PETRA
PET Resin Association

FAQs: The PETRA Recyclability & Innovation Model

What is it?

The PETRA Recyclability & Innovation Model is a voluntary document that provides criteria for testing, evaluating and ensuring the recyclability of newly developed PET resins used in manufacturing PET bottles and containers.

The PETRA Model includes four parts:

- **A rigorous test protocol** to measure recyclability in terms of a resin's physical and chemical performance characteristics.

- **A dispersion assessment** (based on the test protocol results) that calculates the volume of a resin type that can safely be placed in the marketplace without compromising the overall recyclability of PET.

- **The provision of control resins** that reflect the current North American supply of water-grade and CSD-grade PET resins (for use with the test protocol).

- **Annual test monitoring** of the combined virgin PET stream to identify and quantify any changes in the virgin resin stream that might adversely impact the recyclability of PET. This provision goes into effect once the model is in prevalent use.

Why is the PETRA Model needed?

Most of today's special-use resins and innovations have a relatively low presence in the marketplace. However, recyclability guidelines still used in the U.S. require testing and assessment at much higher concentrations of 25% or 50% to minimize processing challenges to the broadest possible range of recyclers. These testing barriers can discourage the introduction of many resin improvements intended for lower consumption levels.

The PETRA Model overcomes these shortcomings by introducing testing and assessment criteria for resin innovations intended for 2% and 10% concentrations as well as the high volume 25% and 50% concentrations.

Does the PETRA Model test for the same performance criteria as existing U.S. recyclability guidelines?

Yes. All innovations are tested to the same performance criteria, although under the PETRA Model they can also be evaluated at lower concentrations. In addition, resins are given an absolute pass or fail in meeting the test criteria of the PETRA Model. This eliminates the possibility of the ambiguous "problematic" assessment that is possible under other recyclability guidelines.

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Explain the PETRA Model's additional "safety factor."

As a further safeguard for ensuring the recyclability of new resin innovations, the PETRA Model requires a safety factor of 5 be applied when calculating the maximum dispersion of resins tested at concentrations of 25% or less.

For example, a resin innovation passing the test protocol at a 10% concentration would have a maximum dispersion of only 2% of the total annual North American production of virgin PET (10% divided by the safety factor of 5 = 2%). A resin innovation passing the test protocol at a 2% concentration would have a maximum dispersion of only 0.4%.

How is the PETRA model similar to, or different from, the APR recyclability guidelines in the U.S. and the EPBP recyclability program in the EU?

The PETRA model updates the testing protocol of the APR guidelines and combines it with the EPBP's recognition of the likelihood of low-profile innovations and the need to monitor changes in the PET stream. The chart below compares the key elements of the PETRA, APR and EPBP approaches to assessing recyclability.

Benchmarks	PETRA	APR	EPBP
Only independent laboratory testing accepted	Yes	Yes	No
Unconditional pass-fail test benchmarks	Yes	No	No
Allows evaluation of innovations intended for less than 25% of market concentration	Yes	No	Yes
Requires testing for IV, filterability, melt point, solid state polymerization & color/haze plaques for all submissions	Yes	Yes	No
Protects innovator's confidential business information	Yes	Yes	No
Independent monitoring & testing of PET stream	Yes	No	Yes

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PETRA (the PET Resin Association) is the industry association representing all known North American producers of PET (polyethylene terephthalate) resin.

PETRA is dedicated to promoting the benefits and value of PET and PET resin products, educating the public about the safety and uses of PET, providing accurate technical and scientific information about PET, encouraging the recycling and sustainable use of PET, and serving as the industry's authoritative voice on issues impacting the manufacture and use of PET resin.