

## Technology Brief

# APPLIED ENGINEERING TOOLS FOR RECYCLING: TARGETING PLASTICS MANUFACTURERS FOR CONVERSION TO RECYCLED PLASTICS

This technology brief introduces an applied engineering tool for identifying and targeting plastics manufacturers with the capability to incorporate secondary, recovered plastics into manufacturing processes and products.

The guidelines provide a structured technique to target the best conversion candidates among the plastics manufacturers in a given geographic region. The tool addresses how to prioritize the many economic and technical considerations involved.

The scope of these guidelines reflect current applications for commonly recycled plastics that are currently generated in significant volumes, specifically:

- Bottle-Grade Polyethylene Terephthalate (PET);
- Bottle-Grade High Density Polyethylene (HDPE) - Natural and Pigmented;
- Film-Grade Low Density Polyethylene (LDPE) and Linear Low Density Polyethylene (LLDPE);
- Injection-Grade Polystyrene (PS) and Expanded Polystyrene (EPS);
- Bottle-Grade Polyvinyl Chloride (PVC);
- Injection-Grade Polypropylene (PP); and
- Film-Grade HDPE.

The tool provides practical background information



### Key Words

**Materials:** Recyclable plastics.

**Technologies:** Various.

**Applications:** Plastics manufacturers with potential ability to incorporate recycled plastics into manufacturing processes and products.

**Abstract:** This applied engineering tool provides a structured method for identifying and targeting recycled plastics conversion projects.

related to using recycled resins in plastic products. This discussion specifies the various grades of the targeted resins and their fitness for use in different end-products, as well as in different plastics manufacturing processes. The different processes discussed include blow molding, injection molding, blown film extrusion, multi-layer processes, extrusion profile, extrusion-sheet or cast film, and rotational molding.

The remainder of the tool focuses on the following two procedures for targeting conversion projects:

- Developing a survey to target manufacturers for conversion to recycled material; and
- Analyzing and prioritizing survey results to determine high probability candidates.

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