

මහජන අදහස් සඳහා ප්‍රමිති කෙටුම්පත
பொதுசனக் கருத்துரைக்கான கட்டளை வரைவு
DRAFT STANDARD FOR PUBLIC COMMENT

(මෙහෙයවීමට ඉඩ ඇත. திருத்தத்திற்குட்படக்கூடியது. Liable to alteration)

නිකුත් කළ දිනය
வெளியிடப்பட்ட திகதி
Date of Issue

} 2020-12-31

අදහස් එවිය යුතු අවසාන දිනය
கருத்துரைக்கவேண்டியபத்தினம் இறுதிக்கதி
Latest Date for Receipt of Comments

} 2021-03-01



**Draft Sri Lanka Standard Specification for
Compostable Plastic Food Wrapping sheet
(DSLS :**

සෛව භායනික ආහාර ඔහන පත්‍ර සඳහා වූ
ශ්‍රී ලංකා ප්‍රමිති පිරිවිතර කෙටුම්පත
(ශ්‍රී.ලං.ප්‍ර. :

මෙම කෙටුම්පත ශ්‍රී ලංකා ප්‍රමිතියක් ලෙස නොසැලකිය යුතු මෙන් ම භාවිතා නොකළ යුතු ද වේ.
இவ்வரைவு இலங்கைக் கட்டளையொன்றாக கருதப்படவேண்டி அன்றிப் பிரயோகிக்கப்படவேண்டுகூடாது
This draft should not be regarded or used as a Sri Lanka Standard.

අදහස් එවිය යුත්තේ : ශ්‍රී ලංකා ප්‍රමිති ආයතනය, 17, වික්ටෝරියා පෙදෙස, ඇල්විටිගල මාවත, කොළඹ 08.

Comments to be sent to: SRI LANKA STANDARDS INSTITUTION, 17, VICTORIA PLACE,
ELVITIGALA MAWATHA, COLOMBO 08.

හැඳින්වීම

මෙම ශ්‍රී ලංකා ප්‍රමිති කෙටුම්පත , ශ්‍රී ලංකා ප්‍රමිති ආයතනය විසින් සකසන ලදුව, සියලුම උදෙසාගේ අංශ වලට තාක්ෂණික විවේචනය සඳහා යවනු ලැබේ.

අදාළ අංශ භාර කමිටු මාර්ගයෙන් ආයතනයේ මහා මණ්ඩල වෙත ඉදිරිපත් කිරීමට පෙර , ලැබෙන සියලුම විවේචන ශ්‍රී ලංකා ප්‍රමිති ආයතනය විසින් සලකා බලා අවශ්‍ය වෙනස්කම් කෙටුම්පත සංශෝධනය කරනු ලැබේ.

මෙම කෙටුම්පතට අදාළ යෝජනා හා විවේචන නියමිත දිනට පෙර ලැබෙන්නට සැලැස්වුවහොත් අගය කොට සලකමු. තවද, මෙම කෙටුම්පත පිළිගත හැකි බැව් හැඟෙන අය ඒ බව දන්වන්නේ නම් එය ආයතනයට උපකාරී වනු ඇත.

මේ පිළිබඳව එවන සියලුම ලිපි පහත සඳහන් ලිපිනයට එවිය යුතුය.

අධ්‍යක්ෂ ජනරාල්
ශ්‍රී ලංකා ප්‍රමිති ආයතනය,
17, වික්ටෝරියා පෙදෙස,
ඇල්විගල මාවත,
කොළඹ 08.

XX

Introduction

This Draft Sri Lanka Standard has been prepared by the Sri Lanka Standards Institution and is now being circulated for technical comments to all interested parties.

All comments received will be considered by the SLSI and the draft if necessary, before submission to the Council of the Institution through the relevant Divisional Committee for final approval.

The Institution would appreciate any views on this draft which should be sent before the specified date. It would also be helpful if those who find the draft generally acceptable could kindly notify us accordingly.

All Communications should be addressed to:

The Director General
Sri Lanka Standards Institution,
17, Victoria Place,
Elvitigala Mawatha,
Colombo 08.

Draft Sri Lanka Standard
SPECIFICATION FOR COMPOSTABLE PLASTIC FOOD WRAPPING SHEET

SLS :

Gr. 4

Copyright Reserved
SRI LANKA STANDARDS INSTITUTION
No, 17, Victoria Place
Elvitigala Mawatha,
Colombo 08.
Sri Lanka.

Draft Sri Lanka Standard
SPECIFICATION FOR COMPOSTABLE PLASTIC FOOD WRAPPING SHEET

FOREWORD

This Standard was approved by the Sectoral Committee on Chemical and Polymer Technology and was authorized for adoption and publication as a Sri Lanka Standard by the Council of Sri Lanka Standards Institution on

Food wrapping sheets are commonly used to cover food items in hot, normal and cold conditions which are popular among the Sri Lankan community in the form of “lunch sheets”. This Specification prescribes material requirements of compostable food wrapping sheets.

Compostability is defined as a process where all material fragments are consumed by microorganisms as a food and energy source. The by-products of compostable plastics are water, CO₂, and a biomass similar to plant biomass.

This Specification is subject to the restrictions imposed under the National Environmental Act No. 47 of 1980, Consumer Affairs Authority Act No. 09 of 2003 and Food Act No. 27 of 1980 and the Regulations framed thereunder.

For the purpose of deciding whether a particular requirement of this Specification is complied with, the final value, observed or calculated, expressing the result of a test or an analysis, shall be rounded off in accordance with **SLS 102**. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this Specification.

In the preparation of this Specification, the assistance derived from the following publication is gratefully acknowledged.

JIS Z 1707 : 1997 General rules of plastic films for food packaging

1 SCOPE

1.1 This Specification prescribes the requirements and methods of sampling and test for compostable plastic lunch sheets

1.2 This Specification does not cover non-compostable and oxo-biodegradable plastic lunch sheets and very thin sheets such as shrink wrapping sheets, stretch or cling films used for food sealing purposes.

2 REFERENCES

ISO 6383-1 Plastics — Film and sheeting — Determination of tear resistance — Part 1: Trouser tear method

ISO	7765-1	Plastics film and sheeting - Determination of impact resistance by the free-falling dart method - Part 1: Staircase methods
ASTM D	882	Standard Test method for tensile properties of thin plastic sheeting
ASTM F	1306	Standard Test Method for Slow Rate Penetration Resistance of Flexible Barrier Films and Laminates
ASTM E	1870	Standard Test method for odor and taste transfer from polymeric packaging film.
ASTM F	2203	Standard Test method for linear measurement using precision steel rule
SLS	102	Rules for rounding off numerical values.
SLS	143	Code of practice for general principles of food hygiene
SLS	428	Random sampling methods.
SLS	616	Glossary of terms for plastics.
SLS	1305	Method of testing for the determination of thickness by mechanical scanning plastic (films and sheeting)
SLS	1615	Determination of overall migration of constituents of plastics materials and articles intended to come in contact with foodstuffs

3 TERMINOLOGY

For the purpose of this Specification, the definitions given in **SLS 616** and the following shall apply:

3.1 compostable food wrapping sheet: Compostable plastic sheet with pre-determined dimensions used for wrapping a cooked meal, which commonly known as a “lunch sheet”

4 REQUIREMENTS

The food wrapping sheets shall be manufactured by suitable processes adhering to Good Manufacturing Practices (GMP) conforming to **SLS 143**.

4.1 Material

The virgin, food grade compostable polymer materials and food grade additives (if used) shall be used for compostable plastic food wrapping sheets. Recycled plastics or plastic wastes shall not be used in manufacturing of compostable plastic food wrapping sheets. The food grade certificates for relevant lot/ consignment of polymer materials shall be obtained from a recognized body with reference to relevant International requirements. Evidence shall be provided from a recognized certification body for the compostability of all raw material including the resin used for manufacture.

4.2 Appearance

The food wrapping sheet shall be free from defects such as embossed areas, gels, creases, streaks, pinholes, particles of foreign matter, undispersed raw materials and blisters which would result in the food wrapping sheet being unsuitable for the intended use. The sides of

the food wrapping sheet shall be neatly cut. Surface of the food wrapping sheet shall be free from any foreign matter.

4.3 Thickness

The thickness when measured at any point of the food wrapping sheet shall be minimum of 15.0 µm when tested in accordance with **SLS 1305**.

4.4 Dimensional requirements

Each food wrapping sheet shall be square in shape and each side of a sheet shall be minimum of 40.5 cm when tested in accordance with **ASTM F 2203**.

NOTE

Any exclusions from the above designated dimensional requirements required for special purposes may be produced in consultation with the regulatory authority.

4.5 Colour

Colorants, dyes or pigments shall not be used in the production process of food wrapping sheet. The food wrapping sheet shall be colourless and transparent or translucent in appearance.

4.6 Compostability

Food wrapping sheets shall conform to the **SLS 1539** or **SLS 1557**.

4.7 Migration test

4.7.1 Overall migration

4.7.1.1 Representative samples of food wrapping sheets shall be subjected to overall migration test with aqueous and fatty food at 70 ± 2 °C using the simulants A and D for 6 – 10 hrs. The maximum extraction values for the food wrapping material shall not exceed 10 mg/dm² or 60 mg/kg when tested in accordance with the method described in **SLS 1615**.

NOTE: *The overall migration limits specified above, shall be updated with the changes in recognized International regulations.*

4.7.2 Migration of heavy metals

Food wrapping sheets, when tested in accordance with the method described in Appendix C shall not exceed the limits for heavy metals as given in Column (3) of Table 1.

TABLE 1 – Limits of heavy metal migration

SI. No.	Heavy metal	Limit
(1)	(2)	(3)
i)	Arsenic, mg/kg, max.	0.05
ii)	Chromium, mg/kg, max.	0.5
iii)	Mercury, mg/kg, max.	0.001
iv)	Cadmium, mg/kg, max.	0.05
v)	Lead, mg/kg, max.	0.5

4.8 Other requirements

4.8.1 The food wrapping sheets shall also comply with the requirements given in Table 2 when tested in accordance with the relevant methods given in Column (4) of the table.

NOTE

Food wrapping sheet producers shall produce evidences for meeting the following requirements throughout the declared shelf-life of the product.

Table 2 – Requirements for food wrapping sheets

SI. No.	Characteristic	Requirement	Method of Test
(1)	(2)	(3)	(4)
i)	Tensile strength, MPa, min.		
	a) Machine direction	15.5	ASTM D 882
	b) Transverse direction	5.2	
ii)	Elongation at break, per cent, min		
	a) Machine direction	41	ASTM D 882
	b) Transverse direction	46	
iii)	Tearing strength, N/mm, min		
	a) Machine direction	152.0	ISO 6383-1
	b) Transverse direction	157.4	
iv)	Puncture resistance, N, min.	1.13	ASTM F 1306
v)	Heat resistance, max.	Free from any visual defects	Appendix B
vi)	Odour and taste transfer from polymeric packaging film	Free from objectionable odour and taste	ASTM E 1870

5 PACKAGING AND LABELLING

5.1 Packaging

Food wrapping sheets shall be packed in a well sealed outer cover as bundles of 50 sheets, 100 sheets or as agreed to between the purchaser and the supplier. The food wrapping sheets shall be packed under hygienic conditions conforming to **SLS 143**.

5.2 Labelling

5.2.1 Each packet shall have a label marked or printed with following information legibly and indelibly:

- a) Name and address of the manufacturer including country of origin (**NOTE:** *Name and address of the manufacturer and the distributor should be marked on imported products*);
- b) Brand name or trade mark, if any;
- c) Food grade symbol on each packet as follows;



- d) Number of sheets in each packet;
- e) Thickness of the sheet;
- f) List of ingredients;
- g) Year and month of manufacture;
- h) Date followed by the words “use before”;
- j) Compostable according to **SLS 1539** or **SLS 1557**;
- k) Declared time for decomposition;
- m) Width and length of a sheet in cm; and
- n) Batch or code number (**NOTE:** *Date of manufacture may be used as the batch no. / identification no. / code no. if one batch is manufactured during the day.*).

5.2 Any other printing requirements of food wrapping sheets shall be as agreed to between the purchaser and the manufacturer.

NOTE: *Attention is drawn to certification marking facilities offered by the Sri Lanka Standards Institution. See the inside back cover of the standard.*

6 SAMPLING

The method of drawing representative samples of the product for ascertaining conforming to the requirements of this specification shall be prescribed in Appendix A.

APPENDIX A COMPLIANCE OF A LOT

The sampling scheme given in this Appendix should be applied where compliance of a lot to the requirements of this standard is to be assessed based on statistical sampling and inspection.

Where compliance with this Specification is to be assured, appropriate schemes of sampling and inspection shall be adopted based on manufacturer's control systems coupled with Type Tests and Testing Procedures.

A.1 LOT

In any consignment all the polyethylene food wrapping sheets of same dimension and shape manufactured by one organization under the same conditions of manufacture shall be grouped together to form a lot.

A.2 SCALE OF SAMPLING

Samples shall be tested from each lot separately for ascertaining the conformity of food wrapping sheets to the requirements of this specifications.

A.2.1 The number of packets to be selected from the lot shall be in accordance with Column (1) and Column (2) of Table 3.

TABLE 3 – Scale of sampling

No. of packets in the lot (1)	No. of packets to be selected (2)	No. of sheets to be selected (3)	Sub-sample size (4)	Acceptance No. (5)
Up to 35	4	32	21	3
36 to 150	6	48	28	5
151 to 500	10	80	28	7
501 and above	16	128	35	10

A.2.2 From each packet selected, eight sheets shall be drawn at random, so as to get the total number of bags from the lot as shown in Column (3) of Table 3.

A.2.3 When the packets are contained in master packs, the number of master packs to be selected shall be half the number given in Column (2) of Table 3. Two packets shall be drawn from each master pack selected.

A.2.4 Packets and sheets shall be selected at random. To ensure randomness of selection, random number tables as given in **SLS 428** shall be used.

A.3 NUMBER OF TESTS

A.3.1 All the sheets selected as in **A.2.2** shall be inspected for requirements given in **4.2** to **4.8**.

A.4 CRITERIA FOR CONFORMITY

The lot shall be declared as conforming to the requirements of this specification if the following conditions are satisfied.

A.4.1 The number of sheets not conforming to the relevant requirements when tested as in **A.3.1** is less than or equal to the corresponding acceptance number given in Column (5) of Table 3.

**APPENDIX B
DETERMINATION OF HEAT RESISTANCE**

Make a small bag by heat sealing the film, fill it with water and close tightly, treat for 30 minutes under the temperature condition of 80 °C using heated water or heated vapour. Cool and examine the small bag for any deformations.

**APPENDIX C
DETERMINATION OF HEAVY METALS**

Atomic Absorption Spectroscopy (AAS) methodology or Inductively Coupled Plasma Mass Spectrometry (ICP-MS) shall be used for the determination of heavy metals.

.....