# PET Base Resin used for Injection Stretch Blow Molded Containers
Subject Application Instructions

## Introduction

Application Instructions are specific to each application (design feature and container type) that are within the scope of the Preferred Design Recognition Review Program, the PDR Program. Application Instructions detail the information that must be submitted to the APR in application for an PDR Recognition Review. Information must be submitted on the Submission Portal found on the APR website.

PET base resins used for injection stretch blow molded containers are candidates for PDR review.

## Preparation for the application

APR will not ask for, nor require, any confidential composition or end customer information from the applicant.

To complete an application on the Submission Portal, the applicant will need to be prepared to supply all the information listed below that is necessary for the PDR Review. Some information will be entered into text boxes, other information will be submitted by uploading documents or files to the APR web site.

In the case of PET base resins, the PDR Review anticipates that applicants will submit data describing a named family of clear, natural colored, PET resins that can be employed for injection stretch blow molded PET containers.

- **Company name, address, and logo** – you will be asked to enter the address to be used for any written communications concerning PDR Review. You have the option to upload your company's logo for use in program materials.

- **Person responsible for this submission** - Name, phone number and email address

- **Signed copy of the Program Agreement and Manufacturing Change and Records Agreement** for the subject. Applicants can download the Agreement from the Submission Portal.

- **Designate the PET resin** - This designation might be a product family, trade name, or product number.


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- **Documentation that the resin meets the definition of preferred PET resin, as per the APR Design® Guide** – Confirm the following statement (your online confirmation will constitute a signed letter): Any PET resin sold under the named family of resins will meet the APR Guidance listed below.
- PET resins sold under the Brand or Tradename of resins are clear, natural colored resins that were developed for injection stretch blow molding container applications and satisfy the APR Guidance for such PET resins listed in the APR Design® Guide for Plastics Recycling. For illustration, data speaking to the bulleted guidance immediately below for a specific resin grade sold under the Brand name is detailed in the letter. Data will be kept on file for each specific resin sold under the XYZ Brand for inspection by the APR should that ever be necessary to confirm compliance with PDR Criteria.

  Base resin used to make injection stretch blow molded containers will satisfy this APR Guidance:

  • Melting point between 225° and 255° C
    - Determined by DSC and ASTM D3418-15 with heating rate of 10° C/minute on second melt after 1st melt rapid quench to create amorphous material.

  • Intrinsic viscosity (IV) between 0.72 and 0.90, with higher values being more desirable for PET recycling.
    - Acceptable test method: ASTM D 4603 solution IV with phenol/tetra-chlor-ethane at 30° C with values to be converted into intrinsic viscosity according to section 11.2 using the Billmeyer equation

  • 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.

    - Bis(2-hydroxyethyl) terephthalate, or BHET, is a solid crystalline compound that can be used as a starting material to produce PET, but it is not in wide commercial use. When terephthalic acid reacts with ethylene glycol, BHET is an intermediate that forms early in PET manufacture. Further, BHET is a reaction product that is recovered from glycolysis of chemically recycled PET. PET co-polymers made with BHET can meet this composition requirement. To evaluate, simply convert the BHET employed to the equivalent starting mass of terephthalic acid and ethylene glycol.

  • Any use of recycled resins will meet the above criteria.

  • Purified monomers used to produce PET can be derived from petroleum, renewable sources or from chemically recycled waste PET.


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