PETRA
PET Resin Association
355 Lexington Avenue, Suite 1500 ▪ New York, NY 10017 ▪ www.PETresin.org

Technical Summary: PETRA Recyclability & Innovation Model

The PETRA Recyclability & Innovation Model offers a forward-looking means of assuring the continued recyclability of PET by evaluating resin variations in terms of their likely market presence and subsequent impact on the quality of recycled PET**.**

The PETRA Model includes a test protocol, dispersion assessment, method for providing control resins, and a monitoring mechanism. It incorporates various aspects of the recyclability guidelines of the Association of Postconsumer Plastic Recyclers (APR) and the European PET Bottle Platform (EPBP) to meet the innovation, testing and evaluation needs of North American producers, users and recyclers of PET.

PETRA encourages the use of this voluntary model and is committed to enhancing it, based on stakeholder feedback, in order to support advancements in PET innovation and recycling. Listed below are the key technical elements of the PETRA Model:

- The recyclability of new resin innovations and special-use variations can be evaluated at 2%, 10%, 25% or 50% concentrations.
- Water-grade and CSD-grade industry Control Resins that are representative of the North American virgin PET supply will be provided by PETRA to innovators or testing facilities wishing to utilize the Model's test protocol.
- The test protocol begins with bottles blown from 100% Control Resin and from two Test Blends consisting of the control resin and the innovation mixed to concentrations of 2% and 10%, 10% and 25%, or 25% and 50%.
- The test protocol includes reclaim processing, sample preparation and test procedures paralleling the APR Critical Guidance Document for PET Bottles (Edition 5, May 2011), including IV, filterability, melt point, solid state polymerization and color/haze plaque testing.
- Innovators may also conduct the test protocol's reclaim processing procedures using advanced recycling technology.
- Maximum dispersion is assessed in terms of a resin's performance at the end points of the selected 2% and 10%, 10% and 25%, or 25 and 50% test concentration brackets. If an innovation does not pass <u>all</u> criteria at a certain test level, it is deemed to have failed that level.

(continued)

- As a further safeguard for recyclability, a safety factor of 5 is applied when calculating the maximum dispersion of any innovation tested at a level of 25% or lower, *i.e.,*
  -- Innovations passing all criteria at 2% have a maximum dispersion of 0.4%.
  -- Innovations passing all criteria at 10% have a maximum dispersion of 2.0%.
  -- Innovations passing all criteria at 25% have a maximum dispersion of 5.0%.
  -- Innovations passing all criteria at 50% have no dispersion limits.

- The corresponding volume (by weight) of a maximum dispersion value is calculated by multiplying the maximum dispersion percentage by the total annual North American virgin PET resin tonnage of the previous calendar year.

- Upon the prevalent use of the Model, PETRA will initiate annual third-party testing of the combined virgin PET resin stream to monitor its on-going integrity. This will include testing of industry-representative samples of the water and CSD Control Resins, as well as an industry-representative sample of all PET resin variants. The resulting data will be made available to the recycling community and other interested parties by PETRA.

- All industry-representative resin samples described in the Model will be generated by PETRA by appropriately combining samples submitted from each PETRA member representing their weighted average sales volume of the specified resin category from the previous calendar year.

###

PETRA is the industry association representing all known North American producers of PET resin. PETRA is dedicated to promoting the benefits and value of PET resin, providing accurate technical and scientific information about PET, and serving as the industry's authoritative voice on issues impacting the manufacturing and use of PET.