butanediol such that the finished elastomer has a number average molecular weight between 20,000 and 30,000.

(b) Optional adjuvant substances employed in the production of the polyether elastomers or added thereto to impart desired technical or physical properties may include the following substances:

<table>
<thead>
<tr>
<th>List of substances</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4'-Bis (alpha, alpha-dimethyl-benzyl) diphenylamine</td>
<td>For use only as an antioxidant.</td>
</tr>
<tr>
<td>Tetrabutyl titanate</td>
<td>For use only as a catalyst.</td>
</tr>
</tbody>
</table>

(c) An appropriate sample of the finished polyester elastomer in the form in which it contacts food when subjected to ASTM method D968–81, “Standard Test Methods for Abrasion Resistance of Organic Coatings by the Falling Abrasive Tester;’ which is incorporated by reference (Copies may be obtained from the American Society for Testing Materials, 100 Barr Harbor Dr., West Conshohocken, Philadelphia, PA 19428-2559, or may be examined at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.), using No. 50 emery abrasive in lieu of Ottawa sand, shall exhibit an abrasion coefficient of not less than 100 liters per mil of thickness.


§ 177.1600 Polyethylene resins, carboxyl modified.

Carboxyl-modified polyethylene resins may be safely used as the food-contact surface of articles intended for use in contact with food in accordance with the following prescribed conditions:

(a) For the purpose of this section, carboxyl-modified polyethylene resins consist of basic polymers produced when ethylene-methyl acrylate basic copolymers, containing no more than 25 weight percent of polymer units derived from methyl acrylate, are made
to react in an aqueous medium with
one or more of the following sub-
stances:
Ammonium hydroxide.
Calcium carbonate.
Potassium hydroxide.
Sodium hydroxide.

(b) The finished food-contact article,
when extracted with the solvent or sol-
vents characterizing the type of food
and under the conditions of time and
temperature characterizing the condi-
tions of its intended use as determined
from tables 1 and 2 of § 176.170(c) of this
chapter, yields total extractives in
each extracting solvent not to exceed
0.5 milligram per square inch of food-
contact surface as determined by the
methods described in § 176.170(d) of this
chapter; and if the finished food-con-
tact article is itself the subject of a
regulation in parts 174, 175, 176, 177, 178,
and § 179.45 of this chapter, it shall also
comply with any specifications and
limitations prescribed for it by that
regulation. In testing the finished food-
contact articles, a separate test sample
is to be used for each required extract-
ning solvent.

(c) The provisions of paragraph (b) of
this section are not applicable to
carboxyl-modified polyethylene resins
used in food-packaging adhesives com-
plying with § 175.105 of this chapter.

§ 177.1610 Polyethylene, chlorinated.

Chlorinated polyethylene identified
in this section may be safely used as
articles or components of articles that
contact food, except for articles used
for packing or holding food during
cooking, subject to the provisions of
this section.

(a) For the purpose of this section,
chlorinated polyethylene consists of
basic polymers produced by the direct
chlorination of polyethylene con-
forming to the density, maximum n-
hexane extractable fraction, and max-
imum xylene soluble fraction specifica-
tions prescribed under item 2.1 of the
table in § 177.1520(c). Such chlorinated
polyethylene contains a maximum of 60
percent by weight of total chlorine, as
determined by ASTM method D1303–55
(Reapproved 1979), "Standard Test
Method for Total Chlorine in Vinyl
Chloride Polymers and Copolymers," which is incorporated by reference

(Copies may be obtained from the
American Society for Testing Mate-
rials, 100 Barr Harbor Dr., West
Conshohocken, Philadelphia, PA 19428-
2959, or may be examined at the Na-
tional Archives and Records Adminis-
tration (NARA). For information on
the availability of this material at
NARA, call 202–741–6030, or go to: http://
www.archives.gov/federal_register/
code_of_federal_regulations/ibr_locations.html), and has a 7.0 per-
cent maximum extractable fraction in
n-hexane at 50 °C, as determined by the
method described in § 177.1520(d)(3)(ii).

(b) Chlorinated polyethylene may be
used in contact with all types of food,
except that when used in contact with
fatty food of Types III, IV-A, V, VII-A,
and IX described in table 1 of § 176.170(c)
of this chapter, chlorinated poly-
ethylene is limited to use only as a
modifier admixed at levels not exceed-
ing 15 weight percent in plastic articles
prepared from polyvinyl chloride and/
or from vinyl chloride copolymers com-
plying with § 177.1980.

[42 FR 14572, Mar. 15, 1977, as amended at 49
FR 10109, Mar. 19, 1984; 59 FR 14550, Mar. 29,
1994]

§ 177.1615 Polyethylene, fluorinated.

Fluorinated polyethylene, identified
in paragraph (a) of this section, may be
safely used as food-contact articles in
accordance with the following pre-
scribed conditions:

(a) Fluorinated polyethylene food-
contact articles are produced by modi-
fying the surface of polyethylene arti-
cles through action of fluorine gas in
combination with gaseous nitrogen as
an inert diluent. Such modification af-
fects only the surface of the polymer,
leaving the interior unchanged.

Fluorinated polyethylene articles
are manufactured from basic resins con-
taining not less than 85 weight-percent
of polymer units derived from ethylene
and identified in § 177.1520 (a)(2) and
(3)(i).

(b) Fluorinated polyethylene articles
conform to the specifications and use
limitations of § 177.1520(c), items 2.1 and
3.1.

(c) The finished food-contact article,
when extracted with the solvent or sol-
vents characterizing the type of food