

INTERNATIONAL MARITIME ORGANIZATION
4 ALBERT EMBANKMENT
LONDON SE1 7SR

Telephone: 020 7735 7611
Fax: 020 7587 3210
Telex: 23588 IMOLDN G



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**AMENDMENTS TO THE CODE OF SAFE PRACTICE FOR SOLID
BULK CARGOES (BC CODE)**

- 1 The Maritime Safety Committee, at its seventy-second session (17 to 26 May 2000), adopted amendments to the Code of Safe Practice for Solid Bulk Cargoes, as set out in the annex to the present circular.
- 2 Member Governments are invited to bring these amendments to the attention of shipping companies, shipowners, ship operators, shippers, shipmasters and crews and all others concerned.

ANNEX

AMENDMENTS TO THE BC CODE

Segregation and stowage requirements for Ammonium Nitrates

- 1 In section 9, subsection 9.3, paragraph 9.3.1, add the following new subparagraph 9.3.1.13:

“9.3.1.13 For materials for which in case of an emergency the hatches should be opened, these hatches should be kept free to be capable of being opened up.”

- 2 In Appendix B, the entries for UN Nos. 1942, 2067 and 2071, under the heading “Special requirements” insert the following new paragraph 4:

“4 The hatches of the holds should be kept free to be capable of being opened in case of an emergency.”

For the entries of UN Nos. 1942, and 2067 renumber the existing paragraphs 4 and 5 as 5 and 6 respectively. For the entry of UN No. 2071 renumber the existing paragraph 4 as 5 accordingly.

In the entries for UN Nos. 2068, 2069 and 2070 no textual changes are necessary. In these entries reference is made to “A1” (UN No. 2067).

Seed cake

- 3 In Appendix B, the entries for UN No. 1386, Seed cake (b) and UN No. 2217, Seed cake (c), under the heading "Observations", the words "solvent-extracted rape seed meal pellets and soya bean meal" should be replaced with "solvent extracted rape seed meal pellets, soya bean meal, cotton seed meal and sunflower meal".

Description of the test of resistance to detonation

- 4 Appendix D.5 should be replaced by the following:

“D.5 Description of the Test of Resistance to Detonation**D.5.1 Principle**

D.5.1.1 The test sample is confined in a steel tube and subjected to detonation shock from an explosive booster charge. Propagation of the detonation is determined from the degree of compression of lead cylinders on which the tube rests horizontally during the test.

D.5.2 Sample Preparation

D.5.2.1 The test must be carried out on a representative sample of material. Before being tested for resistance to detonation, the whole mass of the sample is to be thermally cycled five times between 25°C and 50°C (+/-1°C) in sealed tubes. The sample shall be maintained at the extreme temperatures, measured at the centre of the sample, for at least 1 hour during each thermal cycle and at 20°C (+/- 3°C) after complete cycling until tested.

D.5.3 *Materials*

Seamless steel tube to ISO 65-1981-Heavy or equivalent.

Tube length	1000 mm
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Nominal external diameter	114 mm
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Nominal wall thickness	5 to 6.5 mm
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Bottom plate (160 x 160 mm) of good weldable quality, thickness 5 to 6 mm to be butt-welded to one end of the tube around the entire circumference.

Initiation system and booster

Electrical blasting cap or detonating cord with non-metallic sleeve (10 to 13 g/m).

Compressed pellet of secondary explosive, such as hexogen/wax 95/5 or tetryl, with a central recess to take the detonator.

500 ± 1 gram plastic explosive containing 83 to 86 % penthrite, formed into a cylinder in a cardboard or plastic tube. Detonation velocity 7300-7700 m/s.

Six witness cylinders of refined, cast lead for detecting detonation.

50 mm diameter x 100 mm high, refined lead of at least 99.5% purity.

D.5.4 *Procedure*

Test Temperature: 15 to 20°C. Figures 1 and 2 show the test arrangement.

Fill the tube about one-third of its height with the test sample and drop it 10 cm vertically five times on the floor. Improve the compression by striking the side wall with a hammer between drops. A further addition shall be made such that, after compaction or by raising and dropping the tube 20 times and a total of 20 intermittent hammer blows, the charge fills the tube to a distance of 70 mm from its orifice.

Insert the plastic explosive into the tube and press it down with a wooden die. Place the compressed pellet centrally in the recess within the plastic explosive. Close it with a wooden disc so that it remains in contact with the test sample. Lay the test tube horizontally on the 6 lead cylinders placed at 150 mm intervals (centric), with the centre of the last cylinder 75 mm from the bottom plate, on a firm, level, solid surface that is resistant to deformation or displacement. Insert the electrical blasting cap or the detonating cord.

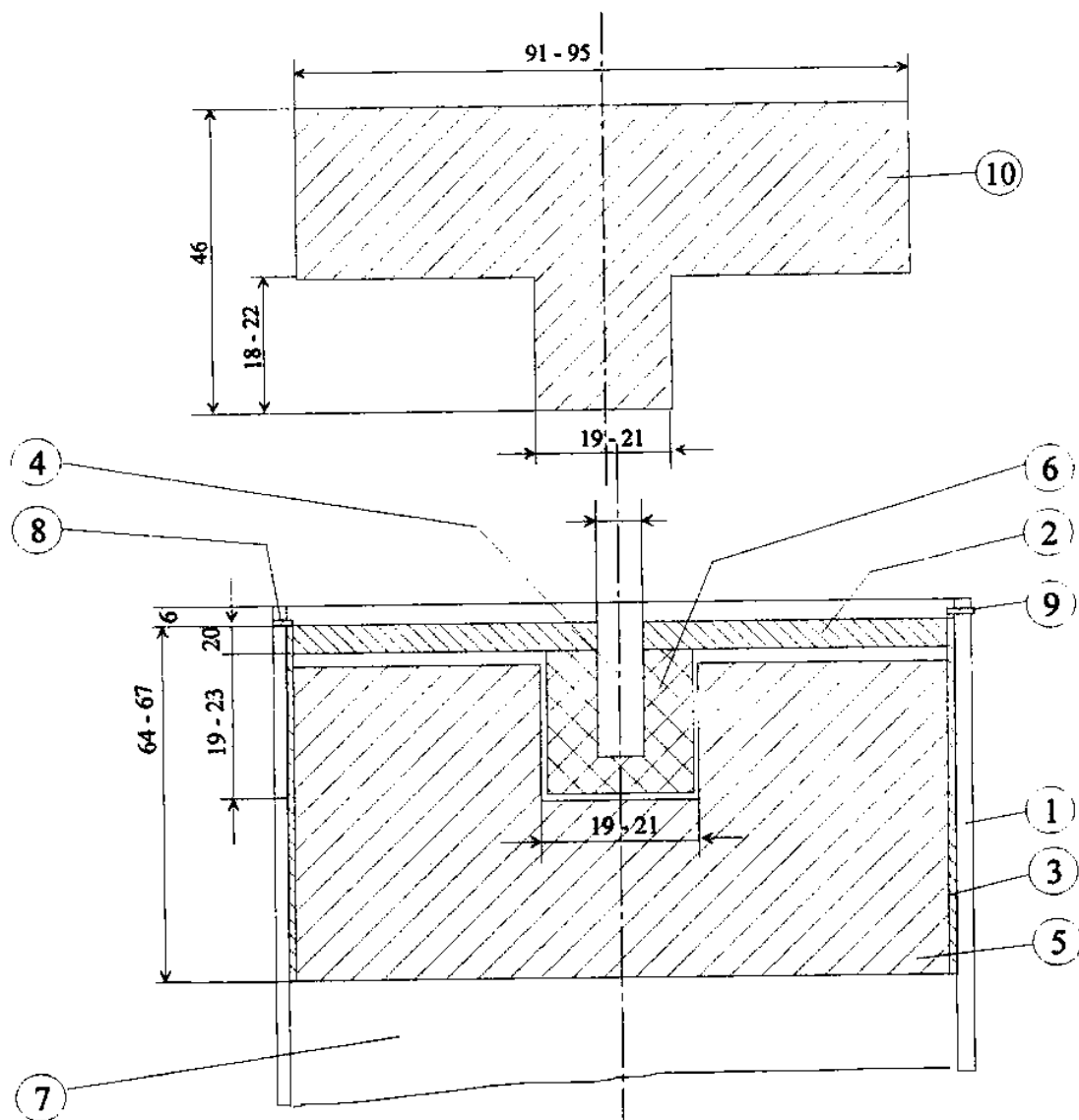
Ensure that all necessary safety precautions are taken, connect and detonate the explosive.

Record, for each of the lead cylinders, the degree of compression expressed as a percentage of the original height of 100 mm. For oblique compression, the deformation is taken as the average of the maximum and minimum deformation.

D.5.5 *Results*

The test is to be carried out twice. If in each test one or more of the supporting lead cylinders are crushed by less than 5% the sample is deemed to satisfy the resistance to detonation requirements.

Figure 1: Booster charge



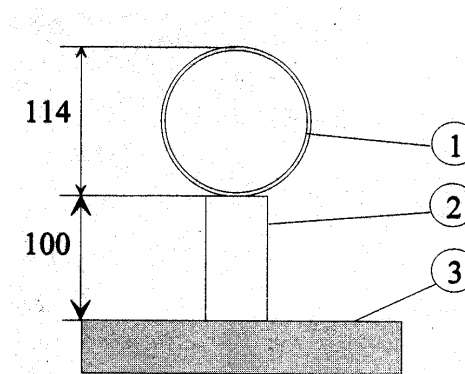
Dimensions in mm

- | | |
|---------------------------------|---|
| ① Steel tube | ⑥ Compressed pellet |
| ② Wooden disc | ⑦ Test sample |
| ③ Plastic or cardboard cylinder | ⑧ 4-mm diameter hole drilled to receive split pin (9) |
| ④ Wooden rod | ⑨ Split pin |
| ⑤ Plastic explosive | ⑩ Wooden die for (5) diameter as for detonator |

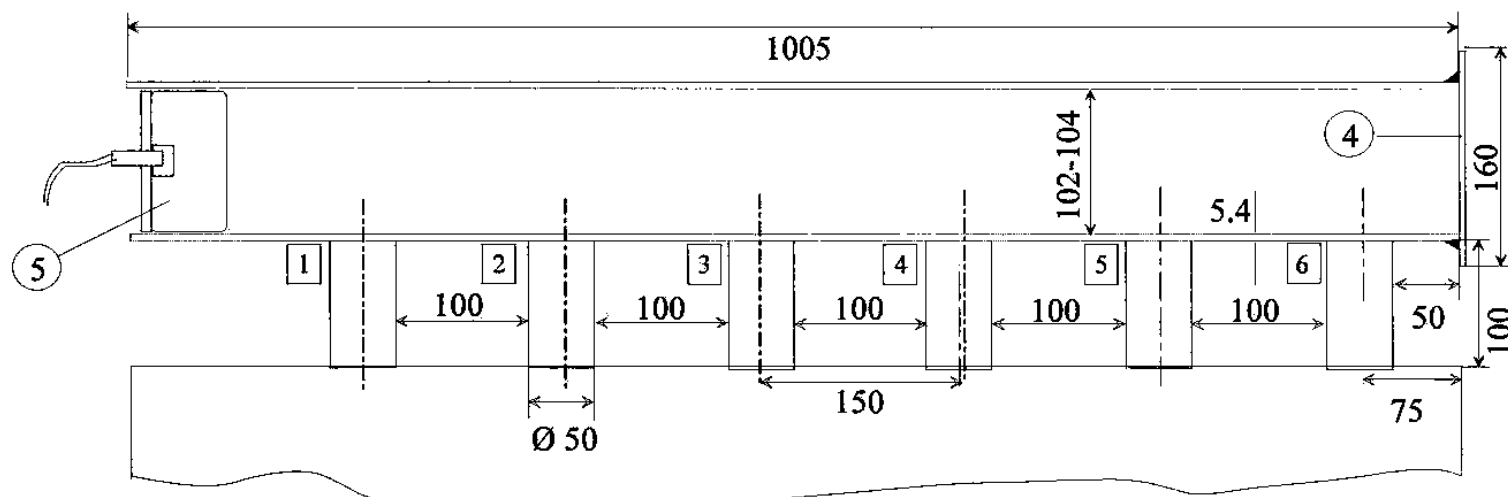
Figure 2: Positioning of the steel tube on the firing site

- ① Steel tube
- ② Lead cylinders
- ③ Steel block
- ④ Bottom plate
- ⑤ Booster charge

1 to **6** numbers of lead cylinders



dimensions in mm



Ventilation requirements for solid bulk cargoes

6 In section 3, subsection 3.5 should be replaced with the following:

“3.5 Ventilation

3.5.1. Definitions

For the purpose of this code, ventilation means exchange of air from outside to inside the cargo space to remove any build-up of flammable gases or vapours to a safe point below the Lower Explosive Limit (LEL), or for toxic gases, vapours or dust to a level to maintain a safe atmosphere in a cargo space.

For ventilation requirements, the following definitions should be applied:

- .1 natural ventilation means ventilation that is not power generated. An air flow is supplied by air ducts and/or other adequately designed openings;
- .2 surface ventilation means ventilation only of the space above the cargo;
- .3 mechanical ventilation means power generated ventilation; and
- .4 continuous ventilation means ventilation that is operating at all times.

3.5.2. Recommendations on ventilation:

- .1 when continuous ventilation is required by the entry for the cargo in Appendix B of this Code or by the cargo information provided by the shipper, ventilation should be maintained while the cargo is in the hold;
- .2 if maintaining ventilation endangers the ship or the cargo, it may be interrupted unless there is a risk of explosion or other danger due to interruption of the ventilation;
- .3 Holds intended for the carriage of cargoes for which continuous ventilation is required, should be provided with ventilation openings which may be kept opened when required. Such openings should comply with the requirements of the Load Line Convention as amended for openings not fitted with means of closure; and
- .4 Ventilation should be such that any escaping hazardous gases, vapours or dust cannot reach living quarters. Escaping hazardous gases, vapours or dust should not be able to reach work areas unless adequate precautions are taken (refer to Appendix F)”.
