Technical Data

Plastic Properties of Typically Recycled Plastics

POLYETHYLENE TEREPHTHALATE (PET)

PET is a thermoplastic polymer resin which is the most common material used for plastic beverage bottles. In its natural state, PET is clear and rigid, making it a popular choice for companies who want the appearance of a glass container, but the lightweight advantages of plastic.

Advantages:
Clear
Lightweight
Moderate—high rigidity
Good oxygen and carbon dioxide barrier
High impact resistance
Good cold resistance
Resistant to most alcohols and solvents

Disadvantages:
Poor resistance to acids
Recommended max fill temp 145°F

High Density Polyethylene (HDPE)

HDPE a moderately rigid thermoplastic resin which is naturally translucent, but depending on application, can be colored. Commonly used for shampoo/soap bottles, pill bottles, supplements, windshield wiper fluid and laundry detergent.

Advantages
Excellent moisture barrier
Excellent impact resistance
Excellent cold resistance
Resistant to most acids and bases

Disadvantages
Poor oxygen barrier
Poor resistance to solvents and oils

POLYVINYL CHLORIDE (PVC)

PVC is a clear, highly rigid thermoplastic resin which is commonly used for chemical packaging as well as other applications including, pipes, gutters and house siding. PVC is durable and can withstand many chemical and mechanical stressors.

Advantages
Good oxygen barrier
Good impact resistance
Resistant to most alcohols
Resistant to most acids

Disadvantages
Fair moisture barrier
Poor resistance to sunlight
Fair resistance to cold

LOW DENSITY POLYETHYLENE (LDPE)

LDPE is a very flexible thermoplastic resin which is naturally translucent. Common uses include squeeze applications, such as eye-drop bottles and glue bottles.

Advantages
Excellent impact resistance

Excellent resistance to cold
Good moisture barrier

Disadvantages
Poor oxygen barrier
Poor resistance to solvents and oils.

POLYPROPYLENE (PP)

Polypropylene is a translucent, moderately rigid thermoplastic resin. Common uses include food service jugs, reusable plastic containers, living hinges, and closures.

Advantages
Good moisture barrier
Withstand temperatures up to 212°F
Good resistance to acids
Good resistance to alcohols
Good resistance to bend breakage

Disadvantages
Poor oxygen barrier
Poor resistance to solvents and oils
Fair impact resistance

POLYSTYRENE (PS)

Polystyrene is a thermoplastic resin which can either be clear and highly rigid, or foamed. Common uses include clamshell food containers, packaging peanuts and disposable flatware.

Advantages
Lightweight
Rigid

Disadvantages
Poor impact resistance
Poor resistance to cold
Fair—poor moisture barrier

Other

Any plastic other than the 6 aforementioned resin types fall into this miscellaneous category. One plastic found in the “Other” category is Polycarbonate (PC) which is made with BPA (Bisphenol A). Plastics made from bio-based polymers, such as corn starch

also fall under this catchall category. Other than bio-based plastics which are compostable, and marked as such, plastics falling into the #7 category are not generally recycled.