








## Adhering Labels to Plastic Containers

Understanding the differences between types of plastic will help you make better decisions in choosing an adhesive so that you have good adhesion during the shelf life of the bottle.

Plastics		Surface Energy	Uses	General Purpose						Special Permanent								
				PUREtac®	MP880	710VHP	ST-95	InFusion®	PUREapply®	910	640AT	733	MP238	MP690	705VHP	XT100	CHILL AT®	CHILL AT EXTREME
			Adhesive Type	Rubber Based	Acrylic Based	Rubber Based	Acrylic Based	Rubber Based	Rubber Based	Acrylic Based	Acrylic Based	Rubber Based	Acrylic Based	Acrylic Based	Rubber Based	Acrylic Based	Rubber Based	
			Min. App. Temp. °F	32	40	20	25	20	10	25	-20	0	25	50	20	32	-10	-10
			Min. Service Temp. °F	-50	-65	-65	-75	-65	-50	-75	-65	-65	-40	-40	-65	-75	-65	-65
			Max. Service Temp. °F	160	350	150	200	150	175	200	200	150	257	300	150	200	150	150
 <b>PET</b> (Polyester)	High	· Water and Pop Bottles · Microwavable Packaging · Mouthwash and other Health & Beauty Bottles · Salad Dressing and Peanut Butter Containers	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	✓	+	✓	✓
 <b>HDPE</b> (Treated* High Density Polyethylene)	Untreated — Low Treated — High	· Milk Jugs · Laundry Detergent and Household Cleaner Bottles · Shampoo, Lotion and Deodorant Bottles · Motor Oil Bottles	✓	■	✓	■	✓	✓	✓	■	■	+	■	+	✓	+	✓	✓
 <b>PVC</b> (Vinyl)	Medium	· Cooking Oil Bottles · Clear Food Packaging · Window Cleaner Bottles	✓	+	✓	+	✓	✓	✓	+	+	+	✓	+	+	+	✓	✓
 <b>LDPE</b> (Treated* Low Density Polyethylene)	Untreated — Low Treated — High	· Squeezable Bottles · Clamshell Packaging or Frozen Food · Bread Bags · Shrink Wrap & Stretch Film	✓	■	✓	■	✓	✓	✓	■	■	+	■	+	✓	+	✓	✓
 <b>PP</b> (Polypropylene)	Untreated — Low Treated — High	· Margarine and Yogurt Containers · Health & Beauty Lotion Containers · Ketchup Bottles · Bottle Caps & Lids	✓	■	✓	■	✓	✓	✓	■	■	+	■	+	✓	+	✓	✓
 <b>PS</b> (Polystyrene)	Medium	· Carryout Food Containers · Disposable Cups and Plates · Aspirin Bottles · Egg Cartons	✓	+	✓	+	✓	✓	✓	+	+	+	✓	+	✓	+	✓	✓
 <b>Other</b> (Polycarbonate and other plastics)	High (Polycarbonate only)	· Three- and Five- Gallon Juice & Water Bottles · DVDs · Computer Cases	✓	✓	✓	+	✓	✓	✓	+	+	+	+	+	✓	+	✓	✓

✓ Highly Recommended

+ Recommended

■ Testing recommended

\* Surface Energy - The key to good adhesion of a pressure sensitive label.

Surface energy is critical to achieving good wet-out and adhesion of a pressure sensitive label. Surface tension can't be directly measured but can be approximated by determining the wetting tension in dynes/cm. The higher the wetting tension, or "dyne level", the better the label adhesion will be. Wetting tension of low surface energy plastics, like PP, HDPE and LDPE, can be increased with additional processing. Corona treatment and flame treatment are the two most common processes used to increase the surface energy of plastic containers.

The above chart includes general characteristics and comparisons on Mactac adhesives. The information is for reference only. Customer or end user should always test for suitability of a product for a given application. Results may vary with substrate variances, dwell time, shape of structure, environmental conditions, etc. Contact Mactac for samples and to discuss your specific application.





## Mactac® Adhesive Guide for Plastic Containers

There are a lot of different plastics with different properties and, in many cases, they need different adhesives.