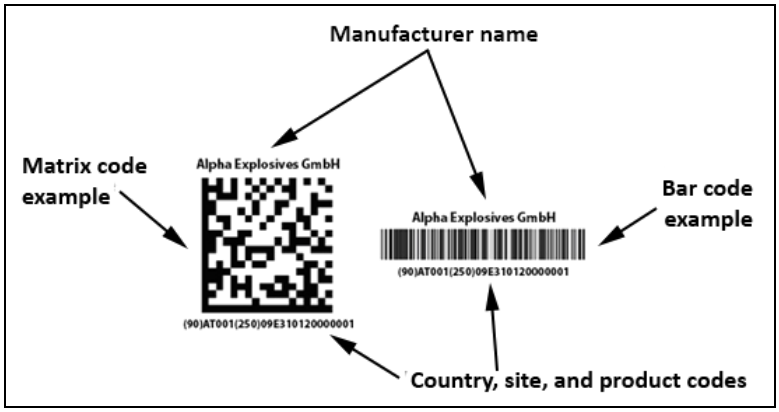
(b) A five character alphanumeric code identifying the name of the manufacturing site:

(c) The unique product code and logistical information designated by the manufacturer.

NOTE: The five digit code described in C1-3.1(b) shall be assigned by a relevant authorizing agency and shall consist of a two character ISO 3166-1 alpha-2 national letter code of the authorizing agency followed by a unique three digit code for the manufacturing site. The relevant authorizing agency should be of the country of manufacture.

C1-3.2 An electronic readable identification mark in barcode and/or matrix code format that relates directly to the alphanumerical identification code, when required by the competent authority or if desired by the manufacturer. The electronic readable identification may include additional code that facilitates access to other product information such as safety and handling instructions.

C1-3.3 Examples of acceptable markings are shown below:



Part 2

Guidance and recommendations relating to the technical specifications of explosives security markings

C2-1 Guidance and recommendations relating to the technical specifications of security markings described in C1-3 may be found in Guidance Note: FEEM European Explosives Code Structure available at www.feem.info. This includes code formatting for the electronic readable identification mark in barcode and/or matrix code.

C2-2 Where marking according to C1-3 is technically not feasible due to small size, shape or design:

(a) If marking of the information of C1-3.1(a), C1-3.1(b) and C1-3.2 is technically feasible, the information of C1-3.1(c) shall be omitted.

(b) If marking in accordance with C2-2(a) is technically not feasible, the required information shall be provided on the packaging or in a document accompanying the explosive.

NOTE: *In order to safeguard readability on bent or cylindrical surfaces the type size shall be such that the height of the character "X" should be at least 2.1 mm. An object is too small for marking or labelling if the required human-readable identification cannot be affixed. Furthermore it is technically not feasible to scan or read a matrix/bar code on a bent or cylindrical surface with a diameter less than 8.5 mm*

C2-3 Provisions for specific explosive types:

(a) Cartridged explosives and explosives in sacks shall be marked in accordance with C1-1 with an adhesive label or direct printing on each cartridge or sack, with an associated label on each case of cartridges.

(b) Packaged two-component explosives shall be marked in accordance with C1-1 with an adhesive label or direct printing on each smallest packaging unit containing the two components.

(c) Plain detonators or fuses shall be marked in accordance with C1-1 with an adhesive label or direct printing or stamping on the detonator shell, with an associated label on each case of detonators or fuses. If marking is direct printing on the primer or booster the identification information shall consist of only the information described in C1-3.1(a) and C1-3.1(b).

(d) Electric, non-electric or electronic detonators shall be marked in accordance with C1-1 with an adhesive label or direct printing or stamping on the detonator shell, with an associated label on each case of detonators.

(e) Primers or boosters shall be marked in accordance with C1-1 with an adhesive label or direct printing on the primer or booster, with an associated label on each case of primers or boosters. If marking is direct printing on the primer or booster the identification information shall consist of only the information described in C1-3.1(a) and C1-3.1(b).

(f) Detonating cord shall be marked in accordance with C1-1 with an adhesive label or direct printing on the bobbin. For detonating cord of diameter greater than 8.5 mm the unique identification information of C1-3.1 shall be marked every five (5) meters on either the external envelope of the cord or fuse or the plastic extruded inner layer immediately under the exterior fibre of the cord or fuse. An associated label shall be placed on each case of detonating cord or fuse.

(g) Cans and drums containing explosives shall be marked in accordance with C1-1 with an adhesive label or direct printing on the can or drum containing the explosives.

(h) Explosive products where copies of the original label are desired shall be marked in accordance with C1-1 that shall include an attached adhesive detachable copy of the original label. The copy shall be visibly marked as a copy of the original to prevent misuse.