



DANSK
STANDARDISERINGSRÅD

Færdigpakket transportemballage
Regler for opbygning af prøvningsprogrammer
Del 2: Kvantitative data

Complete, filled transport packages — General rules for the compilation of performance test schedules — Part 2: Quantitative data

Dansk Standard
DS/ISO 4180/2

1. udg. Maj 1982
UDC 621.798.1:620.16

Side 1 (15)

Denne standard er identisk med International Standard ISO 4180/2, 1. udgave 1980.

This standard is identical with International Standard ISO 4180/2, 1st edition 1980.

0 Introduction

This International Standard has been prepared in order to fulfil a need of organizations concerned with the compilation of test schedules for complete, filled transport packages.

Such test schedules can be as diverse as the journeys that packages undergo. Accordingly, this International Standard is intended to set guidelines for the compilation of appropriate test schedules, rather than to provide a rigid framework or to be specified by regulatory or other authorities.

It is expected that, once compiled, a particular test schedule, including the test methods and intensities to be applied, could be the subject of International Standards or would become a matter for agreement between the parties concerned, for example the package designer, the manufacturer of the contents, the transport authority, the customer, the statutory regulating body or any combination of them.

1 Scope and field of application

This International Standard establishes general rules to be used for the compilation of performance test schedules for complete, filled transport packages intended for use within any distribution system, whether transported by road, rail, sea, air or inland waterway, or by a combination of these modes of transport.

ISO 4180/1 states the general principles entailed in compiling test schedules.

It also gives the factors to be considered in assessing the criteria of acceptance of such packages after they have been subjected to a package performance test schedule.

This part incorporates all the quantitative data necessary to establish test intensities and other quantitative features of test schedules.

The two parts are intended to be read in conjunction with one another.

2 References

DS/ISO 2206, *Emballage. Færdigpakket transportemballage. Identifikation ved prøvning.*

DS/ISO 2233, *Emballage. Færdigpakket transportemballage. Konditionering.*

DS/ISO 2234, *Emballage. Færdigpakket transportemballage. Stablingsprøvning — hvilende belastning.*

DS/ISO 2244, *Emballage. Færdigpakket transportemballage. Stødprøvning — vandret.*

DS/ISO 2247, *Emballage. Færdigpakket transportemballage. Vibrationsprøvning.*

DS/ISO 2248, *Emballage. Færdigpakket transportemballage. Stødprøvning — lodret.*

DS/ISO 2872, *Emballage. Færdigpakket transportemballage. Kompressionsprøvning.*

DS/ISO 2873, *Emballage. Færdigpakket transportemballage. Prøvning ved lavt tryk.*

DS/ISO 2874, *Emballage. Færdigpakket transportemballage. Stablingsprøvning — bevægelig belastning.*

DS/ISO 2875, *Emballage. Færdigpakket transportemballage. Vandsprøjtprøvning.*

DS/ISO 2876, *Emballage. Færdigpakket transportemballage. Vælteprøvning.*

DS/ISO 4180/1, *Emballage. Færdigpakket transportemballage. Regler for opbygning af prøvningsprogrammer. Del 1: Generelle principper.*



3 Factors requiring quantification in test methods

Relevant test methods, and the factors requiring quantification before each test can be used, are given in table 1.

4 Preferred values of test intensities

Basic test intensities, which are considered to be normal for a common distribution system and which are based upon a

package of "average" mass and size (i.e. of mass 20 kg and dimensions 400 mm × 400 mm × 400 mm) are given in table 2, for the road, rail, water and air modes of transport and for storage.

Where a test intensity other than the basic value is appropriate (see clause 5) the value selected should be chosen, as far as is practicable, from the preferred values given in table 3.

For comparative investigations or research it may be necessary to select values of test intensity other than those given in table 3.

Table 1 – Methods of test and factors requiring quantification

Method of test	Relevant International Standard	Factors requiring quantification
Conditioning	ISO 2233	Temperature, relative humidity, time, pre-drying conditions (if any).
Stacking test	ISO 2234	Load, duration of time under load, attitude(s) of the package(s) ¹⁾ , atmospheric temperature and relative humidity, number of replicate packages.
Vertical impact test by dropping	ISO 2248	Drop height, attitude(s) of the package(s) ¹⁾ , atmospheric temperature and relative humidity, number of replicate packages, number of impacts.
Horizontal impact tests (inclined plane test, pendulum test)	ISO 2244	Horizontal velocity, attitude(s) of the package(s) ¹⁾ , atmospheric temperature and relative humidity, profiles of impacting surfaces and use (if any) of an interposed hazard, number of replicate packages.
Vibration test	ISO 2247	Duration of test, attitude(s) of the package(s) ¹⁾ , atmospheric temperature and relative humidity, load (if any) superimposed on the package(s), number of replicate packages.
Compression test	ISO 2872	Maximum load (where applicable), attitude(s) of the package(s) ¹⁾ , atmospheric temperature and relative humidity, upper platen rigidly mounted or free to tilt, number of replicate packages.
Low pressure test	ISO 2873	Pressure, duration of time at reduced pressure, temperature within test chamber, number of replicate packages.
Stacking test using compression tester	ISO 2874	Load applied, duration of time under load, attitude(s) of the package(s) ¹⁾ , atmospheric temperature and relative humidity, number of replicate packages.
Water spray test	ISO 2875	Duration of time under spray, attitude(s) of the package(s) ¹⁾ , number of replicate packages.
Rolling test	ISO 2876	Atmospheric temperature and relative humidity, number of replicate packages.

1) See ISO 2206.

Table 2 — Basic test intensities

Method of test	Variable	Units	Transport mode												
			Road		Rail		Water		Air		Storage				
			Basic value	Range	Basic value	Range	Basic value	Range	Basic value	Range	Basic value	Range			
Tests imposed by equipment installation and environment Climatic 1)	Rain														
	Temperature														
	Relative humidity Low pressure														
Vibration	Duration	min	20	10 to 60	20	10 to 60	Short : 20 Long : 60	10 to 60	Under study	Under study	Under study	Under study			
	Height of stack, if loaded	m	2,50	1,50 to 3,50	2,50	1,50 to 2,50	3,50	3,50 to 7,00							
Stacking	Duration	As given	1 day	1 day to 1 week	1 day	1 day to 1 week	Short : 1 day Long : 1 week	1 day to 4 weeks	1 day	1 day	1 day	1 day to 4 weeks	Short : 1 day Long : 1 week	1 day to 4 weeks	
	Height	m	2,50	1,50 to 3,50	2,50	1,50 to 2,50	3,50	3,50 to 7,00	1,80	1,80	1,80	1,80	3,50	1,50 to 7,00	
Horizontal impact	Velocity	m/s	1,5	1,5 to 2,7	1,8	1,3 to 5,0	—	—	—	—	—	—	—	—	
Test imposed by manpower	Vertical impact	Drop height	mm	500	100 to 1 200	500	100 to 1 200	300	100 to 1 200	500	100 to 1 200	500	100 to 1 200	—	—

Under study

1) Appropriate methods of test will be the subjects of future International Standards.