

Plastics properties and chemical resistance

LDPE (Low Density Polyethylene)

- Translucent naturally flexible polymer
- Temperature range of -50 to +80°C
- Not autoclavable
- Good to excellent chemical resistance
- Robust and virtually unbreakable
- Used for wash bottles, storage bottles, transfer pipettes, vials

Excellent resistance (**no attack**) to dilute and concentrated Acids, Alcohols, Bases and Esters.

Good resistance (**minor attack**) to Aldehydes, Ketones and Vegetable Oils.

Limited resistance (**moderate attack** suitable for short term use only) to Aliphatic and Aromatic Hydrocarbons, Mineral Oils and Oxidizing Agents.

Poor resistance and **not recommended** for use with Halogenated Hydrocarbons.

quick facts
 Maximum Temperature: 176°F (80°C)
 Minimum Temperature: -58°F (-50°C)
 Autoclavable: No
 UV Resistance: Poor
 Translucent with Excellent flexibility
Recycling Code: 4



HDPE (High Density Polyethylene)

- Translucent rigid polymer
- Temperature range of -100 to +120°C
- Not autoclavable
- Good to excellent chemical resistance
- High impact resistance
- Used for storage bottles, containers and jars

Excellent resistance (**no attack**) to dilute and concentrated Acids, Alcohols and Bases.

Good resistance (**minor attack**) to Aldehydes, Esters, Aliphatic and Aromatic Hydrocarbons, Ketones, Mineral and Vegetable Oils.

Limited resistance (**moderate attack** and suitable for short term use only) to Halogenated Hydrocarbons and Oxidizing Agents.

quick facts
 Maximum Temperature: 248°F (120°C)
 Minimum Temperature: -148°F (-100°C)
 Autoclavable: No
 UV Resistance: Poor
 Translucent and Rigid
Recycling Code: 2



PP (Polypropylene)

- Translucent rigid polymer
- Temperature range 0 to +135°C
- Autoclavable (repeatedly)
- Good to excellent chemical resistance
- Impact resistant
- Used for beakers, bottles, cylinders and screw closures

Excellent resistance (**no attack**) to dilute and concentrated Acids, Alcohols, Bases and Mineral Oils.

Good resistance (**minor attack**) to Aldehydes, Esters, Aliphatic Hydrocarbons, Ketones & Vegetable Oils.

Limited resistance (**moderate attack** and suitable for short term use only) to Aromatic and Halogenated Hydrocarbons and Oxidizing Agents.

quick facts
 Maximum Temperature: 275°F (135°C)
 Minimum Temperature: 32°F (0°C)
 Autoclavable: Yes
 UV Resistance: Poor
 Translucent and Rigid
Recycling Code: 5



PMP (Polymethylpentene)

- Transparent rigid polymer
- Temperature range 0 to +145°C
- Autoclavable
- Good to excellent chemical resistance
- Glass like clarity
- Used for transparent beakers and cylinders

Excellent resistance (**no attack**) to dilute and concentrated Acids, Alcohols, Bases and Mineral Oils.

Good resistance (**minor attack**) to Aldehydes, Esters, and Vegetable Oils.

Limited resistance (**moderate attack** and suitable for short term use only) to Aliphatic and Aromatic Hydrocarbons, Ketones and Oxidizing Agents.

Poor resistance **not recommended** for use with Halogenated Hydrocarbons.

quick facts
 Maximum Temperature: 293°F (145°C)
 Minimum Temperature: 32°F (0°C)
 Autoclavable: Yes
 UV Resistance: Poor
 Clear and Rigid
Recycling Code: 7



PS (Polystyrene)

- Transparent rigid polymer
- Temperature range -10 to +70°C
- Not autoclavable
- Moderate chemical resistance
- Brittle yet has excellent clarity
- Used for petri dishes, pipettes and container ware

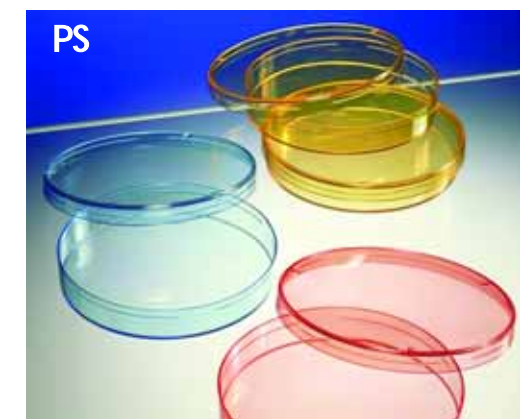
Excellent resistance (**no attack**) to dilute Acids, Alcohols, Bases and Mineral Oils.

Good resistance (**minor attack**) to Vegetable Oils.

Limited resistance (**moderate attack** and suitable for short term use only) to concentrated Acids.

Poor resistance **not recommended** for use with Aldehydes, Esters, Aliphatic, Aromatic and Halogenated Hydrocarbons, Ketones and Oxidizing Agents.

quick facts
 Maximum Temperature: 158°F (70°C)
 Minimum Temperature: 14°F (-10°C)
 Autoclavable: No
 UV Resistance: Good
 Clear and Rigid
Recycling Code: 6

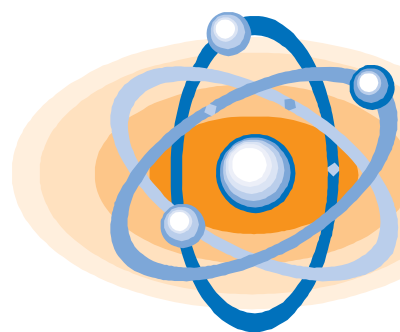


Ask **STEVE Y**

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Reagent	LDPE	HDPE	PP	PMP	PVC	PC	PS	SAN	ABS	PMMA	PTFE	PFA	E-CTFE
Temperature °C	20 50	20 50	20 50	20 50	20 50	20 50	20 50	20 50	20 50	20 50	20 50	20 50	20 50
Temperature °F	68 122	68 122	68 122	68 122	68 122	68 122	68 122	68 122	68 122	68 122	68 122	68 122	68 122
Acetic Acid	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Acetone	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Ammonium Chloride (10%)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Ammonium Hydroxide (28%)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Boric Acid (10%)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Calcium Hydroxide (Saturated)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Chloroform	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Citric Acid	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Ethyl Alcohol	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Formaldehyde (Formalin)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Formic Acid (50%)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Formic Acid (100%)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Fuel Oil	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Glycerine (Glycerol)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Hydrochloric Acid (5%)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Hydrochloric Acid (35%)	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●	●●

- Excellent resistance
- Good resistance
- Limited resistance
- Not recommended
- No information

This chart gives general guide lines only on the chemical resistance of plastics. There are many factors which influence chemical resistance, always test for your own application before selecting the appropriate product.