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Plastics — Decorative solid surfacing materials —

Part 1: Classification and specifications

Plastiques — Matériaux décoratifs massifs de revêtement de surface —

Partie 1: Classification et spécifications

Reference number
ISO 19712-1:2008(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 19712-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

ISO 19712 consists of the following parts, under the general title *Plastics — Decorative solid surfacing materials*:

— *Part 1: Classification and specifications*

— *Part 2: Determination of properties — Sheet goods*

— *Part 3: Determination of properties — Solid surface shapes*

Introduction

This part of ISO 19712 is intended for use by manufacturers, fabricators, installers and specifiers of solid surfacing materials.

The test methods and minimum performance values presented have been related as closely as possible to end-use applications. The fabrication method and technique employed may have a bearing on product performance and service.

The performance requirements include, but are not limited to, impact resistance, structure, renewability, colourfastness, cleanability stain resistance, water resistance, chemical resistance, bacterial and fungal resistance and other significant properties.

Plastics — Decorative solid surfacing materials —

Part 1: Classification and specifications

SAFETY STATEMENT — Persons using this document should be familiar with normal laboratory practice, if applicable. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory conditions.

1 Scope

This part of ISO 19712 establishes a classification system for solid surfacing materials according to their performance.

This part of ISO 19712 also specifies property requirements for the various types of solid surfacing materials covered by this classification. Requirements are specified for the types that are most generally used, but additional types may be added as required. The specified limit values apply to the most commonly used types of material, but within each classification it may be possible to obtain variants having much higher performance values.

These materials are characterized by their homogeneous appearance, renewable surfaces and inconspicuous seams. They are generally classified as follows.

a) Solid surface sheets

   Solid surfacing sheets are designed for horizontal, vertical, wet and dry applications.

b) Solid surface shapes

   Solid surface shapes include, but are not limited to, kitchen sinks, bathroom sinks, vanity tops, showers, tubs and spas.

The important properties of solid surfacing materials are

— water resistance,

— thermal shock resistance,

— heat resistance,

— impact resistance,

— stain and chemical resistance,

— cigarette burn resistance,

— colour stability,

— hardness,

— bacterial and fungal resistance,

— cleanability,

— hygiene,

— seamability,

— renewability.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19712-2:2007, *Plastics — Decorative solid surfacing materials — Part 2: Determination of properties — Sheet goods*

ISO 19712-3:2007, *Plastics — Decorative solid surfacing materials — Part 3: Determination of properties — Solid surface shapes*

3 Terms and definitions

For the purposes of this part of ISO 19712, the following terms and definitions apply.

3.1
solid surfacing material
SSM
material, composed of polymeric materials together with pigments and fillers, intended to be cast into sheets or shaped products

NOTE 1 The material is of the same composition throughout the whole thickness of the sheet or product.

NOTE 2 Sheets and products made from SSMs are repairable and renewable to the original finish.

NOTE 3 SSMs can also be fabricated into continuous sheets with inconspicuous seams.

4 Requirements

4.1 Compliance

The performance requirements for solid surfacing materials shall meet the requirements of every property for which a value or range is specified in Clause 5.

Two methods of test are given for the measurement of resistance to wet heat, thermal cycle testing, chemical resistance, resistance to staining, resistance to cigarette burns. Three are given for the measurement of light fastness, resistance to dry heat. When there is a choice of method, material satisfying the requirements of either/any of the methods shall be deemed to comply with the specification for that property; however, the choice of method may be agreed upon between the interested parties. The method selected shall be stated in the test report.

4.2 Notes on requirements for reaction to fire

The requirements for reaction to fire are determined by the fire regulations of the country in which the material is to be used.

At present, it is not possible, with any test, to predict compliance with all national and other requirements. No test is therefore included in this specification and reference must be made to those other requirements when appropriate.

The selection of a suitable test or tests for inclusion in this part of ISO 19712 will be considered when International Standards specifying fire tests for building materials and structures have been agreed upon.

5 Properties

5.1 Colour

When inspected in daylight or D65 standard illuminant and again under a tungsten illuminant, there shall be no significant difference between the corresponding colour reference sample held by the supplier and the specimen under test.

5.2 Surface finish matching

When inspected at different viewing angles, there shall be no significant difference between the corresponding surface-finish reference sample held by the supplier and the specimen under test.

For critical colour-matching applications, it is recommended that solid surfacing materials (SSM) be checked for colour/surface-finish compatibility before fabrication or installation.

5.3 Thickness

No requirements for nominal thickness are specified for individual types of solid surfacing material; however, variations from the nominal thickness supplied shall at no point exceed the limits shown in Table 1.

Table 1 — Permitted variations of thickness

Values in millimetres

Nominal thickness, d	Maximum variation
$3{,}0 < d \leqslant 4{,}0$	$\pm$ 0,25
$4{,}5 < d \leqslant 5{,}0$	$\pm$ 0,30
$5{,}0 < d$	as agreed

5.4 Appearance

5.4.1 General

The following inspection requirements are intended as a general guide, indicating the minimum acceptable quality for solid surfacing material supplied as full-size sheets or shaped products.

5.4.2 Surface defects

5.4.2.1 Requirements

When inspected in accordance with Clause 5, of ISO 19712-2:2007 and ISO 19712-3:2007 respectively, from a distance of between 305 mm and 610 mm, the following surface defects are permissible.

5.4.2.2 Spots, dirt and similar surface defects

The finished surface of sheets/shapes shall be free from cracks, chipped areas, pinholes and blisters.

Spots, dirt and similar surface blemishes are admissible provided the total covered by such blemishes is not more than 1,0 mm^2/m^2 of the surface. The blemishes may be concentrated in one place or scattered over the sheet size/unit.

5.5 Other properties

Each solid surfacing material (SSM) sheet or shaped product, when tested by the appropriate method, shall meet the requirements in Table 1 and Table 2.

Table 2 — Property requirements

Property	Test method		Property or attribute	Unit (max. or min.)	Requirement		
	ISO 19712-2:2007 Clause No.	ISO 19712-3:2007 Clause No.			Sheet	Shaped Products	
						Kitchen sinks	Others
Resistance to dry heat	12 Method A 12 Method B	10 Method A 10 Method B	Appearance	Rating (not worse than)	3	3	3
	12 Method C	10 Method C		Surface defect	No failure	No failure	No failure
Resistance to wet heat	13 Method A 13 Method B	11 Method A 11 Method B	Appearance	Rating (not worse than)	3	3	3
Resistance to impact by large-diameter ball	8		Drop height [a]	mm (min.)	$6 \leqslant d < 9$: 700 $9 \leqslant d < 12$: 1 000 $12 \leqslant d$: 1 300 (where d = nominal thickness)	610	610
		6	Appearance	Surface defect		No failure	No failure
Resistance to staining/ chemicals	10 Method A	8 Method A	Appearance Groups 1 and 2 Groups 3 and 4	Rating (not worse than)	 3 3	 3 3	 3 3
	10 Method B	8 Method B	Appearance Staining agents 1 to 10 Staining agents 11 to 15	Rating (not worse than)	 3 3	 3 3	 3 3
			Cleanability Index	Sum of ratings (max.)	16	16	16
Lightfastness	9 Method A	7 Method A	Contrast	Grey scale rating	4 to 5	4 to 5	4 to 5
	9 Method B	7 Method B	Appearance	Rating (not worse than)	4	4	4
	9 Method C	7 Method C	Contrast	Blue wool standard	5	5	5

Table 2 (*continued*)

Property	Test method		Property or attribute	Unit (max. or min.)	Requirement		
	ISO 19712-2:2007 Clause No.	ISO 19712-3:2007 Clause No.			Sheet	Shaped Products	
						Kitchen sinks	Others
Resistance to cigarette burns	11 Method A	9 Method A	Appearance	Rating (not worse than)	3	3	3
	11 Method B	9 Method B	Time to failure	s (min.)	110	110	100
Thermal-cycle water-resistance test	14		Duration	Cycles	250		
			Temperature range	°C	20/90		
			Appearance	Surface defect	No failure		
		12 Method A	Duration	Cycles		1 000	
			Temperature range	°C		15/90	
			Appearance	Surface defect		No failure	
		12 Method B	Duration	Cycles			500
			Temperature range	°C			10/65
			Appearance	Surface defect			No failure
Load test	7	—	Deflection under load [b]	mm (max.)	< 0,25	—	—
			Appearance	Surface defect	No failure		
Surface test	5	5	Appearance Spots, dirt	Surface defects	No failure	No failure	No failure
				Max. contamination area mm^2/m^2	1,0	1,0	1,0

[a] When tested at the specified drop height, the diameter of indentation shall not exceed 10 mm for sheets.

[b] All test samples have a 12 mm thickness.

Annex A
(informative)

Hygienic, health and safety information for solid surfacing materials (SSM) intended for interior use

A.1 Cleanability

Because they are easy to clean and maintain, solid surfacing materials (SSM) are suitable for use in hygienic applications such as hospitals, pharmacies, food processing areas, abattoirs, clean rooms, etc. For routine cleaning, wiping the surface with water and mild detergent is usually effective.

A.2 Hygiene

When used in hospitals and surgeries, SSM can be disinfected using any of the disinfectants such as ethanol 70 %, formalin 1 % to 5 %, *p*-chlorine-*m*-cresol 0,3 %, chloramine T 1 % to 5 %, alkylbenzyldimethylammonium chloride 0,1 %. SSM show a high resistance to fungal and bacterial growth when tested in accordance with ISO 846.

Bibliography

[1] ANSI/IAPMO Z 124.6, *Plastic Sinks*

[2] EN 13310, *Kitchen sinks — Functional requirements and test methods*

[3] ANSI/NEMA LD 3, *High-Pressure Decorative Laminates*

[4] ISO 846, *Plastics — Evaluation of the action of microorganisms*

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