Description: Rigid Packaging Plastic Material Code System

Specification No.: 179  
Supersedes Issue: 10/18/2006  
Owner: Chris Lancette

Change Record: Changed title/description from “Container Material Code System”. Replaced SPI with ASTM as the recognized standard. Added the updated ASTM symbols, which are a closed equilateral triangle versus the former equilateral triangle of chasing arrows along with phase in instructions. Clarified in Table 1 that PETG should be a code “7 – Other” per U.S.A. State of California requirements.

SCOPE: This Corporate General Specification establishes material identification marking requirements for rigid plastic package containers and components.

1.0 BACKGROUND:

1.1 American Society of Testing Materials (ASTM) D7611 – Standard Practice for Coding Plastic Manufactured Articles for Resin Identification, the recognized standard for 3M products packaged in plastic rigid containers, is used to assist recyclers in sorting plastic containers by resin composition. As well, the European Union (EU) Commission Decision 97/129/EC on material identification establishes a similar series of numbers and abbreviations for material type markings. These systems provide consistent national identification markings intended to meet the needs of the plastic recycling industry.

2.0 PURPOSE:

2.1 To standardize both the symbol and guidelines for application so as to provide a uniform corporate approach and meet existing regulations and legislation with regards to plastic rigid packaging material identification.

3.0 APPLICATION:

3.1 Containers - The plastic resin identification code must be molded, formed or imprinted on all rigid plastic containers and lids that are large enough to accept the minimum size symbol. This also can be a legal requirement according to multiple regulatory entities.

3.2 Materials - The plastic resin identification code may be applied on other non-container types of formed rigid plastic components as designated by the Individual 3M packaging item specification(s).

4.0 DESIGN AND USE:

4.1 The basic part of the resin identification code system, referred to herein as a symbol, consists of three components:

1) A solid-line equilateral triangle.

2) A specific number located in the center of the triangle (this number designates the specific plastic material type).

3) An acronym code (all capital letters) located below the triangle which also designates the plastic material type. (Note: Depending on which country the material or component is produced, there may be some variation in the acronym letters used.)
4.2 The symbol is generally recognized and accepted globally. The individual packaging item specification will contain the reference to the material code number if required. (Refer to table 1 for lists of material codes and numeric identification numbers.) Use the numeric code in conjunction with the ISO 1043 acronym.

4.3 A derivation of the equilateral triangle also exists in which the shape of the triangle is formed by three chasing arrows. This is the original version of the SPI resin identification symbol. The chasing arrow symbol should not be used on new tooling. Existing tooling using the chasing arrows should replace the arrows with the solid-line equilateral triangle if the tooling is modified for other reasons.

<table>
<thead>
<tr>
<th>Table 1: Plastic Coding Systems</th>
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<tbody>
<tr>
<td>Polyethylene Terephthalate (PET)*</td>
</tr>
<tr>
<td>High-Density Polyethylene</td>
</tr>
<tr>
<td>Vinyl/Polyvinyl Chloride</td>
</tr>
<tr>
<td>Low-Density Polyethylene</td>
</tr>
<tr>
<td>Polypropylene</td>
</tr>
<tr>
<td>Polystyrene</td>
</tr>
<tr>
<td>Polyurethane (ester type)</td>
</tr>
<tr>
<td>Polyurethane (ether type)</td>
</tr>
<tr>
<td>Polyethylene terephthalate glycol-modified (PETG)*</td>
</tr>
<tr>
<td>Commingled/Mixed Resin</td>
</tr>
</tbody>
</table>

*The U.S.A. State of California defines using Resin code 1 only if the PET plastic meets the following definition:

“Polyethylene terephthalate” means a plastic derived from a reaction between terephthalic acid or dimethyl terephthalate and monoethylene glycol as to which both of the following conditions are satisfied:

(a) The terephthalic acid or dimethyl terephthalate and monoethylene glycol reacted constitutes at least 90 percent of the mass of the monomer reacted to form the polymer.

(b) The plastic exhibits a melting peak temperature that is between 225 degrees Celsius and 255 degrees Celsius, as determined during the second thermal scan using procedure 10.1 as set forth in ASTM International (ASTM) D3418 with a heating rate of a sample at 10 degrees Celsius per minute.1

5.0 SYMBOL SIZE/LOCATION GUIDELINES:

5.1 Containers and Lids - The size of the triangle should normally be a minimum of 1/2 inch (12mm) and a maximum size of 2 inches (50mm), to which letters under the triangle are added. Smaller sized triangles may be used on containers or components with special or restrictive base or bottom designs. If a smaller sized triangle is used the minimal requirements are that the code number and text be recognizable and legible.

5.2 Symbols should be located as close to the center of the container bottom as is feasible. This is necessary to achieve consistency among a large variety of rigid container styles.

5.3 Symbols must be located in non-conspicuous locations in order to avoid being interpreted as a “Recyclable” environmental claim. See U.S. Federal Trade Commission (FTC) Guides for the Use of Environmental Marketing Claims (“Green Guides”) 16 CFR Part 260, section § 260.12(d), Example 2.

1California Public Resources Code – PRC, Division 12.7 Plastic Waste, Chapter 2 – Containers and Packaging [18013]
6.0 **3M RESPONSIBILITY:**

6.1 To periodically audit for compliance with this specification.

7.0 **SUPPLIER RESPONSIBILITY:**

7.1 Contact 3M with questions or concerns relating to the ability or inability to meet this specification or the individual 3M packaging item specification.

7.2 Packaging suppliers who do not manufacture packaging components but are distributors or converters are also required to adhere to this specification.

7.3 If the resin used to produce a particular style of container or rigid packaging component is changed, it is the responsibility of the manufacturer to change the code and acronym to match the new resin.

8.0 **FACSIMILE OF SYMBOLS:**

8.1 Because of regulations among US states, symbols should comply with the most current version of American Society of Testing Materials (ASTM) D7611.

8.1.1 *Priority/preferred symbols (solid-line equilateral triangle):*

```
△ 1  △ 2  △ 3  △ 4  △ 5  △ 6  △ 7
PETE  HDPE  V  LDPE  PP  PS  OTHER
```

or

```
△ 01  △ 02  △ 03  △ 04  △ 05  △ 06  △ 07
PET  PE-HD  PVC  PE-LD  PP  PS  O
```

8.1.2 *Historically used/phase out symbol (chasing arrows equilateral triangle):*

```
.DialogInterface  △ 2  △ 3  △ 4  △ 5  △ 6  △ 7
PETE  HDPE  V  LDPE  PP  PS  OTHER
```

9.0 **RELATED INDUSTRY STANDARDS OR REFERENCE DOCUMENTS:**


9.4 ISO/NP TR 15868, Packaging and the environment – Marking for material identification


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