

[METRIC]
 A-A-3174
 October 15, 1998

COMMERCIAL ITEM DESCRIPTION

PLASTIC SHEET, POLYOLEFIN

The General Services Administration has authorized the use of this commercial item description by all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1. Scope. This document covers requirements for polyolefin film. Polyolefin film covered by this document is intended for use in general purpose packaging applications where a high degree of water resistance, moderate moisture vapor resistance, and dust protection are desired. The item is not intended for use in special packaging applications where special grease or oil resistance properties may be required. The class 1 film is intended to be used in building material shrouds and similar non-food applications. The class 2 film is intended to be used in food contact and wrapping applications.

1.2. Classification. For the purpose of this document, the polyolefin film shall be classified as follows:

- Type I - Normal strength polyethylene
- Type II - High strength polyethylene
- Type III - Polypropylene
- Type IV - Heat shrinkable polyethylene
- Type V - Heat shrinkable weather resistant polyethylene
- Type VI - High density polyethylene

- Class 1 - For non-food application
- Class 2 - For use in contact with food
- Class 3 - Biaxially oriented
- Class 4 - Preferentially oriented

- Grade A - Low slip
- Grade B - Medium slip
- Grade C - High slip

- Finish 1 - Untreated
- Finish 2 - Treated

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document, should be sent to: General Services Administration, Federal Supply Service, 26 Federal Plaza, New York N.Y. 10278
 ATTN: Engineering Branch (2FYEE).

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2. SALIENT CHARACTERISTICS

2.1. Construction.

2.1.1. Types I & II. Type I material shall be flexible unsupported normal strength polyethylene film, meeting the physical requirements specified in Table I herein. Type II material shall be flexible unsupported high strength polyethylene film, meeting the physical requirements specified in Table I herein. Unless otherwise specified, Type I and II materials shall be made of Low Density Polyethylene (LDPE), Linear Low Density Polyethylene (LLDPE), Medium Density Polyethylene (MDPE) or Linear Medium Density Polyethylene (LMDPE).

2.1.2. Type III. Type III material shall be flexible unsupported polypropylene film, meeting the physical requirements specified in Table I herein.

2.1.3. Types IV & V. Type IV material shall be flexible, unsupported, heat shrinkable polyethylene film. Type V material shall be flexible, unsupported, heat shrinkable, weather resistant polyethylene film. Type V material shall not have more than an appreciable change in color* after exposure to accelerated weathering, when tested in accordance with Fed-Std-191, Method 5804 (carbon arc) with 200 hrs exposure with filters, or any other equivalent commercial method.

* Note 1: Appreciable change in color means a change which is immediately noticeable in comparing the test specimen with the original unexposed material. If closer inspection or change of light is required to make a slight change in color, the change is not considered appreciable.

2.1.4. Type VI. The material shall be flexible, unsupported, high density polyethylene film, meeting the physical requirements specified in Table I herein.

2.2. Form. The film shall be furnished in the form of flat cut sheets or in rolls, as specified. Material in roll form shall be either single thickness or lay flat tubing, as specified.

2.3. Dimensions.

2.3.1. Thickness. Unless otherwise specified, the thickness of the film is not a requirement and shall be at the option of the supplier. For the purpose of this document, the nominal thickness shall be cited for identification only. The material shall meet or exceed all the physical requirements specified in Table I for the appropriate nominal thickness.

2.3.2. Dimensions of Rolls and Tubing. Length and width of rolls of film and tubing shall be as specified, with a tolerance of $\pm 3\%$. The overall average length of 2 or more rolls shall be not less than 99% of specified length. Each roll shall have no more than 3 splices and each piece shall be not less than 10' in length.

2.3.3. Core Size. The film shall be furnished on cores having a length equal to or up to 1" longer than the actual width or the folded width of the film as furnished. Unless otherwise specified, the inside diameter of the core shall be not less than 1-1/2" nor more than 6-1/4".

2.3.4. Dimensions of Sheets. Length and width of sheets shall be as specified with the tolerance of $\pm 3\%$.

2.4. Finish. When specified, that printing on film is required, the film shall be Finish 2 meeting the physical requirement for Wetting Tension.

2.5. Materials. When specified that the film is intended for use in contact with food, the material shall be Class 2 and shall conform to the Federal Food, Drug, and Cosmetic Act, Food Additive Amendment, 21 CFR Paragraph 177.1520.

2.6. Color. Unless otherwise specified, the film shall be of natural color (colorless) and transparent.

2.7. Workmanship. The workmanship shall be evaluated on the basis of the intended application of the material. The material shall be uniform in color, texture, finish, and other physical properties and shall be free from cuts, cracks, holes, dirt, gels, or other defects which may impair its utility or appearance.

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2.8. Physical Requirements. The finished sheet or strip shall meet the physical requirements specified in Table I.

TABLE I
PHYSICAL REQUIREMENTS

Property	Type I	Type II	Type III	Type IV & V		Type VI	Test
				Class 3	Class 4		
Density, (g/cm ³) without additives	0.910 to 0.940	0.910 to 0.940	0.885 to 0.905	0.910 to 0.940	0.910 to 0.940	higher than 0.940	ASTM D1505 or ASTM D792
Impact Resistance, Grams, minimum							
0.006mm (0.00025")	-	-	-	-	-	18	ASTM D1709 (method A)
0.013mm (0.00050")	-	-	-	-	-	35	
0.019mm (0.00075")	-	-	-	-	-	53	
0.025mm (0.0010 ")	40	75	-	-	-	70	
0.038mm (0.0015 ")	65	105	-	-	-	105	
0.051mm (0.0020 ")	85	135	-	-	-	140	
0.064mm (0.0025 ")	105	165	-	-	-	175	
0.076mm (0.0030 ")	125	195	-	-	-	210	
0.102mm (0.0040 ")	165	255	-	-	-	-	
0.127mm (0.0050 ")	205	295	-	-	-	-	
0.152mm (0.0060 ")	245	305	-	-	-	-	
0.178mm (0.0070 ")	285	345	-	-	-	-	
0.203mm (0.0080 ")	325	385	-	-	-	-	
0.229mm (0.0090 ")	365	430	-	-	-	-	
0.254mm (0.0100 ")	405	475	-	-	-	-	
Tensile Strength, kPa (psi), minimum @ break	11800 (1700)	11800 (1700)	31100 (4500)	11800 (1700)	13200 (1900)	27600 (4000)	ASTM D882 (method A)
Elongation, % minimum @ break							ASTM D882 (method A)
MD*	225	225	200	225	300	200	
TD	350	350	200	350	350	300	
Heat Sealability, % minimum	60	60	60	60	60	60	ASTM F88 Fin Seal Method

TABLE I (continued)

Tear Resistance, Grams, minimum							
0.025mm (0.0010") MD*	-	-	-	150	150	-	ASTM D1922
TD	-	-	-	150	300	-	
0.038mm (0.0015") MD	-	-	-	200	200	-	
TD	-	-	-	200	400	-	
0.051mm (0.0020") MD	-	-	-	250	250	-	
TD	-	-	-	250	500	-	
0.064mm (0.0025") MD	-	-	-	300	300	-	
TD	-	-	-	300	600	-	
0.076mm (0.0030") MD	-	-	-	350	350	-	
TD	-	-	-	350	700	-	
0.102mm (0.0040") MD	-	-	-	400	400	-	
TD	-	-	-	400	800	-	
0.127mm (0.0050") MD	-	-	-	450	450	-	
TD	-	-	-	450	900	-	
0.152mm (0.0060") MD	-	-	-	500	500	-	
TD	-	-	-	500	1000	-	
0.178mm (0.0070") MD	-	-	-	550	550	-	
TD	-	-	-	550	1100	-	
0.203mm (0.0080") MD	-	-	-	600	600	-	
TD	-	-	-	600	1200	-	
Film shrinkage, % minimum	MD*	-	-	30	40	-	ASTM D2732
TD	-	-	-	30	10	-	
WVTR, maximum, g/m ² @24hr, Class 2							
0.006mm (0.00025")	-	-	-	-	-	86.8	ASTM F372 or ASTM E96 desiccant method
0.013mm (0.00050")	-	-	-	-	-	43.4	
0.019mm (0.00075")	-	-	-	-	-	29.0	
0.025mm (0.0010 ")	26.4	26.4	-	-	-	21.7	
0.038mm (0.0015 ")	20.2	20.2	-	-	-	14.4	
0.051mm (0.0020 ")	15.5	15.5	-	-	-	10.9	
0.064mm (0.0025 ")	12.4	12.4	-	-	-	8.7	
0.076mm (0.0030 ")	10.1	10.1	-	-	-	7.3	
0.102mm (0.0040 ")	6.9	6.9	-	-	-	-	
0.127mm (0.0050 ")	4.7	4.7	-	-	-	-	
0.152mm (0.0060 ")	3.9	3.9	-	-	-	-	
0.178mm (0.0070 ")	3.6	3.6	-	-	-	-	
0.203mm (0.0080 ")	3.2	3.2	-	-	-	-	
0.229mm (0.0090 ")	2.5	2.5	-	-	-	-	
0.254mm (0.0100 ")	2.2	2.2	-	-	-	-	
Slip, maximum							
Grade A	0.8	0.8	-	-	-	-	ASTM D1894
Grade B	0.5	0.5	-	-	-	-	
Grade C	0.2	0.2	-	-	-	-	
Wetting Tension, minimum, dynes/cm (Finish 2)	35	35	35	35	35	35	ASTM D2578

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Footnotes to Table I:

- Where no value is specified, no requirement is applicable
- * MD/TD - Machine Direction/Transverse Direction
- WVTR Water Vapor Transmission Rate

3. **PRODUCT CONFORMANCE.** The product provided shall meet the salient characteristics of this commercial item description. The quality of the product sold to the government shall be equal to or better than the quality of the product sold by the manufacturer in the commercial market. The government reserves the right to require proof of such conformance.

4. **PACKAGING, PACKING & MARKING.** Unless otherwise specified in the contract or purchase order, packaging/packing shall be in accordance with ASTM D 3951. Marking shall be as specified in the contract or purchase order. In addition, each unit of issue for Class 2 material shall be marked with the following: " **FOR FOOD CONTACT** "

5. **REFERENCED DOCUMENTS:** The issues of the referenced documents in effect on the date of the solicitation for offers or request for proposals shall be used to determine conformance with the requirements of this Commercial Item Description.

Copies of Federal specifications, standards, and commercial item descriptions may be obtained through the Congressional Sales Office, U.S. Government Printing Office, Washington, DC 20402.

Federal Government Activities may obtain copies of Federal standardization documents and the Index of Federal Specifications, Standards and Commercial Item Descriptions from established distribution points in their agencies.

ASTM methods may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshocken, PA 19428-2959.

6. **NOTES.**

6.1. Ordering data. Purchasers shall select the preferred options permitted herein and include the following information in procurement documents:

- 6.1.1. Title, number, and date of this document.
- 6.1.2. Type, class, grade, finish and nominal thickness.
- 6.1.3. Color required, if applicable.
- 6.1.4. Form, length and width required.
- 6.1.5. Single thickness or lay flat tubing.
- 6.1.8. Unit of issue.

- 6.1.6. Core size, if required.
- 6.1.7. Packaging, packing & marking.

6.2 List of NSNs:

8105-00-191-3701
8105-00-191-3776
8105-00-191-3902
8135-00-579-6487
8135-00-579-6489
8135-00-579-6491
8135-00-584-0610
8135-00-584-0619
8135-00-618-1783
8135-00-855-3387

MILITARY INTEREST

Coordinating activity:

Army - GL

Custodians:

Army - GL
Navy - SA
Air Force - 69

Review activities:

Army - MD, AR, SM
Air Force - 71, 82

User activities:

Army - EL, AV
Navy - MC, EC

PREPARING ACTIVITY

GSA-FSS