

## Chapter 6.11

### Requirements for the design, construction, inspection and testing of bulk containers

#### 6.11.1 Definitions

For the purposes of this Chapter:

*Closed bulk container* means a totally closed bulk container having a rigid roof, sidewalls, end walls and floor (including hopper-type bottoms). The term includes bulk containers with an opening roof, side or end wall that can be closed during carriage. Closed bulk containers may be equipped with openings to allow for the exchange of vapours and gases with air and which under normal conditions of carriage prevent the release of solid contents as well as the penetration of rain and splash water;

*Sheeted bulk container* means an open top bulk container with rigid bottom (including hopper-type bottom), side and end walls and a non-rigid covering.

#### 6.11.2 Application and general requirements

6.11.2.1 Bulk containers and their service and structural equipment shall be designed and constructed to withstand, without loss of contents, the internal pressure of the contents and the stresses of normal handling and carriage.

6.11.2.2 Where a discharge valve is fitted, it shall be capable of being made secure in the closed position and the whole discharge system shall be suitably protected from damage. Valves having lever closures shall be able to be secured against unintended opening and the open or closed position shall be readily apparent.

#### 6.11.2.3 Code for designating types of bulk container

The following table indicates the codes to be used for designating types of bulk containers:

Types of bulk containers	Code
Sheeted bulk container	BK1
Closed bulk container	BK2

6.11.2.4 In order to take account of progress in science and technology, the use of alternative arrangements which offer at least equivalent safety as provided by the requirements of this chapter may be considered by the competent authority.

#### 6.11.3 Requirements for the design, construction, inspection and testing of containers conforming to the CSC used as bulk containers

##### 6.11.3.1 Design and construction requirements

6.11.3.1.1 The general design and construction requirements of this sub-section are deemed to be met if the bulk container complies with the requirements of ISO 1496-4:1991 "Series 1 Freight containers – Specification and testing – Part 4: Non pressurized containers for dry bulk" and the container is siftproof.

6.11.3.1.2 Containers designed and tested in accordance with ISO 1496-1:1990 "Series 1 Freight containers – Specification and testing – Part 1: General cargo containers for general purposes" shall be equipped with operational equipment which, including its connection to the container, is designed to strengthen the end walls and to improve the longitudinal restraint as necessary to comply with the test requirements of ISO 1496-4:1991 as relevant.

6.11.3.1.3 Bulk containers shall be siftproof. Where a liner is used to make the container siftproof it shall be made of a suitable material. The strength of material used for, and the construction of, the liner shall be appropriate to the capacity of the container and its intended use. Joins and closures of the liner shall withstand pressures and impacts liable to occur under normal conditions of handling and carriage. For ventilated bulk containers any liner shall not impair the operation of ventilating devices.

6.11.3.1.4 The operational equipment of bulk containers designed to be emptied by tilting shall be capable of withstanding the total filling mass in the tilted orientation.

6.11.3.1.5 Any movable roof or side or end wall or roof section shall be fitted with locking devices with securing devices designed to show the locked state to an observer at ground level.

### **6.11.3.2 Service equipment**

**6.11.3.2.1** Filling and discharge devices shall be so constructed and arranged as to be protected against the risk of being wrenched off or damaged during carriage and handling. The filling and discharge devices shall be capable of being secured against unintended opening. The open and closed position and direction of closure shall be clearly indicated.

**6.11.3.2.2** Seals of openings shall be so arranged as to avoid any damage by the operation, filling and emptying of the bulk container.

**6.11.3.2.3** Where ventilation is required bulk containers shall be equipped with means of air exchange, either by natural convection, e.g. by openings, or active elements, e.g. fans. The ventilation shall be designed to prevent negative pressures in the container at all times. Ventilating elements of bulk containers for the carriage of flammable substances or substances emitting flammable gases or vapours shall be designed so as not to be a source of ignition.

### **6.11.3.3 Inspection and testing**

**6.11.3.3.1** Containers used, maintained and qualified as bulk containers in accordance with the requirements of this section shall be tested and approved in accordance with the CSC.

**6.11.3.3.2** Containers used and qualified as bulk containers shall be inspected periodically according to the CSC.

### **6.11.3.4 Marking**

**6.11.3.4.1** Containers used as bulk containers shall be marked with a Safety Approval Plate in accordance with the CSC.

### **6.11.4 Requirements for the design, construction and approval of bulk containers other than containers conforming to the CSC**

**NOTE:** When containers conforming to the provisions of this section are used for the carriage of solids in bulk, the following statement shall be shown on the transport document:

"BULK CONTAINER BK(X) APPROVED BY THE COMPETENT AUTHORITY OF ..." (see 5.4.1.1.17).

**6.11.4.1** Bulk containers covered in this section include skips, offshore bulk containers, bulk bins, swap bodies, trough shaped containers, roller containers, and load compartments of wagons.

**NOTE:** These bulk containers also include containers conforming to the UIC leaflets 591 and 592-2 to 592-4 as mentioned in 7.1.3 which do not conform to the CSC.

**6.11.4.2** These bulk containers shall be designed and constructed so as to be strong enough to withstand the shocks and loadings normally encountered during carriage including, as applicable, transshipment between modes of transport.

**6.11.4.3** (Reserved)

**6.11.4.4** These bulk containers shall be approved by the competent authority and the approval shall include the code for designating types of bulk containers in accordance with 6.11.2.3 and the requirements for inspection and testing as appropriate.

**6.11.4.5** Where it is necessary to use a liner in order to retain the dangerous goods it shall meet the provisions of 6.11.3.1.3.