SPECIFICATION
FOR
LINERS, BAGS, PLASTIC, DISPOSABLE

(This specification is released for procurement purposes until revised or rescinded.)

Scope

This specification covers plastic bags intended for general use as can liner inserts in waste receptacles for office trash, cafeteria waste including plastic utensils, highway trash, yard debris and highway rest stop receptacles that typically contain a large portion of liquids and various containers. This specification also covers the special purpose of disposing of biohazardous waste in accordance with the North Carolina Department of Environmental Quality.

I. Classification

Liners and bags covered by this specification shall be of the following type and style shown below:

A. **Type I – Polyethylene liners for general use.**
   Style 1 – Low Density or Linear Low Density. Refer to Table 1.1 for physical properties.
   Style 2 – High Density. Refer to Table 1.2 for physical properties.

B. **Type II – Polyethylene liners for roadside trash collection and rest stops for the Department of Transportation.**
   Style 1 – Low Density or Linear Low Density. Refer to Table 2 for physical properties.

C. **Type III – Polyethylene liners for trash and utility use for the Department of Public Safety.**
   Style 1 – Low Density or Linear Low Density. Refer to Table 3 for physical properties.

D. **Type IV – Polyethylene liners for disposal of biohazardous materials.**
   Style 1 – Low Density or Linear Low Density. Refer to Table 4 for physical properties.
II. Applicable Documents

The following specifications, standards, and regulations, or applicable parts thereof, of issues in effect on the date of the Invitation for Bid (IFB), shall form part of this specification as referenced.

A. ASTM – D2103-15 Standard Specification for Polyethylene Film and Sheeting

B. ASTM – D1709-16a Standard Test Methods for Impact Resistance of Plastic Film by The Free-Falling Dart Method


III. Requirements

Principle characteristics – Types I through IV bags shall possess the following characteristics of construction, color, tolerances, and seam strength as shown below:

A. Construction

1. Seam – Seams on all bags shall meet or exceed the required load, capacity and physical properties as stated in Tables 1 through 4.

2. Slip – Bags shall be easily and readily opened by hand.

B. Materials

Liner material shall be formulated from polyethylene containing octene, butene or hexene type copolymer resins with a minimum of 10 percent pre-consumer or post-consumer reprocessed copolymer.

Low Density (LD) / Linear Low Density (LLD) type bags shall have a density between 0.915 grams/cc to 0.923 grams/cc.

High Density (HD) type bags shall have a density of 0.940 grams/cc to 0.965 grams/cc.

No additives shall be included to the polyethylene that decrease the stability, storage or use requirements of the can liners.

C. Physical Properties

Physical properties of plastic bags are shown in Tables 1 through 4.
D. Load, Capacity and Duty Rating

The load rating in weight is documented for each can liner in Tables 1 through 4. Liquid capacity in gallons is also provided, which is only a reference to the volume of a typical trash receptacle for which a can liner may be used. Refer to the “Product Testing” section to determine the liquid load capacity by weight that a can liner is expected to contain without leaks.

Load duty designations of light, medium or heavy duty are given for each can liner in Tables 1 through 4. This load duty designation determines the method used to test a bag with a load or weight.

Reference: LLD and LD medium and heavy duty can liners (Table 1.1) are expected to be capable of handling waste that may contain plastic utensils or other items that are sharp, due to these bags having a high tear resistance if punctured. HD can liners (Table 1.2) generally are the most economical, handle heavy loads and have good puncture resistance, but are best used for non-jagged waste applications due to less tear resistance after puncture.

E. Color

Bag color shall be as stated in Tables 1 through 4. Bags without color defined in their table are for use in waste receptacles and may be natural (essentially colorless), buff, brown, green, or black at the option of the manufacturer, unless otherwise stated in the IFB.

Dyes used in coloration shall contain no greater than 100 ppm of incidental sum concentrations of lead, mercury, hexavalent chromium and cadmium.

F. Tolerances

In addition to the following tolerance guidelines, refer to Section VI below for formulas to determine liner thickness based upon a measured net case (film) weight and quantity of bags per case.

1. Dimensions – Linear dimensions shall be inside measurements, exclusive of seals or seams. A tolerance of minus 1-inch shall be permitted in liner length. Length dimension shall be measured with bag lying in a flat position from center of top to center of bottom. A tolerance of minus ½-inch is permitted on the liner circumference.

2. Thickness – All can liners must comply with mil or micron thickness as requested in the applicable IFB document. No more than four percent (4 percent) negative tolerance is allowed.
Responses for product thickness to any IFB or evaluation questionnaire shall indicate specific numerical dimensions or values where requested. A bidder’s response indicating an equivalent strength, an equivalent thickness, an approximate value or other vague and obscure response will not be accepted for the purposes of determining compliance with the product specifications. Any value indicated with a tolerance that would otherwise allow can liners of a thickness less than the required minimum stated in the specifications herein will not be accepted.

3. Net Case (Film) Weight – All can liniers must comply with the minimum net case (film) weight as determined by the formula provided herein or in accordance with the attached tables for the quantities as specified in the IFB. **No more than four percent (4 percent) negative tolerance is allowed.**

4. Bags per Case Quantity – The number of can liniers provided per case must comply with the IFB document. **No negative tolerance is allowed.**

G. **Workmanship**

Liners and bags shall be uniform in color, texture, and finish and in all physical properties. They shall be free from pinholes, tears, cuts, creases, wrinkles, extraneous matter or other defects that may impair their serviceability or appearance.

H. **Ties or Closures**

Ties or other restraining devices for bag closure are **required to either be included in each case of liniers** or otherwise be supplied in adequate quantities to cover the amount of liniers procured. Ties shall be at least 4-inches long. Any wire type ties must be embedded in plastic or paper to protect the user from hazard.

**Exception:**

1. **Type III liniers for Department of Public Safety use** – Twist ties or other closures are **not permitted for inclusion with these can liniers**, as covered in Table 3. Inclusion of closures for this type of liniers is **unacceptable** and shall be rejected and returned. The state of North Carolina reserves the right to cancel the contract for these or all line items awarded to any contractor including closures with can liniers referenced in Table 3.

I. **Type IV Bags for Containment of Biohazardous Waste – On-Site Applications**

1. Biohazardous waste, other than sharps, shall be contained in two opaque disposable bags, each having a minimum thickness of 1.5 mil, providing a total bag thickness of at least 3.0 mils. The bags shall be individually tied.

2. Bags used for containment of infectious waste shall be red in color, opaque, and conspicuously labeled with the following:
a. The words "infectious waste."
b. The word "biohazard" and the universal biohazard symbol.

J. **Type IV Bags for Containment of Biohazardous Waste – Off-Site Transportation Applications**

1. Biohazardous waste, other than sharps, shall be contained in two opaque disposable bags, each having a minimum thickness of 3.0 mil, providing a total bag thickness of at least 6 mils. The bags shall be individually tied.

2. Bags used for containment of infectious waste shall be red in color, opaque, and conspicuously labeled with one of the following:
   - The words "infectious waste."
   - The word "biohazard" and the universal biohazard symbol.

3. Bags used for containment of chemotherapeutic waste shall be yellow in color, opaque, and conspicuously labeled with one of the following:
   a. The words "chemotherapeutic waste."
   b. The word "biohazard" and the universal biohazard symbol.

4. If biohazardous waste is transported off-site in fiberboard containers, or their equivalent, it shall be contained in two disposable polyethylene bags of appropriate color and marking, each having a minimum thickness of 1.5 mil, providing a total bag thickness of at least 3 mils.

K. **Type II Bags for Roadside Trash Collection**

Bags used for roadside trash collection by the Department of Transportation shall be orange, blue or white in color. Refer to Table 2 for the specific color of each bag.

23 x 10 x 39 bags shall be white and imprinted with black letters “CWSP / DOT” to indicate Community Work Service Project.

L. **Storage**

The product shall remain stable while in storage from 32 degrees Fahrenheit to 110 degrees Fahrenheit for a minimum period of one (1) year.

Any product that has storage or use requirements different from can liners constructed of virgin polyethylene resin shall be identified as how the product differs with the storage and use limitations clearly indicated in the response to the bid.
M. **Product or Manufacturing Revisions**

No changes shall be made in the products approved per this specification without prior approval by the NC Division of Purchase & Contract including, without limitation, in product manufacturer, thickness, construction, material content, recycled content, packaging, and labeling.

IV. **Sampling, Inspection and Testing**

A. **Sampling**

Random Samples – Samples of delivered items may be randomly selected and tested for compliance with these specifications. If it is found that delivered commodities are not equal to or better than the samples originally provided for testing, the Division of Purchase & Contract may proceed as provided in the "General Contract Terms and Conditions" section of the bid for breach and termination for cause.

Products provided during the contract shall be manufactured with the identical materials, construction, and performance as samples submitted and evaluated for compliance to the requirements of the IFB and the specifications herein.

The state reserves the rights to have the contractor provide factory invoices and shipping documentation (in English) for specific lot numbers of products delivered under contract.

B. **Inspection**

At the option of the state of North Carolina, inspection for acceptance may be performed at:

1. The place of manufacture of the can liners,
2. The place of the contractor’s stocking location,
3. The place of delivery,
4. Any location designated by the state for product evaluation.

At the option of the state of North Carolina, inspection may consist of:

1. The review of can liner case and pallet marking or labels,
2. The review of can liner thickness, net film weight per case, and liner count per case,
3. Testing of can liner dry and wet load capability,
4. Contractor performed impact resistance (grams) and tear strength (grams),
5. Independent third party laboratory testing of any of the above.

At the option of the state of North Carolina, inspection may be performed by:

1. A representative of the state of North Carolina,
2. A designated representative of the state of North Carolina, such as a representative of the Division of Weights and Standards of the state in which the contractor is located,
3. An independent third party testing laboratory or product quality verification.

Inspection is to determine whether material and workmanship meet the quality specified herein and in the IFB.

C. Product Testing

The state reserves the right to perform any testing where such tests are deemed necessary to assure that products and services conform to the prescribed requirements. This may also include product testing in the end use.

The state also reserves the right to request testing by a third party independent laboratory to determine compliance with the specifications during the bid evaluation and the contract duration. The state shall approve the independent third party laboratory selected for the testing submitted. The bidder is responsible for providing the additional samples and verification test results. All cost associated with the testing shall be borne by the bidder.

Representative samples submitted for evaluation as representing an identified group of can liners as specified in the IFB, may disqualify all the can liners for that identified group, if any sample provided is determined to be noncompliant with the specifications herein, regardless of manufacturer. Identified groups of can liners are of the identical type, style, thickness and load duty rating, and the load capacity rating may increase with liner size.

All can liners must be able to successfully complete the following load capacity tests.

1. Conditioning – Prior to test, the liners shall be conditioned for 48 hours at 73 degrees Fahrenheit (plus or minus 10 degrees Fahrenheit) and 50 percent relative humidity (plus or minus 20 percent).

2. Impact resistance (dart test) shall be conducted at a height of 26-inches. Resistance shall be measured in grams, minimum in accordance with ASTM D-1709, method A.

3. Tear strength shall be measured in grams for the machine blow molded direction (MD), minimum in accordance with ASTM D-1922 (Elmendorf tear tester). Bags used for biohazardous waste disposal shall also be tested in the transverse direction (TD).

4. Load Capacity Testing
a. The description for the load capacity tests for Low Density or Linear Low Density can liners rated light, medium and heavy duty is given below.

- **Light Duty Bags** – A group of paper backed books and/or magazines weighing 1/2 to 4 lbs. For each group and whose total weight equals the test load specified shall constitute the test load for light duty bags.

- **Medium and Heavy-Duty Bags** – A group of full metal cans weighing 1.0 to 2 lbs. each and whose total weight equals the test load specified shall constitute the test load for medium and heavy-duty bags.

- The bag may be placed in a clean container with smooth sides while adding the test load. After adding the test load, the bag shall be grasped or clamped within 12-inches from the top, removed from the container (if used), and raised by hand or mechanical means until the bottom of the bag is completely off the floor. The bags shall be held in this position for one (1) minute. Any spillage or leakage of the test load or undue elongation shall constitute failure of the test. Any tear in the bag more than 1-inch-long shall constitute failure of the test.

- A liquid load capacity test shall be performed in addition to the solid waste load capacity test for the medium and heavy duty bags. Previously untested sample bags shall be tested. The bag shall be grasped and clamped to an open section of pipe within 12-inches from the top of the bag. With the bag suspended, a volume of water at 70 degrees Fahrenheit, plus or minus 10 degrees, whose weight equals that of 50 percent (plus or minus 1 percent) of the dry test load specified in the tables, shall be slowly introduced into the bottom of the bag through the pipe and shall constitute the test load. A liquid load equal to the full dry load capacity shall be used to test the biohazardous waste bags. The bags shall be held in this position for one (1) minute. Any leakage of the test load or undue elongation (maximum 200 percent) shall constitute failure of the test.

- Failure of two out of any three sample bags from an identified group tested as outlined above shall constitute a disqualification or a non-compliant product.

b. The description for the load capacity tests for High Density can liners rated light, medium and heavy duty bags is given below.
The bags shall support a load of charcoal briquettes (equal to the test load specified) without spillage of contents. Bags shall be placed in an open top container or receptacle of a comparable size to that of the open bag. The interior of the receptacle shall be clean and smooth so as not to tear or puncture the bag. Spread the bottom of the bag out on the bottom of the receptacle and add the specified weight to the bag. The empty portion of the bag shall be gathered together so as to squeeze out the excess air. The bag shall be grasped within 12-inches of the top and lifted out of the receptacle. After raising the filled bag completely off the floor, the bag shall be held motionless without other support for one (1) minute. Any spillage of briquettes shall constitute failure of the test. Leakage of charcoal dust shall not constitute a failure.

A liquid load capacity test shall be performed in addition to the solid waste load capacity test for the medium and heavy duty bags. Previously untested sample bags shall be tested. The bag shall be grasped and clamped to an open section of pipe within 12-inches from the top of the bag. With the bag suspended, a volume of water at 70 degrees Fahrenheit, plus or minus 10 degrees, whose weight equals that of 65 percent (plus or minus 1 percent) of the dry test load specified in the tables, shall be slowly introduced into the bottom of the bag through the pipe and shall constitute the test load. The bags shall be held in this position for one (1) minute. Any leakage of the test load or undue elongation (maximum 200 percent) shall constitute failure of the test.

Failure of two (2) out of any three (3) sample bags from an identified group tested as outlined above shall constitute a disqualification or a non-compliant product.

V. Submittals with the Bid Response

A. Submittal

All line items require the following to be submitted in response to each IFB:

1. Representative samples submitted with the IFB shall be identical to can liners supplied throughout the contract including but not limited to material, thickness, performance and traceability to the original molder.

2. Test samples shall be properly marked with full identification. Each sample shall be marked with a label identifying the bidder’s company name, bid number, item number and manufacturer’s stock number. Samples submitted to represent each
group (Type and Style) shall be packaged separately (large manila envelope or similar) and also labeled with the bidder’s company name, bid number, and group (Type and Style). The submittal of all samples may be packaged in a single shipping container, as appropriate.

VI. Packing, Marking and Product Test Reports

A. Packing

The packing and packaging shall be in accordance with the industries standard practice in a manner to ensure carrier acceptance and safe, undamaged delivery to destination.

1. Quantity Per Case – The actual count of liners per case shall not be less than the manufacturer's labeled quantity or as required in accordance with the IFB document.

B. Marking

1. Each box comprising an individual case should be marked clearly with the production lot number, name of the contents, catalog designation, size, wall thickness (mil or micron as applicable), liner color, quantity of the liners (bags), net film weight, the contract number of the award, and the contractor's name and/or trademark and address. Packages for biohazardous bags shall also be marked accordingly to the specifications herein.

2. Each pallet shall be marked clearly with the name of the contents, the number of individual cases or boxes containing the contract number, and the name of the contractor and the receiving party as shown on the face of the contract order. Packages for biohazardous bags shall also be marked accordingly to the specifications herein.

C. Formulas

To verify the marked package quantity by weight, or to verify bag material thickness, receiving agencies/users may use the minimum weights per 100 bags provided in the tables. If the case contains any quantity other than 100 bags, multiply the provided 100 bag weight by (actual quantity/100). For example, a case containing 250 bags would use the provided table weight for 100 bags, multiplied by 250/100 (=2.5).

For reference, the formula to determine the weight is explained below:

1. The formula for the liner net weight in pounds (lbs.) per 100 liners is based on the following (1) minimum wall thickness specifications (gauge); (2) liner density specification; (3) a constant factor, applicable to all sizes and capacity liners.

The liner density specification shall be certified by the manufacturer in compliance with Paragraph III.B (Material). For the mandatory receiving case weight, the
minimum density values of 0.915 grams/cc will be used for the Low Density (LD) / Linear Low Density (LLD) materials and 0.940 grams/cc will be used for the High Density (HD) materials.

The constant factor in the formula converts gram weight to pounds, cubic centimeter (cc) volume to cubic inches and mil thickness to inches. It also factors in that only half the material volume is entered as a variable. This constant factor is 13,840.

\[ \frac{([\frac{1}{2} \text{ circumference}] \times \text{length} \times \text{gauge} \times \text{number of liners per case} \times \text{density})}{13,840} = \text{Weight (in lbs.) of liners per case quantity} \]

Where:

Liners defined by three (3) dimensions are designated as “Width x Depth x Length”, where \( \frac{1}{2} \text{Circumference} = \text{Width (of bag opening)} + \text{Depth (width of opposite side of bag opening)} \) for these liners.

Liners defined with two (2) dimensions are designated “Width x Length”, where \( \frac{1}{2} \text{Circumference} = \text{Width} \)

**Note:** Circumference and length are measured in inches,
Thickneess or Gauge is in mils
To Convert Microns into mils: microns / 25.4 = mils

Example {a} is used to demonstrate the formula for a (LLD) liner size 23" x 10" x 39" bag, 1.6 mil wall thickness (gauge) in a quantity of 100 per case.

{a} \[ \frac{([23+10] \times 39 \times 1.6 \times 100 \times 0.915)}{13840} = 13.6 \text{ lbs.} \]

Example {b} is used to demonstrate the formula for a (HD) liner size 33" x 40" flat bag, 11 micron wall thickness (gauge) in a quantity of 100 per case.
\( \frac{1}{2} \text{Circumference} = 33 \) for this example

{b} convert liner thickness from micros to mils:
11 microns / 25.4 = 0.433 mils

\[ \frac{(33 \times 40 \times 0.433 \times 100 \times 0.94)}{13840} = 3.9 \text{ lbs.} \]

D. **Product Test Reports**

Bidder shall provide a manufacturer’s test report of any delivered lot number(s) of bags, at any time during the contract, within fifteen (15) days of request. The costs of any testing required for the test reports shall be the responsibility of the bidder. Such
test reports shall contain all the following data, unless test request is for only specific data from the following list.

1. Date of the test report  
2. Contractor’s name and location  
3. Product manufacturers name and location  
4. Can liner case and pallet marking  
5. Production lot number of product tested  
6. Identity of the test laboratory (which may be the manufacturer’s facility), unless requested to be a specific representative or third party test lab at the option of the state of North Carolina  
7. Contract line item of the bag being tested  
8. Net film weight per case, weighed to nearest 0.001 pound by a calibrated scale to a 0.001 pound accuracy  
9. Liner count per case (counted)  
10. Individual can liner weight, weighed to nearest 0.001 pound by a calibrated scale to a 0.001 pound accuracy  
11. Tested dry and liquid load capacity  
12. Tested impact resistance and tear strength, with both tested in grams  
13. Name and title of the responsible personnel performing the testing  
14. Name and title of the technical reviewer of the testing performed

VII. Ordering Data (This information is for Purchase & Contract use only)

The requisitioning officer shall state clearly:

1. Title, number, and effective date of this specification  
2. Type, and style of can liner  
3. Size of the liners and the approximate liquid gallon capacity  
4. Thickness and duty rating  
5. Color of liners (bags) and/or markings  
6. Quantities required in standard units of purchase  
7. Quantities required per case for specified size and thickness, especially to limit the maximum case weight for specific handling and shipping instructions  
8. If it is a regularly scheduled or upon request then submittal of the manufacturer’s product test reports to confirm compliance to the specifications is required in accordance with Section VI, D “Product Test Reports”  
9. Selections for submission of representative samples per group and type of liners ordered from Tables 1 through 4

(Tables Begin on the Next Page)
### Table 1.1 - Type I, Style 1 (Linear Low Density and Low Density Can Liners)

<table>
<thead>
<tr>
<th>Liquid Capacity (gallon)</th>
<th>Size (3 or 2 dim.)</th>
<th>Thickness (mil) *max. 4% negative tolerance allowed</th>
<th>Load Duty</th>
<th>Minimum Load Rating (pound)</th>
<th>Minimum Density Value (gram/cc)</th>
<th>Minimum Impact Resistance (gram)</th>
<th>Minimum Tear Strength (gram)</th>
<th>Minimum Net (Film) Weight (lb) per 100 bags</th>
<th>Seal Type</th>
<th>Color</th>
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</thead>
<tbody>
<tr>
<td>5 to 9</td>
<td>12x8x21</td>
<td>0.5 light</td>
<td></td>
<td>8</td>
<td>0.915</td>
<td>40</td>
<td>100</td>
<td>1.4</td>
<td>star, flat or gusset</td>
<td></td>
</tr>
<tr>
<td>7 to 10</td>
<td>15x9x23</td>
<td>0.5 light</td>
<td></td>
<td>12</td>
<td>0.915</td>
<td>40</td>
<td>100</td>
<td>1.8</td>
<td>star, flat or gusset</td>
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</tr>
<tr>
<td>11 to 20</td>
<td>15x9x32</td>
<td>0.5 light</td>
<td></td>
<td>12</td>
<td>0.915</td>
<td>40</td>
<td>100</td>
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<td>star, flat or gusset</td>
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<td>7 to 10</td>
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<td>1.6 medium</td>
<td></td>
<td>15</td>
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<td>90</td>
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<td>100</td>
<td>225</td>
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<td>40</td>
<td>0.915</td>
<td>100</td>
<td>225</td>
<td>13.6</td>
<td>star, flat or gusset</td>
<td></td>
</tr>
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<td>40 to 45</td>
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<td></td>
<td>45</td>
<td>0.915</td>
<td>100</td>
<td>225</td>
<td>19.5</td>
<td>see sect. III.E</td>
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<td>275</td>
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<tr>
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<td></td>
<td>60</td>
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<td>150</td>
<td>275</td>
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<td>see sect. III.E</td>
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<td>150</td>
<td>275</td>
<td>32.1</td>
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<td>275</td>
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<td>see sect. III.E</td>
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<td>275</td>
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<td>see sect. III.E</td>
<td>flat</td>
</tr>
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<td>Liquid Capacity (gallon)</td>
<td>Width x Length (inch)</td>
<td>Thickness (micron)</td>
<td>only 4% negative tolerance allowed</td>
<td>Load Duty</td>
<td>Minimum Load Rating (pound)</td>
<td>Minimum Density Value (gram/cc)</td>
<td>Minimum Impact Resistance (gram)</td>
<td>Minimum Net (Film) Weight (lb) per 100 bags</td>
<td>Seal Type</td>
<td>Color</td>
</tr>
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<td>8</td>
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<td>40</td>
<td>0.9</td>
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<td>35</td>
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<td>90</td>
<td>3.9</td>
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<td>45</td>
<td>0.94</td>
<td>100</td>
<td>7.3</td>
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<td>14</td>
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<td>45</td>
<td>0.94</td>
<td>100</td>
<td>9.4</td>
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<td>45</td>
<td>0.94</td>
<td>100</td>
<td>7.9</td>
<td></td>
<td></td>
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<tr>
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<td>medium</td>
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<td>0.94</td>
<td>100</td>
<td>8</td>
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<tr>
<td>30</td>
<td>30x37</td>
<td>17</td>
<td>heavy</td>
<td>55</td>
<td>0.94</td>
<td>150</td>
<td>5.1</td>
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<tr>
<td>33</td>
<td>33x40</td>
<td>17</td>
<td>heavy</td>
<td>55</td>
<td>0.94</td>
<td>150</td>
<td>6.1</td>
<td></td>
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<tr>
<td>45</td>
<td>40x48</td>
<td>17</td>
<td>heavy</td>
<td>60</td>
<td>0.94</td>
<td>150</td>
<td>8.9</td>
<td></td>
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<tr>
<td>56</td>
<td>44x48</td>
<td>17</td>
<td>heavy</td>
<td>60</td>
<td>0.94</td>
<td>150</td>
<td>9.8</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>60</td>
<td>36x58</td>
<td>17</td>
<td>heavy</td>
<td>60</td>
<td>0.94</td>
<td>150</td>
<td>9.6</td>
<td></td>
<td></td>
<td></td>
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<td>60</td>
<td>0.94</td>
<td>150</td>
<td>11.4</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Table 1.2 - Type I, Style 2 (High Density Can Liners)

see sect. III.E

-14-

7240-1T Specification
### Table 2 - Type II (Linear Low Density and Low Density Can Liners) DOT Types

<table>
<thead>
<tr>
<th>Liquid Capacity (gallon)</th>
<th>Size (3 or 2 dim.)</th>
<th>Thickness (mil)</th>
<th>Load Duty</th>
<th>Minimum Load Rating (pound)</th>
<th>Minimum Density Value (gram/cc)</th>
<th>Minimum Impact Resistance (gram)</th>
<th>Minimum Tear Strength (gram)</th>
<th>Minimum Net (Film) Weight (lb) per 100 bags</th>
<th>Load Duty</th>
<th>Seal Type</th>
<th>Color</th>
<th>Seal Type</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>23x10x39</td>
<td>33x39</td>
<td>2</td>
<td>heavy</td>
<td>45</td>
<td>0.915</td>
<td>175</td>
<td>340</td>
<td>17.0</td>
<td>flat</td>
<td>note1</td>
<td>flat</td>
<td>see sect. III.E</td>
</tr>
<tr>
<td>45</td>
<td>30x15x42</td>
<td>45x42</td>
<td>2</td>
<td>heavy</td>
<td>55</td>
<td>0.915</td>
<td>175</td>
<td>340</td>
<td>25.0</td>
<td>flat</td>
<td>flat2</td>
<td>flat</td>
<td>III.E</td>
</tr>
<tr>
<td>56</td>
<td>23x17x48</td>
<td>40x48</td>
<td>2</td>
<td>heavy</td>
<td>65</td>
<td>0.915</td>
<td>175</td>
<td>340</td>
<td>25.4</td>
<td>flat</td>
<td>flat2</td>
<td>flat</td>
<td>III.E</td>
</tr>
</tbody>
</table>

1 Orange, blue or white. For white bags, refer to section III.K for markings.

2 Bag shall be provided with flat side welds, not a bottom seal or seam.
<table>
<thead>
<tr>
<th>Liquid Capacity (gallon)</th>
<th>Size (3 or 2 dim.)</th>
<th>Thickness (mil)</th>
<th>Load Duty</th>
<th>Minimum Load Rating (pound)</th>
<th>Minimum Density Value (gram/cc)</th>
<th>Minimum Impact Resistance (gram)</th>
<th>Minimum Tear Strength (gram)</th>
<th>Minimum Net (Film) Weight (lb) per 100 bags</th>
<th>Seal Type</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 to 9</td>
<td>15x9x23</td>
<td>1</td>
<td>heavy</td>
<td>20</td>
<td>0.915</td>
<td>100</td>
<td>340</td>
<td>3.6</td>
<td>flat</td>
<td>clear</td>
</tr>
<tr>
<td>32</td>
<td>23x10x39</td>
<td>1.6</td>
<td>heavy</td>
<td>50</td>
<td>0.915</td>
<td>175</td>
<td>340</td>
<td>13.6</td>
<td>flat</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>22x14x58</td>
<td>1.6</td>
<td>heavy</td>
<td>50</td>
<td>0.915</td>
<td>175</td>
<td>340</td>
<td>22.1</td>
<td>flat</td>
<td></td>
</tr>
</tbody>
</table>

1. **Twist ties or other closures are not permitted** for inclusion with these can liners, which are intended for the Department of Public Safety use. Refer to section III.H.

2. Shall allow east visibility of enclosed items.
<table>
<thead>
<tr>
<th>Liquid Capacity (gallon)</th>
<th>Size (3 or 2 dim.)</th>
<th>Thickness (mil) *only 4% negative tolerance allowed</th>
<th>Load Duty</th>
<th>Minimum Load Rating (pound)</th>
<th>Minimum Density Value (gram/cc)</th>
<th>Minimum Impact Resistance (gram) (^\text{1})</th>
<th>Minimum Tear Strength (gram) (^\text{1})</th>
<th>Minimum Net (Film) Weight (lb) per 100 bags</th>
<th>Seal Type</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 to 9</td>
<td>15x9x23 24x23</td>
<td>1.5 medium</td>
<td>medium</td>
<td>15</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>5.5</td>
<td>star</td>
<td></td>
</tr>
<tr>
<td>12 to 16</td>
<td>15x9x32 24x32</td>
<td>1.5 medium</td>
<td>medium</td>
<td>15</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>7.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 27</td>
<td>16x14x36 30x36</td>
<td>1.5 medium</td>
<td>medium</td>
<td>35</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>10.7</td>
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</tr>
<tr>
<td>30</td>
<td>23x10x39 33x39</td>
<td>1.5 medium</td>
<td>medium</td>
<td>45</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>12.8</td>
<td>star</td>
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</tr>
<tr>
<td>40 to 42</td>
<td>23x17x46 40x46</td>
<td>1.5 medium</td>
<td>medium</td>
<td>45</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>18.2</td>
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<td></td>
</tr>
<tr>
<td>7 to 9</td>
<td>15x9x23 24x23</td>
<td>3 medium</td>
<td>medium</td>
<td>15</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>10.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 to 16</td>
<td>15x9x32 24x32</td>
<td>3 heavy</td>
<td>heavy</td>
<td>15</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>15.2</td>
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</tr>
<tr>
<td>20 to 27</td>
<td>16x14x36 30x36</td>
<td>3 heavy</td>
<td>heavy</td>
<td>35</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>21.4</td>
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<tr>
<td>30</td>
<td>23x10x39 33x39</td>
<td>3 heavy</td>
<td>heavy</td>
<td>45</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>25.5</td>
<td></td>
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</tr>
<tr>
<td>40 to 42</td>
<td>23x17x46 40x46</td>
<td>3 heavy</td>
<td>heavy</td>
<td>45</td>
<td>0.915</td>
<td>165</td>
<td>480</td>
<td>36.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) For reference only- these values governed by 49 CFR 173.197 (e)(1)(i) Regulated medical waste (sets maximum bag capacity, minimum impact resistance and minimum tear strength).

-END-