

TECHNICAL REPORT

ISO
TR 15070

First edition
1996-08-15

Series 1 freight containers — Rationale for structural test criteria

Conteneurs de la série 1 — Fondements des critères de résistance



Reference number
ISO/TR 15070:1996(E)

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International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 15070, which is a Technical Report of type 3, was prepared by Technical Committee ISO/TC 104, *Freight containers*, Subcommittee SC 1, *General purpose containers*.

Introduction

The tests specified in ISO 1496, relative to the ISO series 1 container, were established in the earliest days of the development of containerization in the 1960s. They have proved appropriate ever since and are quoted extensively in subsequent standards. In particular, the development of European Standards (EN) for swap bodies relies on the quality of the work of ISO/TC 104, the Technical Committee charged by ISO with the development and the maintenance of standards for freight containers.

At publication of this Technical Report, there are nearly 8,4 million twenty-foot equivalent units (TEU) of containers in free circulation in the world.

ISO/TC 104 is concerned that all who operate ISO containers are aware of the principles which govern the tests included in ISO 1496.

These principles were established in the early stages of the standards' development by engineers who are now retiring or have already retired.

This Technical Report has been prepared for use as a concise reference. Included, in annex A, is a reference list detailing the source documents, some 30 years old, where the avid reader will find additional information.

ISO/TC 104/SC 1/WG 1 has issued this Technical Report retaining the tests concerning ISO series 1 containers as described in ISO 1496-1.

It is intended that this Technical Report be updated and completed to include the tests for other general purpose containers and specific purpose containers as specified in ISO 1496-2, in ISO 1496-3, in ISO 1496-4 and in ISO 1496-5, which may, because of the nature and utilisation of these containers, be different in some respects.

Series 1 freight containers — Rationale for structural test criteria

1 Scope

This Technical Report gives the rationale for the structural test criteria for ISO series 1 freight containers, based on the tests specified in ISO 1496-1.

2 References

ISO 1161:1984, *Series 1 freight containers — Corner fittings — Specification.*

ISO 1496-1:1990, *Series 1 freight containers — Specification and testing — Part 1: General cargo containers for general purposes.*

ISO 1496-2:1996, *Series 1 freight containers — Specification and testing — Part 2: Thermal containers.*

ISO 1496-3:1995, *Series 1 freight containers — Specification and testing — Part 3: Tank containers for liquids, gases and pressurized dry bulk.*

ISO 1496-4:1991, *Series 1 freight containers — Specification and testing — Part 4: Non-pressurized containers for dry bulk.*

ISO 1496-5:1991, *Series 1 freight containers — Specification and testing — Part 5: Platform and platform-based containers.*

ISO 3874:1988, *Series 1 freight containers — Handling and securing.*

3 Explanatory notes on test procedures

3.1 General

The test procedures and tests specified in ISO 1496-1:

- a) concern IAAA, IAA, IA, IBBB, IBB, IB, ICC, IC and 1D containers;
- b) are based on the assumption that all containers are stowed longitudinally and lashed athwartship;
- c) are intended to demonstrate:
 - 1) the ability of a container to withstand, without failure of any kind during its service life, the loads encountered under the dynamic and normal operating conditions of various forms of intermodal transportation;